



Western Cape
Government

Health



Annual Report 2016
Tygerberg Hospital

Tygerberg Hospital

Annual Report 2016

Vision, Mission & Values

Vision

Access to person-centred quality care

Mission

We undertake to provide equitable access to quality health services in partnership with the relevant stakeholders within a balanced and well-managed health system to the people of the Western Cape and beyond.

Values

The core values of the Department are:

- Innovation
- Caring
- Competence
- Accountability
- Integrity
- Responsiveness
- Respect

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Head of Western Cape Health Dr Beth Engelbrecht

Running a Health Department and a large hospital like Tygerberg is a challenging and character-building experience, especially during a period of power shedding, the country being declared as junk status from investment perspective, economic recession, increasing socio-economic ills, claims of state capture, and recently the major water scarcity due to unprecedented low rainfall. Difficult decisions need to be taken due to an imbalance of reducing resources and growing burden of disease. Staff carry the brunt of these imbalances. The question is how the Department responds in such a reality.



Dr Beth Engelbrecht

Our philosophy is not to be a victim of circumstances, but to take charge, to keep the focus on our vision, and rather use these major challenges as opportunities.

Our 2030 vision aims to add public value of longevity through improved health outcomes and person-centered experience. It requires a resilient health system with elasticity against the stressors and strains of our operating environment. Our values of innovation, caring, competency, accountability, integrity, responsiveness and respect are foundational in what we do. The key levers in our transformation strategy towards the promises of Healthcare (HC) 2030 include service transformation with models focusing on increasing wellness, collaborative care, clinical leadership and clinical governance; good governance with both an internal and external focus; and leadership development dispersed throughout the organisation, driving a culture change towards an endearing culture of care and kindness, of teamwork and accountability.

We have made progress and I wish to highlight a few developments:

1. A management efficiency and alignment project (MEAP) that allows us to relook at management structures' alignment and efficiency, in support of frontline service delivery. More than 1 800 staff were consulted during this process.
2. A leadership behaviours charter resulting from consulting more than 500 staff members.
3. A leadership development strategy outlining the range of competencies required of individuals, teams as well as system capabilities.
4. The start of a transformative service design and clinical leadership approach.
5. Clarity about the culture change strategy.

The question might be so what does all of this mean for Tygerberg Hospital (TBH)? TBH is an integral part of the metro east and of rural health services. Its connectedness is along the whole referral system that aims to bring the most appropriate patients, and ensure effective care to prevent the need for highly specialised care. Strengthening the health system is everyone's business. The exceptional example of the orthopaedic and emergency teams to strengthen the interface with Khayelitsha Hospital is commendable. This signals the critical role of clinical leadership along care pathways.

Students find themselves in these environments, understanding the reality of limited resources, and putting the patient at the centre.

I wish to thank every staff member for the amazing contributions you make to add public value and keep the patient at the centre of our concern. My appreciation also to Dr Erasmus and the management team, the Health Sciences Faculty. You make us proud.

Chief Executive Officer Dr Dimitri Erasmus

Tygerberg Hospital continues to play an important role in the delivery of specialised and highly specialised services to the people of the Western Cape and beyond. The Hospital plays a significant role in system strengthening and outreach, and is a referral base for the drainage areas of Metro East, West Coast, Cape Winelands and Overberg.

It is an integral part of the teaching and training platform for the training of health professionals for the four universities, namely Stellenbosch University, University of Cape Town, University of the Western Cape and Cape Peninsula University of Technology. The Hospital remains an institution of academic excellence through its key strategic partnership with the Faculty of Medicine and Health Sciences of Stellenbosch University.

During the year under review, the hospital faced significant challenges with respect to infrastructure constraints and escalating service pressures as a result of population growth and the burden of disease profile, with particular relevance to Metro East.

This annual report reflects the activities and achievements for the year 2015/16.

The service outputs were as follows:

Inpatient separations = 76 015

Outpatient headcount = 324 343

Bed occupancy rate = 87%

Number of operations = 30 839

Number of new-borns delivered = 7 520

The total expenditure for the 2015/16 year amounted to R2 451,2m

During this period the following key staff members retired:

- Professor A.R. Coetzee: Executive Head of Anaesthesiology and Critical Care
- Professor G.B. Theron: Executive Head of Obstetrics and Gynaecology
- Professor B.L. Warren: Executive Head of Surgical Sciences
- Professor H.B. Hartzenberg: Head of the Division of Neurosurgery
- Professor A.S. Schaik: Head of the Division of Paediatric Surgery
- Dr R.R. Thomson: Manager Medical Services

Their contribution to Tygerberg Hospital is greatly appreciated and I wish them well in their retirement.



Dr Dimitri Erasmus

The following key appointments were made:

- Prof D Meyer – Executive Head Surgical Sciences
- Prof E Steyn – Head of the Division of Surgery
- Prof H Reuter – Executive Head Clinical Pharmacology
- Prof H Simonds – Head of the Division of Radiation Oncology
- Professor A.I. Levin: Executive Head of Anaesthesiology and Critical Care
- Professor M.H. Botha: Executive Head of Obstetrics and Gynaecology
- Associate Professor I. Vlok: Head of the Division of Neurosurgery
- Associate Professor B. Banieghbal: Head of the Division of Paediatric Surgery
- Dr R. Mistry: Manager Medical Services
- Mr T Mabuda: Senior Nurse Manager

I wish them well in their careers and look forward to the contributions they will make to Tygerberg Hospital.

I wish to express my sincere appreciation to all the staff for their dedication and commitment which has culminated in the achievements and activities as reflected in this annual report.

FINANCE

Director Mr Toufeak salie

The funding streams for Tygerberg Hospital, the single biggest health facility in the Western Cape, are secured from:

- R 1 203 288m NTSG (specialised tertiary services)
 - R 141 225m HPDTG (professional training)
 - R 1 252 377m Provincial Equitable Share
 - R 7 054m Special Funding
- R2 603 945m**



Mr Toufeak salie

An overview of the Hospital's Annual Financial Results: 2016/2017

Expenditure

	YR BUDGET %	YE ACTUAL	VARIANCE	
Expenditure	R2 603,945m	R2 610,319m	-R6,375m	-0,2%

The results achieved to provide ever demanding patient care (specialist and generalist care), professional training and medical research with the limited financial resources. The **R6,4m** actual expenditure overrun of the budget is less than a percentage point. This slight overspent, notwithstanding major challenges the hospital faced during the year due to continuous patient load pressures, burden of disease and the burden of unfavorable economic factors (international and local), relating to currency exchange rates, interest rates, and the high Health Inflation Index.

Revenue

	TARGET	ACHIEVED	SURPLUS	%
Revenue	R121,1m	R154,8m	R33,7m	27,9%

The main revenue inflows continues to emanates from the Road Accident Fund, Medical Aid Schemes, state departments and individual patients. The revenue inflows above target, resulted in a total over-recovery of **R33,716m (27,9%)** against the 2016/2017 target of R121,048 m. Tygerberg Hospital realises the most revenue and is the highest achiever in the Department of Health.

An explanation of the expenditure results:

1. Staffing and Personnel Expenditure:

PERSONNEL EXPENDITURE	YR BUDGET	YE ACTUAL	VARIANCE	%
Persal Staff	R1 733,331m	R1 746,725m	-R13,394m	-0,77%
Joint Staff	R62,433m	R56,800m	R5,633m	9,02%
Agency Staff	R22,903m	R21,767m	R1,136m	4,96%
TOTAL	R1 818,667m	R1 825,292m	-R6,625m	-0,36%

Hospital staff stabilised at **4 458** as at year end March 2017. Nursing posts made up **44,2%** (1 970) and doctors **12,73%** (548) of total staff. The APL was managed at a filled post rate of **94,11%** against a target of **94,56%**.

The general salary adjustments has all been accounted for.

The need to utilise substantial nursing agency staff during the year remains a necessity due to the national shortage of nurses. Nursing utilised at a monthly average of **54 agency FTEs**. The strategic position is rather to have full-time nursing equivalents appointed. However, on average per month, **2 132** Nursing FTE's (filled, agency, overtime) were employed during the year.

2. Goods and services (excludes agency cost):

	YR BUDGET	YE ACTUAL	VARIANCE	%
Goods and Services	R772,789m	R765,256m	R7,533m	1,0%

Direct medical/surgical consumables with regards to patient care needs, resulted in the overspent.

Major expenditure comparative spending trends:

CATEGORY	ACTUAL 2013/2014	ACTUAL 2014/2015	% >
CLINICAL CONSUMABLES			
Laboratory Service	R80,5m	78,3	-2,7
Pharmaceuticals	R75,6m	93,7	23,9
Blood & Blood Products	R68,6m	68,9	0,4
Medical/Surgical Consumables	R277,0m	266,2	-3,9
Other Goods and Services			
Support Services	R71,1m	66,1	-7,0
Steam, Gas, Energy and Utilities	R68,6m	62,2	-9,3
Engineering and Service Maintenance	R56,4m	80,9	43,4
Remainder	R24,2m	27,2	12,4
	R722,0m	743,5	3,09

Patient activities movements experienced in relationship to the previous financial years..

PATIENT ACTIVITY	2012/2013	2013/2014	2014/2015	% >
PDE's	565 883	567 112	563 481	0,64
Admission	70 122	68 766	65 852	4,24
Patient Days	433 313	437 274	435 155	0,48
OPD Headcount	337 920	329 451	351 336	-6,64

Cost per PDE concluded at R4 638 against the target of R4 591 due to increase in expenditure.

3. Capital equipment:

Tygerberg Hospital Capital Equipment Funding Sources

3.1 Tygerberg Hospital Capital Funds R31,075m

The main items prioritised for capital equipment:

- Medical and Allied Equipment – R28,353m
- Computer Hardware – R2,403m new and refresh of old IT hardware
- Domestic Equipment and Furniture – R0,319m

3.2 Health Technology (Programme 8) R25,619m

- Roll over from 2015/2016 R0,038m
- Ward furniture upgrade R5,904m
- Cath Lab project R10,197m
- Medical Equipment for C1D West R9,480m

3.3 Smaller Equipment Items R2,830m

Mostly medical instruments, office furniture, workshop tools and kitchen appliances

Year after year the hospital is making significant inroads in addressing the replacement of obsolete and outdated equipment with the acquisition of new modern high-tech medical equipment.

3.4 Donation Funding R0,925m

- Bronchoscope – R0,450m
- 20 x Wheelchairs – R0,164m
- Dermatone – R0,163m
- Billirubimeter – R0,046m
- Syringe Pumps – R0,024m

4. Salient Features

- The Department of Health again received an unqualified audit finding for the financial year 2016/2017, the 13th year in a row. In addition, a clean audit finding for Finance and Supply Chain was achieved
- ICD coding for all inpatients average in all disciplines 88,3% and outpatients 96,9% achieved
- Special Funding:
 - Cochlear Implants: 16 external/internal sets and 9 external devices bought plus additional 2 external/internal and 4 external devices forward buy
 - Hearing Aids: 639 new devices bought
 - TAVI operations: 11 and an additional 10 forward buy

- The Consumables Stores carries R40,30m and Pharmacy R30,3 value of stock
- The hospital is responsible to manage R659,670m (49 122) worth of assets in the hospital
- Tygerberg Hospital continues to provide an administrative training and development centre for interns/students from colleges and EPWP appointees
- The successful adherence and compliance to the Treasury Prescripts resulted in only R0,223m irregular expenditure at Pharmacy due to no alternative medication/suppliers; a 94,4% payment rate of accounts within 30 days
- Concluded 25 formal bids in respect of equipment, service contracts and consumables

5. Way Forward Financial Year: 2017/2018

The Budget Allocation for the financial year 2017/2018:

	FY: 2016/2017 R'000	FY: 2017/2018 R'000	%
Compensation of Employees	1 795,764	1 939,217	8,0
Goods and Services	772,789	815,185	5,5
Transfer Leave	7,017	7,508	7,0
Machinery and Equipment	28,375	21,774	-23,3
Total	2 603,945	2 783,684	6,9%

Sources of Funding streams

	2014/2015 R'000	2015/2016 R'000	INCREASE R'000	%
NTSG	1 203,289	1 256,502	53,213	4,4
HPDTG	141,225	174,907	33,682	23,8
Provincial Equitable Share	1 252,377	1 345,476	93,099	7,4
Special Funding	7,054	6,799	-0,255	-3,6
Total	2 603,945	2 783,684	179,739	6,9

The amount of R6,799 m allocated in the budget is for Cochlear Implants R4,823m and Hearing Aids Devices R1,976m.

The amounts that have been set aside in Programme 8 Health Technology budget:

- Ward furniture upgrade R 0,796m
 - C1D West project R 2,000m
 - Capital Equipment R25,745m
- R28,541m**

The 6,9% nominal budget increase does not positively impact in real monetary terms to deliver current patient care demands.

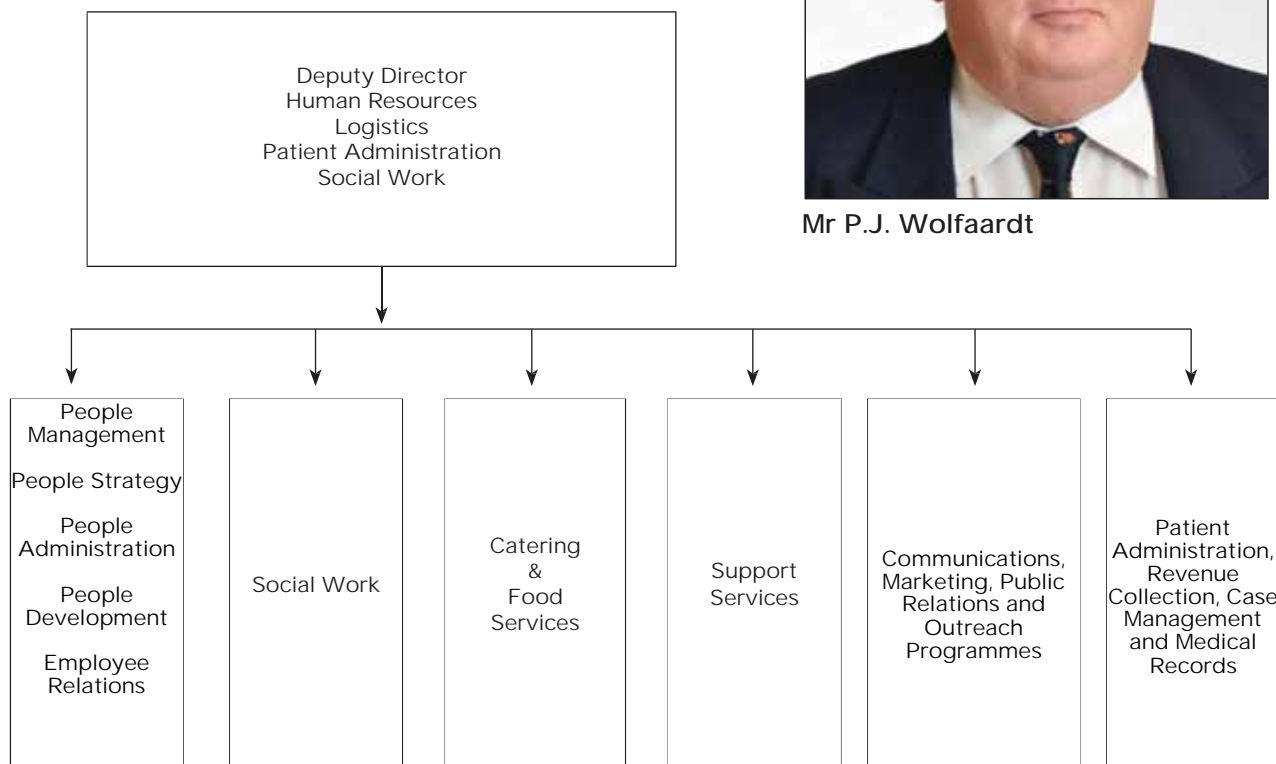
Innovative approaches are required from all to maintain an acceptable level of patient care within the limited resources.

ADMINISTRATION

Deputy Director
Mr P.J. Wolfaardt



Mr P.J. Wolfaardt



Below is an overview of responsibility areas.

People Management

The establishment of Human Resource Management was suitably filled during this period.

RANK	FILLED	VACANT	TOTAL
Assistant Director	1	1	0
Senior Admin Officer	5	0	5
Admin. Officer	5	1	6
Senior Admin Clerk	23	4	27
Total	34	5	39

Detail of Staff Exiting

Nature	Administration	Professionals	Technical	Nursing	General
Resignations	13	42	12	112	31
Dismissals	2	0	2	0	4
Ill Health	1	1	1	1	6
Retirement 65	2	2	1	2	2
Early Retirement	11	1	2	29	7
Deceased	1	0	0	2	2
Transfers out	2	11	0	3	2
Contract expiry	1	137	12	10	0
Totals	36	197	32	171	56

Statistical Analysis

- Number of Incapacity Leave and Ill-Health Retirement applications **SUBMITTED** to the Health Risk Manager during (January – December) 2016.

	2013 – 2015 Sick Leave Cycle	2016 – 2018 Sick Leave Cycle
Short Incapacity	0	197
Long Incapacity	0	34
Ill-Health Retirement (continue submitting to Head Office)	0	10
Total	0	241

- FINAL OUTCOMES** of applications received during (January – December) 2016 finalised by the Health Risk Manager

	2013 – 2015 Sick Leave Cycle		2016 – 2018 Sick Leave Cycle	
	Approved	Declined	Approved	Declined
Short Incapacity	0	0	130	36
Long Incapacity	0	0	24	1
Ill-Health Retirement	0	0	10	1
Total	0	0	164	38

3. Deviation from the Health Risk Manager and grievances received from employees for the (December) 2016.

	DEVIATIONS		GRIEVANCES	
	13 - 15	16 - 18	13 - 15	16 - 18
Short Incapacity	0	0	0	20
Long Incapacity	0	0	0	0
Ill-Health Retirement	0	0	0	0
Total	0	0	0	20

HRM: People Management

Assistant Director: C. Lindsay

Approved Staff Complement

Rank	No of Posts	Filled	Vacant/ no t	Comments
Assistant Director	1	1	0	POSTS IN PRINCIPLE (Not Funded) 1 x Snr Admin Officer (Establishment) 1 x Admin Officer (Establishment) 2 x Admin Clerk (R&S Office) 1 x Admin Clerk (SPMS) 1 x Admin Clerk (Establishment)
Senior Administrative Officer	4	3	1	
Administrative Officer	3	2	1	
Administrative Clerk	11	7	4	
Total	19	13	6	

Recruitment and Selection

Statistics for the period 1 JANUARY 2016 – 31 DECEMBER 2016:	
Total posts advertised	114 (includes block adverts for Nursing, Medical & Allied Health)
Total interview meetings	142 (includes block advert interview meetings)

Total appointments made:	
524 Appointments (excludes Sessional Appointments)	
01 and 02 PERMANENT APPOINTMENTS / ON PROBATION	307
05 CONTRACT APPOINTMENTS	210
06 PART TIME 5/8	7

TBH Sector Savings: Personnel Expenditure December 2016

5.1 TYGERBERG HOSPITAL BMI-APL-TOOL			
Month	APL Budget	Actual BMI Expenses	Surplus
APR 2016	136 586	140 563	(3 976)
MAY 2016	136 825	140 129	(3 304)
JUN 2016	137 589	140 028	(2 439)
JUL 2016	138 562	139 343	(781)
AUG 2016	137 509	138 930	(1 421)
SEPT 2016	138 242	139 297	(1 055)
OCT 2016	137 727	139 057	(1 330)
NOV 2016	137 343	138 075	(732)
DEC 2016	137 564	139 915	(2 351)
JAN 2017	137 085		
FEB 2017	137 020		
MAR 2017	137 254		
	1 649 305	1 255 337	

Establishment Control

The Approved Post List (APL) as at 31 December 2016 was as follows:

Sub Group	Cost Per Post (R'000)	2016/2017 Approved Number Of Posts	Sub Group	Cost Per Post (R'000)	2016/2017 Approved Number Of Posts
Management SL 09-10	448	18	Clinical Psych Comm Serv	512	0
Management SL 11-12	758	6,75	Clinical Psych Intern	473	3
Management SMS	1 362	2	Clinical Psychologist G1-3	787	5,25
Medical Clinical Head	2 036	27	Dieticians G1-3	429	15
Medical Clinical Manager	1 693	0	Envir Health Off SL 06-10	381	0
Medical Interns	571	84	Health Promotor SL 03-7	224	0
Medical Non-Clin Man	1 312	6	Occ & Ther Man/Co-ordinator	518	6
Medical Officer Comm Serv	761	0	Occ Therapy Assistants	261	5

Medical Officer Grade 1-3	1 026	95,25	Occupational Therapy G1-3	350	11
Medical Specialist Gr 1 - 3	1 434	95,88	Optometrist G1-3	383	0,75
Med Sub-Specialist Gr 1 – 3	1 694	39	Oral Hygienist G1-3	423	0
Pharmacology SL 11-12	1 632	1	Pharmacy Assistants	245	17
Registrar	979	234	Pharmacy Comm Serv	381	2
Registrar Snr	1 269	16	Pharmacy G1-3	672	22,75
Nurses: Prof Gen	329	451	Pharmacy Intern	289	4
Nurses: Prof Gen Comm Serv	238	30	Physiotherapists Assistants	247	0
Nurses: Prof Spec	514	351,50	Physiotherapists G1-3	373	14
Nurses: Staff	221	427	Physiotherapists Manager	532	5
Nursing Assistants	184	822	Radiographers G1-3	416	88,38
Allied Health Comm Serv	263	8	Radiographers Manager	542	23

Sub Group	Cost Per Post (R'000)	2016 Approved Number Of Posts	Sub Group	Cost Per Post (R'000)	2016 Approved Number Of Posts
Social workers Assistant	235	0	Handymen SL 03-6	187	20
Social workers G1-4	392	19	Indust/Eng Tech Production	394	18
Social workers Manager	570	4	ASOs SL 01-7	230	11
Speech Therapy G1-3	355	6,63	Domestic SL 01-6	147	489
Speech Therapy Manager	530	6,63	Domestic SL 07-8	303	1
Clinical Tech Student	138	9	Domestic SL 09-10	389	2
Clinical Technologist G1-3	376	22,63	Drivers SL 02-6	162	11
Clinical Technologist Man	562	13	Food Service SL 01-6	151	115
Med Tech/Tech Officer G1-3	475	7	Food Service SL 07-8	296	7
Medical Physicist G1-3	800	5	Food Service SL 09	420	1

Medical Tech Manager	605	1	General workers SLO1-6	156	48
Orth & Pros SL06-8	181	0	Grounds SL 01-3	154	5
Orth & Pros SL09-10	546	0	Librarian SL 02-8	307	0
Specialist Scientist G1-3	706	9,63	Messengers SL 01-4	151	20
Admin SL 01-6	230	523,63	Operators SL 02-7	188	81
Admin SL 07-8	337	66	Porters SL 01-4	146	133
Registry SL 02-6	273	3	Porters SL 05	208	0
Secretaries SL 01-7	200	3	Security SL 03-6	183	26
Stores Admin SL 02-6	208	0	Security SL 07-8	297	2
Stores Admin SL 07	273	0	Telephone Exchange SL 02-6	197	16
System Controller SL 08-10	371	1	Telephone Exchange SL 07	310	1
Artisans SL 05-10	307	23	Tradesmen SL 01-3	135	27
Eng Technician Management	590	3	Typists SL 03-6	248	37
			TOTAL APPROVED POSTS	4 734,88	4 662,25

Table 1: PERMANENT PERSONNEL: Race / Gender / Disability				
CATEGORIES		TARGET	CURRENT EE	GAP
Race	African	1421	1268	153
	Coloured	1860	2229	-369
	Indian	44	49	-5
	White	701	469	232
Disability	PWD		16	
Gender	Male	2122	852	1270
	Female	1904	3163	-1259

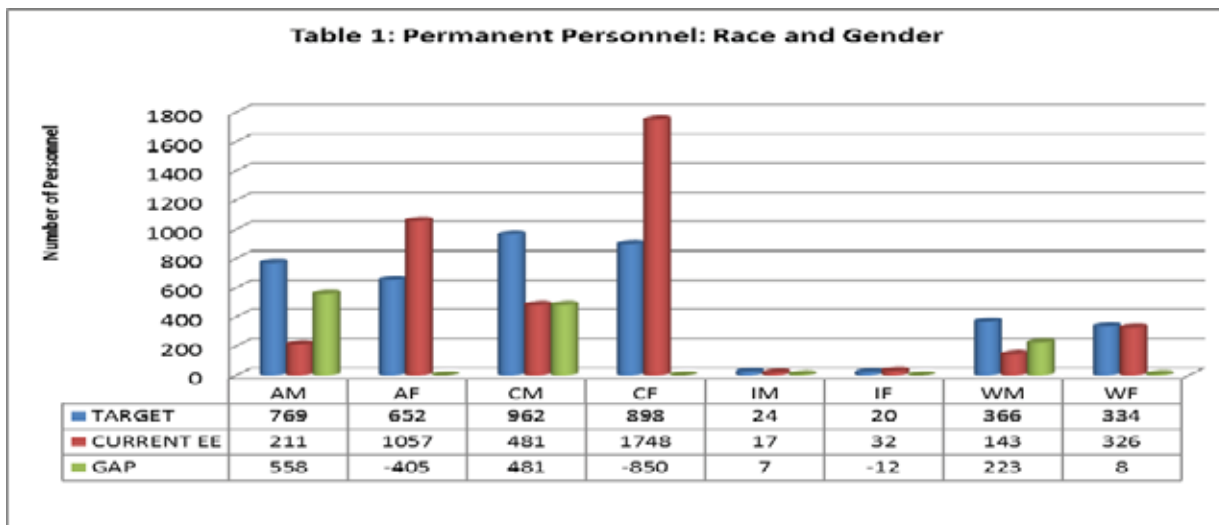
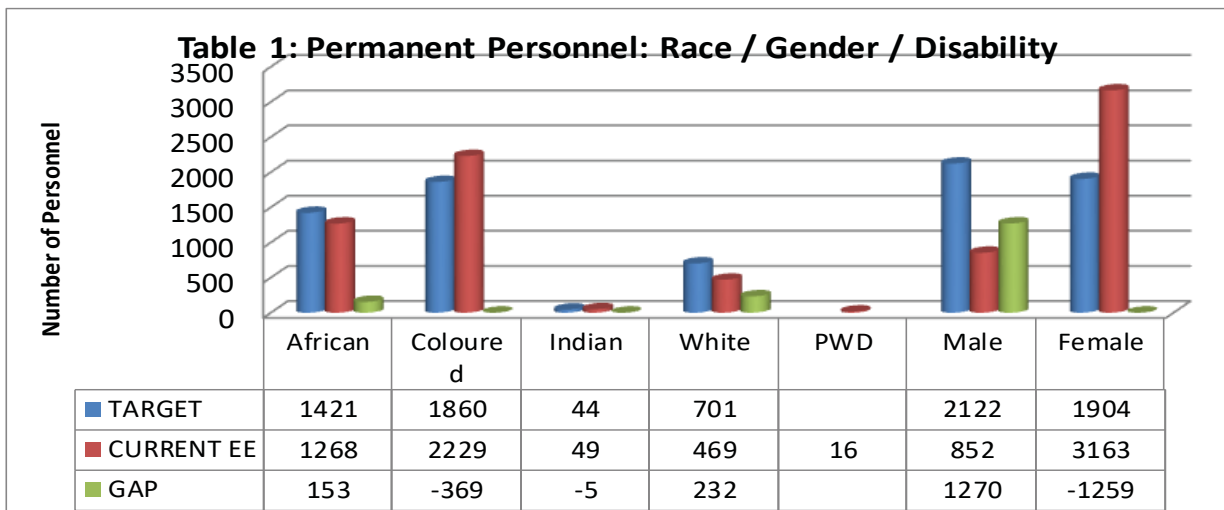


Table 1: PERMANENT PERSONNEL: Race and Gender				
CATEGORIES		TARGET	CURRENT EE	GAP
Race and Gender	African Male	769	211	558
	African Female	652	1057	-405
	Coloured Male	962	481	481
	Coloured Female	898	1748	-850
	Indian Male	24	17	7
	Indian Female	20	32	-12
	White Male	366	143	223
	White Female	334	326	8

Staff Performance Management System

The results for the 2015/2016 reporting cycle on 1 April 2016 were as follows:

Summary Per Salary Level

Salary level	Performance is Below Fully effective (0% - 99%)	Number of employees who qualify	Total number of employees in institution	Percentage employees who qualify
Levels 1-2	1	93	463	20,09
Levels 3-5	2	310	1 735	17,87
Levels 6-8	1	203	1 051	19,31
Levels 9-10	1	124	569	21,79
Levels 11-12	2	97	644	15,06
Total	7	827	4 462	18,53

Summary Per Occupational Cluster

Occupational clusters	Performance is Below Fully effective (0% - 99%)	Number of employees who qualify	Total number of employees in institution	Percentage employees who qualify
Administration	4	132	613	21,53
Medical	2	89	618	14,40
Nursing	0	327	1 946	16,80
OSD and Related	0	75	324	23,15
Support Services	1	204	961	21,23
Total	7	827	4 462	18,53

Representivity Summary (Race, Gender And Disability)

Equity	performance is Below Fully effective (0% - 99%)	Number of employees who qualify	Total number of employees in institution	Percentage employees who qualify
Coloured Male	3	105	513	20,47
Coloured Female	1	408	1 864	21,89
White Male	0	52	260	20,00
White Female	2	91	446	20,40
African Male	1	34	224	15,18
African Female	0	122	1 064	11,47
Asian Male	0	5	37	13,51
Asian Female	0	10	54	18,52
Persons with Disabilities	0	0	0	0,00
Total	7	827	4 462	18,53

Overall Staff Performance Results 2015/2016

Total Number of Employees as at 31.03.2016	4 462
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	Unsatisfactory 10%	Fully Effective 70%	Significantly above expectations 15%	Outstanding 5%	
Bell Curve	441,6	3 091	662,4	220,8	
Tygerberg Hospital	6	2 456	733	144	
Total Performance	0,16	55,61	16,60	3,26	19,86%

People Development (HRD)

1. Learnerships

1.1 Pharmacy – Post Basic Pharmacist Assistants

Fifteen (15) students (2 permanent staff members and 13 unemployed learners) started their Post Basic Pharmacist Assistant training in February 2016.

Funding: Health and Welfare Seta (HWSETA)

1.2 Pharmacy – Basic and Post Basic Pharmacist Assistants

Funding was obtained from HWSETA for training in 2017/18 for the following:

- Basic Pharmacist Assistant: 3 employed staff (18,1)
14 unemployed youth (18,2)
- Post Basic Pharmacist Assistant: 1 employed (18,1)
5 unemployed youth (18,2)

Training will start in April 2017

2. Bursaries

Summary period: 2014/16

Year	Completed	Still busy	On hold	Transferred	Total
2014	22	7	2	1	32
2015	8	13	2	2	25

Two (2) staff members of the Engineering Department were promoted and transferred to Groote Schuur Hospital after completion of their qualifications.

2016/17

Twenty-five (25) bursaries were approved.

2017/18

Thirty-four (34) Study by Assignment (SBA) bursaries was approved.

Twenty-four (24) Admin / Support and Allied Health bursary applications approved by Directorate PD: Bursary Division. Eight (8) applications was not approved due to training not being in line with job functions or staff that wanted to do Honours and Master qualifications.

People Development is administering bursaries by:

- Forwarding documents for payment to Directorate: PD Bursary Division
- Follow up with students on progress and challenges
- Request registration letters from Bursary Division

3. Adult Further Education and training (Grade 12)

2015/16			
Completed Gr 12 in 2016	Gr 12, but not meeting University criteria	No Gr 12	Total 2015/16
3	13	23	39

2016/17			
Completed Gr 12	Gr 12, but not meeting University criteria	No Gr 12	Total 2016/17
	20	45	65
Sixty-five (65) learners are registered to write exams in May/June 2017			

4. Internship

4.1 Expended Public Works Programme

Twenty (20) Data Capture Interns were on an internship at the institution. Directorate HRD Head Office extended the contracts with 12 months.

4.2 Eighteen (18)-month Experiential Students Technical Vocational Education and Training College (TVET)

Forty-six (46) students were placed to gain work-based experience in order to complete their qualification.

4.3 Six (6)-month Experiential Students CPUT students

Twelve (12) students were afforded an opportunity to do 6-month internship. On completion of the internship they will return to CPUT to continue with their qualification.

4.4 Twelve (12)-month Experiential Students UNISA

One (1) student was placed at Social Work Department to do internship as part of Social Work qualification obligations. The Intern was previously employed at Tygerberg Hospital as a General Worker: Cleaner.

4.5 Generic Interns

Forty-five (45) unemployed Matriculants were afforded an internship opportunity.

4.6 ECM

Ten (10) unemployed matriculants were afforded an internship opportunity.

4.7 Ward Carer assistants

Six (6) Home-based Care workers (NQF level 2) started an internship .

Intern summary:

The interns are placed in various departments (Patient Admin, Nursing, Social Work, HRD, HRM, Finance, IPC, Physiotherapy, Speech and Hearing, Hospital Fees, Paediatrics, OBS and Gynae, Human Nutrition, Occupational Therapy, Crèche, IMU and Medical Managers offices).

Nine (9) interns were permanent employment, four (4) contracts ended / resigned / further studies and nine (9) returned to complete their qualifications.

One (1) EPWP intern transferred to start a qualification in Basic Pharmacist assistant and one (1) Ward carer assistant resigned to start formal Nursing training.

Remaining interns: 111 and 6 ward carer assistants

5. Training

1. Workplace Skills Plan (WSP)

The Skills audit period was finalised and the Workplace Skills Plan was signed off by all stakeholders (Management, Union and Skills Development representatives). Training is ongoing as per training planner for 2016/17.

A circular informing staff of the Skills Audit for 2017/18 has been distributed.

2. Skills fund and Provincial Training Institute (PTI)

PTI training is continuing as normal.

1% skills training was planned with staff attending, training dropped due to:

- duty roster of shift workers not being adjusted when attending training
- Treasury instruction where no more refreshments was provided
- Cost savings mechanisms

3. Public Service Induction

Training for Salary Levels 6 – 12, specific Medical staff remains a challenge. Salary Levels 1 – 5 has no backlog.

Total training interventions: 3 293

Total employees trained: 1 827 (1481[81%] females, 345 [19%] males)

Percentage trained: 40% (staff establishment at 15 December 2016)

4. Evaluation of the Engineering Department

Four (4) staff members completed an evaluation programme convened by Northlink College to assess what formal qualification is needed.

6. Human Resources Development Committee (HRDC)

The HRDC is functional – meetings took place on a quarterly basis. Attendance has increased resulting in more representatives from most departments being presented. Next meeting is scheduled for February 2017.

7. Staff Wellness Programme (EAP)

Internal EAP together with ICAS had interventions. ICAS presented information sessions per department which resulted in a higher utilisation. Although Managerial refers had a slight increase, it remains a concern. Managers are encouraged to make use of Managerial refers.

A further breakdown of the utilization is depicted in the table below.

ICAS Utilisation January – December 2016					
	Jan - Mar	Apr - Jun	Jul - Sept	Oct - Dec	Total
Number of individual cases (Employees)	60	66	132	48	306
Individual cases (including dependents)	64	69	115	64	312
Group intervention participants	4	8	14	4	30
Internal EAP	75	64	0	0	139
	203	207	261	116	787
Formal cases referred	0	5	0	20	25
Managerial cases	6	16	0	11	33
High risk cases	4	1	0	4	9
Number of individual cases (Employees)	60	66	132	48	306

Training statistics of January to December 2016

Training Interventions	1st year Student	Clerks	Craft and Related Workers	Elementary Workers	Plant and Machine Operators	Professionals	Service Workers	SMS	Technicians
16 Days of No Violence Against Women and Children		3		1		5			
3 m skin integrity									1
Academy of Casting - Orthopaedic immunisation Technique Course									1
ACC Celebration Day						1			
Adolescent Anorexia Nervosa advances in treatment						1			
Advance Wheelchair Seating Clinic						1			
Advanced Basic Life Support						7			
Advanced Cardio Life Support						3			
Advanced Neonatal Life Support						35			
Advanced Paediatric Life Support						5			
Advanced seating						1			
Advanced Taylor Spatial Frame Course (TSF)						1			
Advanced Trauma Life Support						4			
Advanced Wheelchair Service Delivery						1			
Advocacy Professional Ethics and Grievance Management		1				6			4
Africa Health Expo						1			
All Africa Congress on Pharmacology & Pharmacy						1			
Allergy Society of South Africa						1			
Alternative Augmentative Communication Celebration Day						1			
AMC International Strategic Planning Meeting						1			
Anaesthetic Clinical Refresher Course						3			
Anaesthetic Refresher Course						6			
Anaesthesia & Perioperative Medicine						2			
Anaesthesia Convener's Workshop						1			
AOSpine Principles Symposium						1			
Appraisal of Journal Articles and Research						6			
Assessor		1	1				1		
Assisting with Sepsis outbreak						1			
Asthma						1			
Attachment Clinical presentation						4			
Attachment workshop (Clinical discussion)						1			
Audiology and Rehabilitation Symposium						2			
Autism Cares						1			
BAS Cash Receipts		2							
BAS Introduction		1							
BAS Journals		2							
BAS Reports		1							
BAS Sundry Payments		3							1
Basic Intensive Care Unit Course						1			
Basic Life Support						40			2
Basic Surgery Skills Course						1			
Batho Pele		23	1	18		3	2		8
Bid Evaluation Committee for Bid						1			

WCDOH									
Bioethics Seminar						2			
Breast Imaging Congress						2			
Breastfeeding Seminar						10			1
Burns and Scientific symposium						1			
Burns Nursing Symposium						5			
Burns Recovery						3			
Cadaver Workshop						1			
Caring Ethos Workshop						29			17
Casting Technician Training									1
Century Stimulation						2			2
Chairing Disciplinary Enquiries						1			
Child attachment						2			
Child Health Priorities Conference						2			
Child Psychiatry Tygerberg Services Talk						1			
Child Trauma Conference						1			
Children with problem sexual behaviours						1			
Clinical Discussion: Rotation Policy						5			
Clinical Discussion: Theory Research Workshop						5			
Clinical Waste & Sharps						3	1		6
Clinical Waste Management			11			1	4		
CMR						1			
Committee for Specialised Nutritional Products						1			
Comptia N+						2			3
Compulsory Induction Programme Level 1 - 3			3						
Compulsory Induction Programme Trainers Learning Network						1			
Conflict Management	10	1	7	1		9	4		7
Congress of the South African Heart Association (SAHA)						2			
Continual Medical Training (CMT)								1	
Core elements of Infection Control			3						
Creating A Respectful Workplace	13			1		2	2		2
Critical Care Society of SA Congress (CCSSA)						5			
Critical Incidents						1			
Customer Care	8		16	1		1	1		3
Dementia SA Workshop						1			
Diabetes in Children						8			9
Diabetic Education Training						2			3
Dress Code and Etiquette						4			17
Ear Nose and Throat / SA Speech Language Hearing Association / SA Association of Audiologists Congress (ENT/SAAA/SASLHA)						4			
Emergency Care Level 1						1			
Emergency Trolley Training						2			
Enhanced Recovery After Surgery						2			
Ergonomics for Persons with Disabilities						2			
Essential Modified Burn Care Symposium						1			
Essential Steps in the Management of Obstetric Emergencies (ESMOE)						6			
Essential Steps in the Management of Obstetric Emergencies Master training (ESMOE)						1			
Ethical Behaviour as Physiotherapists						4			

Ethics and resource allocation in healthcare						4			
Ethics in practice						4			
Ethics Workshop						1			
Etiquette and Ethics in the Public Sector		25		4	1	4	2		9
Evolution View of Depression						1			
Examiners Workshop						1			
Expanded Programme on Immunisation (EPI)						4			
Facilitation Skills		2				1			2
Family Planning Counselling						1			
Fascial Manipulation Course						1			
Fetal Scan Boot camp						1			
Figo						1			
Fire Fighting		2	4	2			1		1
First Aid Level 1		2	2	16	1	4			2
First Aid Level 2 – 3		2	4	4					
Flexor Tendon(Zone 2) OT treatment In-service Training						4			
Foetal Scan Boot camp						1			
Gender Mainstreaming						2			
General Wound Care Training						2			1
Good Clinical Practice training						1			
Government Employees Pension Fund		4		3		21	1		21
Group Dynamics		13							2
Hand Hygiene		1		21		8	2		41
Health NET Information Session		31				1			
Health Professions Education Academic Research Training (HPE)						1			
Healthcare Innovation Summit						1			
Hearing Aid						1			
Heavy Current Electrical Evaluation				2					
Hereditary breast cancer and management of Lymphedema						2			
Hip Instructional Course						1			
HIV Rapid Testing Training						4			1
Hoist training						1			
Hot Topics Seminar						2			
Hyper/Hypothyroidism						2			
Induction Programme		27	1	31	1	81	6		75
Infant Mental Health Workshop						4			
Infection Control						2			6
Infection Control for Students						3			
Infection Prevention and Control training session						15			
Infection Prevention Control and Environmental Cleaning				15					
Infection Prevention Control for Allied Health						5			
Infection Prevention Control Orientation		5	1	12		11			2
Infection Prevention Control Training						1			
Infection Prevention Control Training for support staff		1		11					
Integrated Management of Childhood Illness (IMCI) Update						2			
Integrated Procurement Solutions		1							
Intermediate Wheelchair service delivery						1			
International Leadership Conference in Healthcare		1				9		1	1
International Occupational Health and		15	3	12	1	33	1		22

Safety Day									
International Radiation Protection Association						1			
International Society of Geographical & Epidemiological Ophthalmology						1			
International Urogynecological Association (IUGA)						1			
Introduction to Junior Management	1					1	1		
Introduction to ICD 10 Coding (E-learning Module)									1
Introduction to Office Administration	32					2			1
Introduction to Pain Clinic			1			4			20
Introduction to Picture Archiving and Communications System (PACS) Administration and Management						1			
Introduction to understanding Dementia						2			
IRPA14 Congress						1			
Isolation of patients			1						
Junior Management Development Programme Block 1	5					3	2		1
Kinesiotaping						1			
Know Your Rights and Responsibilities	23		6	1		6	1		17
Labour Relations for Line Managers training	1					11	1		2
Leading Safe Choices Counselling Training						2			
Life Skills	6	1	12			6	1		13
Link Nurse Programme						31			5
Lupus Training						8			22
Maintenance Planning, Scheduling and Work Control		1							
Management of Psychiatric Emergency						1			
Management of the Burns Patient						1			1
Managing Absence in the workplace	8	1	5			8	1		6
Managing Incapacity and Poor Work Performance	2		1			7	1		2
Managing the challenges of back pain in the work place						1			
Mastering Healthcare Communication						1			
Masters Class in Laparoscopic Suturing						2			
Maternal and infant mental health						1			
Maternal Care Workshop						1			
Medical Waste Management Training	2		20	1		8	3		17
Medicine Supply Management training									1
Medtronic Awareness Day						17			37
Mentoring and Coaching for Middle Managers						3			
Misuse of GG vehicles	1	2	3	1		1			
MMC Meeting						1			
Motor Symptoms in Autism						1			
Moving Image Arts Course (MOVI)						1			
MS Access 2010 Level 1	3								
MS Access 2010 Level 2	3								
MS Access 2010 Level 3	3								
MS Adobe Photoshop Level 1	3					1			1
MS Adobe Photoshop Level 2	3					1			1
MS Excel 2010 Level 1	24	1	2			2			2
MS Excel 2010 Level 2	24	1	1			2			2
MS Excel 2010 Level 3	8	1							1
MS PowerPoint Level 1	6					1	1		2

MS PowerPoint Level 2		6				1	1		2
MS Word 2010 Level 1		26				3			1
MS Word 2010 Level 2		7				1			1
MS Word 2010 Level 3		25				3			1
Myth busting the McKenzie Method; Rapidly Reversible Back Pain						1			
National Core Standard Auditors Training Session						24			
National Radiology Congress						1			
Negative Pressure Wound Care and indications for Advanced Wound Dressing						4			6
Neonatal Resuscitation, Respiratory Distress and Jaundice						2			
Neurosurgical Management of Spasticity						1			
New Developments in Pharmacoeconomics						1			
Nursing Information Management System (NIMS)						1			
Nutrition Congress						1			
Occupational Health and Safety		11	1	11	1	6	2		11
Occupational Pulmonary Tuberculosis						1			
Occupational Specific Dispensation		27				2			13
Occupational Therapy Management of the PIPJ conditions						4			
Occupational Therapy Seminar						1			
Occupational Therapy Technician In Service Training						1			
Omoc Orthopaedic Congress						1			
Outpatients Department Training						24			72
Paediatric Imaging Congress						1			
Paediatric Interest Group Ethics Workshop						3			
Paediatric Life Support						3			
Painting Evaluation				1					
Paraphilias						1			
Passion and Purpose in Nursing						2			
Performance Management for Supervisors		3		1		9	3		1
Persal Introduction		9							
Persal Leave Administration		8							
PERSAL Salary Administration		12							
PERSAL Service Termination		4							
Personal Protective Equipment				1					3
Physiotherapy Management of Spinal Cord Injuries						1			
Physiotherapy Research Colloquium						5			
Plumbing Evaluation		1							
Postpartum Family Planning and Comprehensive Abortion Care						6			2
Practical Sports Injury Management						1			
PREDAC Phase 3						1			
Prefabricated Dry Heat - Splinting application/Use						4			
Presentation Skills		8				1			1
Pressure garment sewing training						10			
Pressure Ulcers - Speciality Wound Course									3
Principles of Clinical Pharmacology						1			
Product Specific Training on Shona quip Devices						7			
Profession specific development						1			
Programme in Industrial and						1			

Organisational Psychology									
Progressive Discipline For Supervisors			1	2		6	4		2
Progressive Discipline for Supervisors and Managers		1				7			1
Project Management		7	1	1		3	1		1
Proposed Changes to SETA Landscape						1			
Prostate Cancer						3			30
Provincial Research Day						1			
PSA Regulation Workshop						4			9
Public Sector 3rd Annual Public Health Case Managers Conference						2			
Public Service Induction Programme Levels 1 - 5		27	5	72	3	3			138
Public Service Induction Programme Levels 6 - 12						50			3
Qualitative Methods Research						1			
Radiological Society of SA (RSSA) / Abdominal Imaging Congress (SAR)						6			
Radiological Society of South Africa Continuing Medical Education Duke Review Course						3			
Radiology Refresher Course						3			
Radiology Society of SA / SA Society of Paediatric Imaging Congress (RSSA/SASPI)						9			
Radiology Society of SA/Breast Imaging Society of SA/Society of Breast Imaging Congress (RSSA/BISSA/SBI)						3			
Rare Diseases Conference (Rarex)						1			
Reconstruction Workshop						1			
Recruitment & Selection Workshop						4			
Regional IRPA WHO IOMP Workshop						3			
Repower Strategy + Leadership = Professionals Skills Development Programme									2
Research Methology						1			
Role of the Occupational Therapist Technician						1			
SA Association of Physicists in Medicine and Biology (SAAPMB)						6			
SA Cochlear Implant Group Conference (SACIG)						2			
SA Gastroenterology Society Congress (SAGES)						1			2
SA Limb Reconstruction Meeting						2			
SA Optometric Association Congress (SAOA)						1			
SA Paediatric Association and SA Association of Paediatric Surgeons Congress (SAPA & SAAPS)						1			
SA Rheumatism Arthritis Association						1			
SA Society for Labour Law Conference						1			
SA Society of Nuclear Medicine Congress (SASNMM)						11			
SA Society of Obstetrics and Gynaecology (SASOG)						17			
SA Spine Congress						1			
Schizophrenia-A state of the art						1			
Science to sleep in Sensory World						2			1
Sensitive Midwifery Symposium						3			
Sensory Stimulation						8			8
Service Learning In Pharmacy (SLIP)						1			

Sexual Harassment				8		4	1		25
SIVANTOS Workshop						1			
Skeletal Trauma Symposium						4			
Skin Integrity						2			2
Sleep disorders						2			
Society of Endocrinology, Metabolism and Diabetes of SA (SEMDSA)						2			
Special Interdisciplinary Session: Infant Mental Health						1			
Speciality Wound Care Course									1
Spirituality in Mental Health						1			
Staff Wellness Day		100	10	63	9	60	17		97
Standard Infection Prevention Control Practice						2			
Standard Precautions in IPC	1	1				27			
Strategic Leadership						3			
Sun Echo						1			
Supervisory Practices for Junior Managers		5	1		1		3		2
Supply Chain Management		1							
Surgery Journal Club						3			
Surgical Site Infection Bundle – Overview and Checklist (SSI)						7			5
TB Awareness Training				2		3			3
TB Management						1			
Tender process and Procurement						6			
The Evolution View of Depression						1			
The future of physiotherapy in SA - An Ethical Perspective						2			
The use of Art in Psycho-Therapy						1			
Time Management		8		1		2			2
Training in Vaccinology						1			
Transitional Area						3			
Treatment Modalities for Adolescents with Eating Disorders						1			
Triage Provider Course						4			6
Triage Training						1			2
Unit Manager Training						14			
Use of art in therapy						1			
Venous thromboembolism Nurse's Seminar (VTE)						4			
Vulu Eye Health App in Primary Health						2			
Wheelchair Service Training Advanced Level						1			
Wheelchair Service Training Basic Level						1			
World Health Organization Disability Assessment Schedule 2.0 (WHODAS 2.0)						2			
World Hospital congress of the International Hospital Federation (IHF)						2			
Wound Care Training						1			3
WOW NCD Leader Training		1							
Xhosa For Beginners		4			1	14			
	7	655	44	407	25	1190	72	2	891

3 293

Labour Relations

1 January to 31 December 2016

Informal Disciplinary Action

Disciplinary Action	Male				Female				Total
	A	C	I	W	A	C	I	W	
Correctional Counselling	4	9	0	0	9	7	0	0	29
Verbal Warning	5	10	0	0	5	14	0	0	34
Written Warning	8	20	0	0	6	14	0	0	48
Final Written Warning	10	8	0	1	5	12	0	0	36
Total	27	47	0	1	25	47	0	0	147

Formal Disciplinary Hearings Finalised

Outcomes of Disciplinary Hearings	Number
Corrective Counselling	1
Final Written Warning	0
Suspension without salary	0
Dismissals	8
Not guilty	0
Cases withdrawn	0
Cases dismissed	6
Hearings Pending	9
Total	24

Types of misconduct addressed at a disciplinary hearings

Type of misconduct	Number	Department
Absent from work without reason or permission	2	Admin and Porter Services
Unauthorised removal of other's property on the premises of the employer	0	Why do we list
Assault	0	
Gross Dishonesty	1	Technologist
Sexual Harassment	1	Medicine
Unauthorised removal of state property	5	Food Services and Transport
Falsification of Medical Certificate	1	Nuclear Medicine
Misuse of GG Vehicle	0	Engineering
Total	10	

Grievances Lodged

Type of Grievance	Number
SPMS grievances received	5
SPMS grievances resolved	1
SPMS grievances finalised	4
SPMS grievances pending	0
Pilir grievances received	9
Pilir grievances resolved	9
Pilir grievances finalised	0
Pilir grievances pending	0
Other grievances received (not related to SPMS PILIR or OSD)	50
Other grievances resolved (not related to SPMS PILIR or OSD)	20
Other grievances pending (not related to SPMS PILIR or OSD)	7

or OSD)	
Other grievances finalised (not related to SPMS PILIR or OSD)	23
Total received	64
Total resolved	31
Total finalised	26
Total pending	7

Collective grievances received	0
Collective grievances finalised	0
Collective grievances resolved	0
Collective grievances pending	0

Pending Grievances

Level	Number
Pending at Institution	7
Pending at Head Office	0
Pending at Public Commission	0
Total	7

Disputes

Level	Number
Disputes declared	14
Disputes dismissed	0
Disputes withdrawn	1
Disputes deadlocked	0
Agreements reached (reinstated)	5
Disputes finalised	1
Disputes pending	7

Training

Number of employees trained	374
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Precautionary suspensions

Number of employees suspended	3
Number of people whose suspension exceeded 60 days	3
Number of employees still on suspension by 31 December 2016	0

International Outreach Programme

Mr P.J. Wolfaardt

During this reporting a number of programmes and initiatives were undertaken in terms of the responsibility.

Dutch

Co-ordinated two visits by Dutch Health.

Managers 52

Students 3

Namibia
 Assistance
 Setting up a Waste Management System
 CSSD Management
 Procurement policies

Eastern Cape and Northern Cape
 Ambulance staff
 Policies

Communications

L.C. Pienaar

The Communications Office continues to play a vital role in internal and external communications, including media liaison, publications, marketing, public relations, special events, receiving of donations, special visits, the local communities, international visitors and celebrities.

Special visitors

The Office works in close collaboration with various departments to ensure that the organising of local and international visits run smoothly. International visits, special visitors and celebrities included the following:

Minister Mbombo	23 May
Missouri Visitors	23 May
JP Smith	13 July
UCT Students	16 – 18 August

Special events

Read Aloud Project	24 February
Burns Week	10 May
Nurses Day	12 May
World Hand Hygiene Day	5 May
Women's Day	25 August
Mandela Day (Live broadcast with Radio CCFM)	18 July
Staff Wellness Day	7 & 8 June; 6 & 7 September
RAF Car Seat Hand Over	16 September
Hartman Lecture Annual Awards	25 October
Long Service Awards	2 November
30 th Year Cochlear Implant Celebration	5 November
Smile Week	7-11 November
World Preemie Day (Live broadcast with KFM)	17 November
Annual Children's Christmas Party	1 December

Support Services

Security And Risk Management

In-house Hospital Security Service:

- The current security establishment does not meet the need of the service

Resources

Risk Officer	1	Chief Security Officer (This a new post)
Supervisor	1	Chief Security Officer:
Senior Security Office	8	
Security Officer	15	

Supervision:

Personnel Management:

Positive:

- Continuous staff training has resulted in a significant improvement in service delivery, e.g. Human Resource Management, Basic Supervision, Investigating Officer, Health and Safety Officers as well as in the SPMS
- All Security Officers received the required training and are PSIRA registered

Contract Security services:

Resources

- Contract Manager
- Shift x 1 : Day Shift : Supervisor: Grade A : 2
- Supervisor : Grade B : 1
- Reaction Unit : Grade B : 2
- Controller : Grade C : 1
- Security Guards : Grade C : 15
- Security Guards : Grade D : 43

- Shift x2 : Night Shift : Supervisor: Grade A : 2
- Supervisor : Grade B : 1
- Controller : Grade C : 1
- Reaction Unit : Grade B : 2
- Security Guards : Grade D : 36
- Security Guards : Grade C : 12

- Shift x3 : Weekends: Supervisor: Grade A:x2
- Supervisor : Grade B : 1
- Controller : Grade C : 1
- Reaction Unit : Grade B : 3
- Security Guards : Grade D : 43
- Security Guards : Grade C : 14

Mobility

- Vehicles : 3
- Motor Bikes : 2

Service Delivery:

- The in-house security is responsible for the internal security functions, whilst the private security attends to the perimeter
- Weekly meetings between the internal and external security managers, officers and staff are held to address service delivery

Support Services

F.S. Boonzaier

Cleaning Services (Contract)

Resources

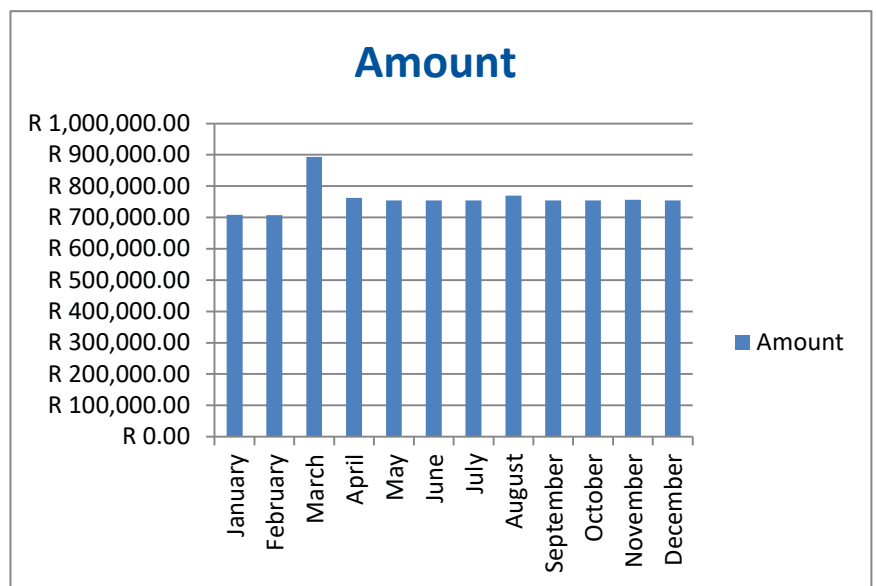
SAO	SAC
1	1

Overview

The function of this component is to manage the cleaning of the none-core areas in the Hospital as well as the outside perimeters. Various measures have been implemented in an endeavor to curtail expenditure with regard to the cleaning contract.

Expenditure

Month	Amount
January	R 708 590,10
February	R 707 675,38
March	R 893 394,15
April	R 762 674,12
May	R 754 790,58
June	R 754 191,28
July	R 754 790,28
August	R 769 564,46
September	R 754 190,60
October	R 754 790,58
November	R 756 298,13
December	R 754 790,58



Resources

- Staff 100 (Bid expires 30/11/2017)

Day Shift	Night Shift	Public Holidays, Saturdays, Sundays	
Site Manager 1	Supervisors 2	Day Shift	Night Shift
Supervisors 2		Supervisors 2	Supervisors 1

Patient Transport

Resources

SAC
1

- A computerised Health-Net booking system was implemented with effect from 19 September 2016, and all the patient transport applications have been processed since the implementation
- Previous bookings for rural and local patient transport were done telephonically prior to the implementation of the new Health-Net system
- The time-consuming hand manual booking system has been discontinued

PA Transport

Overview

- The main function of the Component is to provide an effective and efficient motor transport service delivery
- The Department has 25 vehicles and 1 Venter trailer

Resources

AO	SAC	Drivers	Household Aid
1	1	8	1

Service Delivery

- The staff utilise their knowledge and experience of the various transport destinations and the shortest, yet safest possible routes to ensure excellent service delivery
- Various measures are put in place to ensure that the Transport Division comply with the National Core Standards
- The main objective of the Transport Division of Tygerberg Hospital is to provide and maintain an adequate service to individuals and staff
- The Transport section endeavour to comply with the prescripts on Circular 4 of 2000

Annual Kilometres Travelled Per Vehicle

Nr	Registration nr	Vehicle type	Annual km travelled
1	GBJ011G	Toyota Quantum Panel Van 2.7	3 492
2	GDF097G	VW Polo 1.4	8 895
3	GBD098G	Toyota Hilux	2 842
4	GBD106G	Toyota Hilux	2 998
5	GDF109G	VW Polo 1.4	10 302
6	GBL164G	Toyota Quantum	10 736
7	GBL194G	Toyota Quantum	10 624
8	GBL219G	Toyota Quantum	10 528
9	GBD277G	Toyota Hilux	3 078
10	GBB302G	Toyota Hilux	8123
11	GBL310G	Toyota Quantum	11 796
12	GDD325G	Ford Figo 1.4	6 885
13	GDG325G	Ford Figo 1.4	8 848
14	GDG382G	Ford Figo 1.4	9 598
15	GBD413G	Toyota Hilux	4 466
16	GBD482G	Toyota Hilux	5 075
17	GDG519G	VW Polo 1.4	11 002
18	GDG534G	VW Polo 1.4	11 034

19	GBX619G	Nissan 2.0	14 978
20	GBX622G	Nissan 2.0	3 319
21	GCK643	Toyota Quantum 14 Seater	16 628
22	GCG696	Ford Ranger 2.2	3 771
23	GBY751G	Hyundai 2.5 Pan Van	8 492
24	GCG804G	Ford Ranger 2.2	3 190
25	GBN851G	Toyota Etios 1.5 Sedan	11 706

Support Services:

C.B. Johnson

External Cleaning Services

Resources

Supervisor	X1 (Principle General Foreman)
Senior General Foreman	X1
General Workers	X12 (1 x vacant)

Service Delivery

- The removal of medical waste and refuse from the campus is still outsourced to private contractors, namely Solid Waste and Waste Control
- An average of 324 000 kilograms of waste is generated on a yearly basis. Of this waste, an average of 108 000 kilograms is medical waste
- Solid Waste Technologies collects the medical waste on a daily basis except Sundays and sporadic Wednesdays
- BCL subsequently collects a portion of the medical waste, only pathological waste from Solid Waste Technologies
- There is a monitoring system in place to ensure that the waste collected is weighed correctly and the collection procedure complies with the Occupational Health and Safety Act (OHASA)
- Disposal certificates are collected at Solid Waste Technologies on a weekly basis. This also enables correct payments when invoices are received for services rendered
- Monthly totals are captured on the Integrated Pollutant & Waste Information System (IPWIS)
- Breeze Village Trading is the new company that removes the cardboard for recycling; period of contract is from 1 July 2016 to 30 June 2018
- The eight (8) medical waste trolleys applied for was approved, receipt of trolleys will take place at the end of January 2017
- The hospital, as a pilot, has requested permission for a recycling programme for dry waste at the Gene Louw building
- A submission was further done for the recycling of the empty bottles from the Pharmacy
- Due to the infrastructure of the main hospital building, challenges were and shall be faced to start a comprehensive recycling programme in conjunction with cost-saving
- Due to the water restriction imposed by the City of Cape Town, exemption was applied for and received for the month of December
- Service delivery has been affected since the vacant post of one of the General Workers since 1 August, this in conjunction with leave (planned and unplanned) as well as sick leave

Gardening Services

Resources

Supervisor	X1 (General Foreman – vacant)
Groundsmen	X5

Service Delivery

- The function of this component is to maintain the vast grounds / outside perimeters of the hospital. These include cutting, trimming of grass, trees, shrubs, flowers and removal of it as well as removal of rubble
- As the perimeter of the hospital covers quite an extensive area, it is impossible for these staff to ensure that there is continuous trimming done and areas become neglected when certain tasks have to be concentrated on
- Staff also assist with clearing of path ways, digging trenches and transportation of equipment to and from various locations
- There are two (2) tractors and a KUDU machine to cover the workload
- The workload is also covered by 4 brush cutters of which only 1 has been functional since October. That has led to a delay in service delivery
- Approval was received for the purchase of a 6-ton low-speed trailer, this done in November
- A submission was done for the purchase of a wood chipper in December, this to alleviate the expenditure of the hospital in terms of the current contract costing of removal of the foliage. The resulting wood chips can be dispersed on the hospital's grass areas and around trees thus slowly supplying nutrients. At the same time reduce weed growth, absorb significant amounts of water during rainfall that is slowly released to the soil, and enhance plant productivity

Mortuary

- Senior Admin Clerk x 1
- Senior Porter x 1
- Delays in the receipt and dispatch of necessary documentation to be completed by the Medical Staff has a negative effect on service delivery

Pest Control

Overview

The function of the Pest Control Department is to ensure that the hospital building (various wards, basement, kitchen, administration) including exterior buildings (Protea Court, Disa Court, Doctors' Quarters, Carel du Toit School, X-block, and Dental Faculty) are kept pest free.

Resources

Chief Auxiliary Officer	1
Senior Auxiliary Officer	3

Service Delivery

- The Pest Control Officers work on various scheduled programmes during the week
- The kitchens are fumigated on a weekly basis (Tuesdays and/or Thursdays, at night)
- The Pest Control Officers also fumigate the basement (underneath the kitchen) on the first and last Thursday of every month to ensure a pest free environment
- Steam leakages from pipes in the basement and various holes leading from the kitchen area enables exponential breeding of pesticides that resulted in an increase in fumigation
- The constant litter and dumping of various items on the grounds has also resulted in exponential breeding of pesticides that further dampens service delivery
- A scheduled programme was developed to cover the drains at Tygerberg Hospital
- The termite infestation on the grounds of the hospital is ongoing
- In order to reduce expenditure by requesting outside companies to assist with the eradication of termites, the officers are earmarked to attend a course regarding the termites infestation in

the first quarter of 2017

- In terms of better budgeting practices, there has been a downscale for staff that work on Saturdays

Pneumatic Tube Distribution Services

Resources

Operators x5 (1X vacant)

- The Component lacks a post of supervisor to ensure the required level of efficiency
- The cost for repairs to the tube system and after hour call-outs to the company was reduced
- Due to the age of the system, more than 30 years, mechanical parts are not easily obtainable, and that results on a strain in service delivery
- At times, tube containers slip past destination points; this causes various problems, i.e. delay in specimen delivery, blockage in the system, service delivery with regard to patient results

Porter Services

Resources

Chief Porters X12
Porters X114 (5 posts vacant)

Service Delivery

- The Department continually assists with the relocation of various wards within the hospital as certain wards are earmarked for upgrading
- Due to the continuous turn-around of staff and continuous absenteeism, this component lacks 100% filled capacity at any given time
- In conjunction with the above, the continuous vandalism, theft and misuse of the essential equipment (trolleys, wheelchairs and mattresses) hamper service delivery

Training

The Chief Porters and Porters received continuous training to improve service delivery as well as to adhere to disciplinary procedures.

Reprographics

Resources

Chief Clerk 1X vacant
Principal Operators 4
Typist 1

Outputs

ID Photos taken 208
Photostat copies 1 565 430 (745 204 bizup1250 + 729 898 bizup1050 + 90 328 bizup 920)

Copies printed 390 677 (80 965 ricoh DD4450 + 309 712 ricoh DX3243)
Laminating ± 330 (A4's) (2 X 100 meters)

Overview

- The core function of the Department is to ensure an efficient production unit for printing and photocopying
- Two Ricoh machines (DD450 and DX3243) print forms ranging from approximately 1 000 – 20 000 for various departments within the hospital, including but not limited to stores, wards and clinics
- Photocopies of manuals, memorandums, notices and forms are done on three Minolta Bizhub models: 920, 1050 and 1250
- Copying of patient folders is handled with the required confidentiality
- The Department provides other finishing as requested, i.e. sort and stapling, gluing, punching, cutting and laminating
- The ID section handles the taking of personnel identity cards for new appointees, interns, changes in rank and surnames. Lost and damaged cards are replaced at a cost
- NHLS is charged for any printing requests via the Finance Department
- The Department is also assisting with the printing of training manuals for the Department of Health (DoH)

Service Delivery

The Department works under pressure in order to cover the volume of work. Strain is further taken when one or two officials are absent due to planned/unplanned leave or illness. The four operators apply their experience to cover all production points during these times.

Linen Management

I.R. Strelensky

Resources

Assistant Director	1
Senior Linen Supervisor	4
Laundry Aids	3

Annual Audit

Basic Linen Stock

Pieces	Value
135 285	R19 171 203,00

Linen Loss

Pieces	Value
44 043	R4 419 899,92

The overall objective of hospital linen management is to maintain adequate supplies of clean and serviceable linen to the user departments at minimum cost. This can only be achieved through the closest co-ordination between laundry operations and linen distribution services, and by adhering to specific control mechanisms.

Telephone Exchange And Radio Room

F. Malan /M.C. February

Resources

Principle Telecom Operator	1
Senior Telecom Operators	15 (1 vacant post)

Telephone Exchange:

- Tygerberg Hospitals' Telephone Exchange has a Philips electronic business connect system that provides a 24 hour service
- The Telephone Exchange consists of 9 consoles, 3 used for Doctors' Enquiries; 6 used for the handling of general calls/enquiries on a full-time basis during 07:30 and 16:00
- These 6 consoles manage approximately 9 000 of the 14 000 incoming calls per day
- The outgoing calls amount to approximately 6 000, of which the Telephone Exchange handles approximately 5 000
- This total includes approximately 4 000 cellphone and trunk calls
- The average cost of cellphone calls per month is ± R3 500
- The average cost of Telkom calls per month is ± R50 000
- Local outgoing calls have decreased, whilst the cellphone calls have increased
- One of the Senior Telecom Operators was successfully promoted at the end of September
- Service delivery was severely impacted due to strike action and retrenchments that occurred at Telkom during August and September 2016

Due to shortage of staff from Telkom, it resulted in the delay of service and fault reports. Upgrade to the PABX was done in November and the telephone lines of the hospital were affected. New equipment was installed. The switchover to an upgraded PABX took place on 30 January 2017.

Radio Room:

- The two Operators in the radio room handle approximately 4 000 calls for transmission during office hours, and the Operator at Doctors' Enquiries handles approximately 1 000 calls per shift

Sms Message System:

- Tygerberg Hospitals' radio room uses a SMS to contact doctors and personnel that do not have beepers or when beepers are faulty
- Approximately ±1 000 SMSs are sent daily and the average cost per month is R5 000
- The SMS paging system (Message Soft) is still in use, which causes delays in SMSs being sent as there are only two (2) terminals that the staff can work from.

Accommodation

S.E. Harris

Doctors' Quarters

	<u>Rooms</u>
Single Rooms	40
One Bedroom Flats	36
Two Bedroom Flats	5

- This facility is used to house medical interns / community service doctors
- Doctors' Quarters consist of the abovementioned room that are allocated to Medical Interns placed at Tygerberg Hospital that must complete their internship

- All rooms were occupied for the calendar year, except six (6) due as those were not habitable due to water damage

Protea Court

Resources

Principle Housekeeper		X1
Senior Housekeeper	X5 (1x vacant)	
Messenger		X1

Overnight Facility

General Assistants		X2
--------------------	--	----

- Protea Court consists of three (3) Towers that facilitate temporary and permanent housing of staff and students that work and/or studies at Tygerberg Hospital
- There are 479 beds in total and the rooms range from single rooms to two bedroom flats
- **One hundred and thirteen (113)** permanent tenants reside at Protea Court, the majority from the Nursing Department
- The Cancer Association of South Africa (CANSA) uses the 1st floor in Tower 3
- The overnight facilities (mothers whose babies have been admitted at Tygerberg Hospital) are housed on the 2nd and 3rd floors in Tower 3
- Three (3) floors in Tower 3 (92 beds) is allocated to the Emergency Services Department for EMS students who are completing their training
- Thirteen (13) tenants moved in and 6 moved out of Protea Court. These tenants fall under Community Staff nurses and temporary staff

Single Rooms/beds

(Including store rooms)		192
Double Rooms = 127	Total of 254 beds	
One Bedroom Flats		6
Two Bedroom Flats = 2	Total of 4 beds	
Single Room with sitting room		1

This Component is also responsible to co-ordinate accommodation in Disa Court, UWC and CPUT

Registry/Archives /Mailroom

F. Malan / Duralon Mentor

Registry

The Registry Department handles all incoming mail, incoming and outgoing faxes and registered post.

Resources

Chief Registry Clerk		x1
Senior Registry Clerk Grade II		x1

Service Delivery

An average of ± 600 faxes is dispatched on a monthly basis bearing in mind that various departments/components utilise this facsimile machine. In addition, we are making use of the franking machine at Head Office as we are currently waiting on delivery for the rental franking machine.

Archives

The filing system is adhered to in accordance with the National Archives Act and the rules of the Department of Health. This system is continuously updated as and when required. An urgent request to do a record Disposal Programme as filing space is inadequate. The Registry and postal

room were managed well. Training was given to different sections regarding to the folding of documents for sending for post and the appearance of the addresses on the envelopes. Information sessions were held with Hospital Fees section regarding this as well as the HR section at the offices of R. Davids. The Medico-Legal section was given training.

Messengers in the postal room

The Messengers service the entire Tygerberg Hospital, including its surrounding buildings as well as the collection and delivery of documents to Head Office situated in the CBD. Every Monday, Tuesday and Friday a Messenger is doing the franking at Head Office, notes the costs and hands it over to Chief Registry Clerk for submission to Finance Department. The report is forwarded monthly to Head Office – Chief Registry Clerk: L. Zothani – to confirm the amounts.

Resources

Chief Messenger x1
Messengers x8 (6 at Tygerberg Hospital and 2 at the Gene Louw Building)

One of the Hospital’s messengers collects and delivers mail/documents on a daily basis to the following places:

- Protea Court
- Tygerberg Laundry
- Forensic Services
- Disa Court
- Sarleh Dollie
- SAPD Mortuary
- Ravensmead Hospital
- Emergency Medical Services

There is currently a vacant post as Messenger available as the incumbent, Andries Josephs, retired on 31 December 2015. The advert and job description was drafted and forwarded to the necessary department.

General

F. Malan is the First-line Manager for this component as from 1 September 2016. Hereby a franking financial summary of the postage:

Month	Amount
September 2016	R 12 076,80
October 2016	R 7 792,94
November 2016	R 8 124,15
December 2016	R 7 699,90
Total	R 35 693,79

Outgoing faxes are: 1 003
Outgoing registered letters: 499
Incoming registered letters: 607
Notice numbers allocated: 62
Staff meetings: 7

There is need to increase funding for this section as prices for the toner and drum units for the facsimile and printer machines are very high. There is an increase in registered mail and faxes being sent. We were assisting Karl Bremer Hospital and Oral Health with their posting of letters until August 2016, but we had to stop this as the franking machine broke and we had to liaise with Head Office to do the franking at their office. We are waiting for the delivery of the franking machine. Furthermore, funding is required for a Records Disposal Programme in Archives.

Food Services

R. Keyser

Background

- The Food Service Department at Tygerberg Hospital is the largest self-contained component at a hospital in the Western Cape, South Africa. This Unit provide meals to the patients of Tygerberg Hospital
- The equipment used is old and in a state requiring regular repair. Breakdowns are frequent, requiring hands-on management of equipment to initiate alternative options and solutions
- Regular interactive sessions and meetings with staff to inform them of Audit results, menu changes, training on new recipes and special diets, training of new employees and the status of absenteeism. This resulted therein that all matters were resolved and addressed during these sessions
- The general control measure in the Department are functioning well, and during both stock audits in the Food Service Department, stock items balanced in both warehouses 27 and 28

Summary of activities

- Meal provision to patients, caregivers and mothers
- **1 625 439** meals were served for the period January to December 2016 in contrast with the total of meals (**1 605 814**) served in 2015
- **Total meals provided during 2016 showed an increase of 19 625** compared to the previous year
- Average meal cost is **R 24,74**
- Human capital development as well as management including managing performance
- Adhering to all Food Service Guidelines

Table 1. Resources

Assistant Director	X1
Food services managers	X6 (1 post was filled in February 2016)
Principal food services supervisors	X2 (1 post was filled July 2016)
Senior Supervisors	X27 (3 posts were advertised; 2 filled and 1 position to be filled in February 2016) (3 posts to be advertised – 4-month delay at Head Office due to job evaluation)
Food Services Aids level 1 and 2	X81 (8 posts were filled, 3 posts to be advertised – 4-month delay at Head Office due to job evaluations)
SAC	X3
PAC	X1
Pronto	X8 per shift
Intern (for 12-month period)	X1

Table 2. Tygerberg Hospital: Department Food Services – Statistics for 2016

A	PREV YEAR TOTAL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL YTD
1 Personnel		0	0	0	0	0	0	0	0	0	0	0	0	
2 CRECHE		1 121	1 407	1 511	1 657	1 253	1 500	1 455	1 307	1 669	1 313	1 522	997	16 712
3 BREASTFEEDING / KMC		495	732	784	771	687	858	423	366	423	396	315	222	8 483
4 MOTHERS WITH CHILDREN		9 594	10 102	12 501	9 654	10 251	12 090	8 592	9 471	11 823	8 433	8 763	9 882	88 959
5 OUTPATIENTS		4	4	6	6	3	2	3	4	5	8	7	4	56
6 TRAVELLING PATIENTS		4	1	9	2	5	28	5	8	7	2	2	1	74
7 OTHER MEALS		720	1 384	1 857	1 125	1 218	1 560	1 101	1 077	1 506	1 266	1 458	792	15 078
TOTAL A	0	11 938	13 630	16 668	13 215	13 417	16 038	11 579	12 233	15 433	11 418	12 067	11 898	159 534
B IN-PATIENTS														
1 FULL MEALS		72 342	71 435	75 231	77 648	75 059	74 438	74 398	78 139	79 410	77 341	79 510	76 711	911 662
2 THERAPEUTIC		33 663	40 766	48 239	39 128	38 391	47 205	39 723	39 336	49 351	38 454	39 408	47 590	501 254
3 PRIVATE PATIENTS		2 030	1 631	2 029	1 603	1 138	2 331	1 958	1 735	2 129	1 583	1 747	669	20 583
4 INFANTS / TODDLERS		3 178	3 131	4 028	2 621	2 433	2 592	2 193	2 470	2 846	2 143	2 169	2 593	32 397
TOTAL B	0	111 222	116 963	129 527	121 000	117 021	126 566	118 272	121 680	133 736	119 521	122 834	127 563	1 465 905
TOTAL A + B	0	123 160	130 593	146 195	134 215	130 438	142 604	129 851	133 913	149 169	130 939	134 901	139 461	1 625 439
ALLOCATED BUDGET	14 722 000 (2015-2016)				16 728 000 (2016-2017)									
EXPENDITURE TO DATE (BASS)		795 810	925 846	1 098 794	904 193	968 384	1 281 186	1 043 303	970 983	1 212 298	859 320	961 320	1 416 681	12 437 996
% BUDGET SPEND TO DATE	%	5%	6%	7%	5%	6%	8%	6%	6%	7%	5%	6%	8%	75%

D	AVERAGE FEEDING COST	0,00	2,15	2,36	2,51	2,25	2,47	2,99	2,68	2,42	2,71	2,19	2,38	3,38	30,49
	COST / PPD (MEALS & FEEDS)		22,07	23,97	22,31	22,83	25,10	26,77	27,17	24,69	24,46	22,31	24,20	30,97	296,85
	ACTUAL FEEDING COST														
	TOTAL BASS + OTHER		795 810	925 846	1 098 794	904 193	968 384	1 281 186	1 043 303	970 983	1 212 298	859 198	961 320	1 416 681	12 437 996

Department of Social Work

Head of Department: M.N. de Jager

Summary of Activities

- **Individual work** with patients and family members remained this Department's main prerogative
- Certain departments provided opportunities for **group work**. However, due to the quick turnover of patients in certain departments, the group work approach is not always feasible
- **Liaison with community resources and service providers** forms an integral part of Hospital Social Work
- The internal **Employee Assistance Programme [EAP]** remains the responsibility of The Department of Social Work
- The **TygerBear Foundation** for Traumatized Children and Families – initiated in 2000 – remains operational

Highlights

- The **rotation social work service** over weekends and on public holidays provides a much-needed psycho-social service to patients, family members of patients and staff members
- The Social Work Department can, despite many challenges, still offer a model of social work intervention that reaches in- and outpatients at all hospital departments
- Through individual counselling services, therapy groups, parent guidance groups, information dissemination, awareness programmes, intense employee assistance programme and community outreach, we had the privilege to build the resilience and coping skills of many thousands of individuals and families
- Our Social Workers work creatively with limited resources in order to find suitable and safe placement – especially with regard to children and elderly patients at risk, as well as psychiatric patients
- Social Work counselling and therapy have been strengthened by supporting distressed patients and families needing material assistance through the relief project

The sponsorship of the **TygerBear Foundation** and the **Tygerberg Hospital Facility Board** makes it possible to respect the dignity of patients by providing in their basic needs by supporting them with food parcels, toiletries, clothes, baby bags, blankets and transport money.

Challenges

- Our greatest challenge remains the ability to give a true reflection of our work by means of statistics since the Clinicom system failed to provide us with sufficient and correct statistics regarding Social Work service delivery
- Patients' lack of income and identification documents and the lengthy application procedure to obtain an identification document complicates discharge planning
- The impact of poverty, unemployment and the challenging socio-economic environment
- The complexity and intensity of social problems such as domestic violence, teenage pregnancy, substance abuse, family conflict, violence against women and children, the increasing demand for termination of unwanted pregnancies, parents presenting with mental illness and neglect of children demand from social workers to be especially careful with risk management

Resources

- Social Work Manager 1
- Social Work Supervisors 3
- Social Workers: Production 19
- Clerks 2

Output

Individual / Family Work

Increased number of children presenting with:

- * Severe neglect and malnutrition
- * Accidental injuries sustained in gang-related violence
- * Aggressive parents
- * Para-suicide cases

Group Work

- * Fibromyalgia Group
- * Rheumatology Support Group
- * Support groups for: Mothers who provide Kangaroo Mother-care
 - Laryngectomy patients
 - Burn Patients
 - Diabetic Patients / Families
 - Adolescent HIV children

Community Outreach Programmes

- * A 24-hour consultation service
- * A relief programme providing transport, food, toiletries, blankets and clothes
- * Resource Centre
- * Liaison with Community Resources
- * TygerBear Schools' Outreach Programme

Training

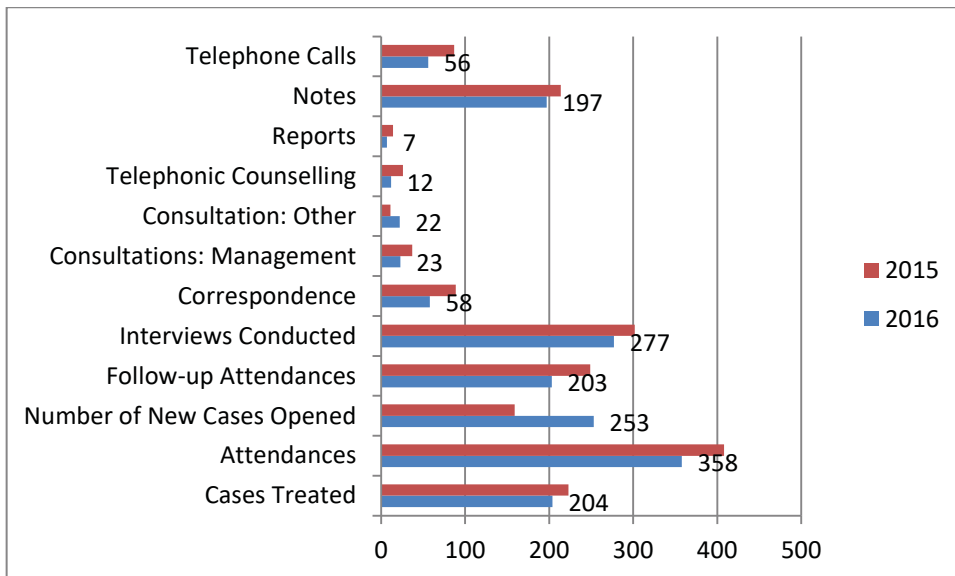
- Undergraduate
 - Social Work III, UCT → 1 Student
 - Social Work IV, UNISA → 1 Student
- Job Shadowing Students → 10
- Auxiliary Worker Students → 6

Employee Assistance Programme (EAP)

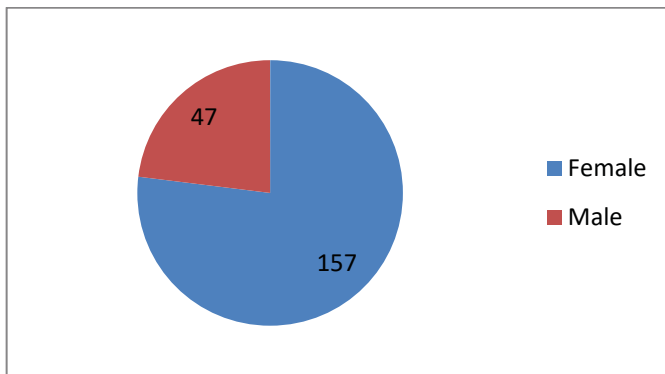
The Staff Support Unit is a structure through which social services are rendered to employees and their immediate family. It is also a tool for the early identification of problems and early intervention. Furthermore, it is a management tool for the management of employees with problem behaviour.

Utilisation of Service Individual services were rendered to 204 employees and an additional 237 employees were reached through group work, presentations and training, i.e. altogether 441 staff members. Many employees treated individually were seen on more than one occasion. The number of individual contacts amounted to 358.

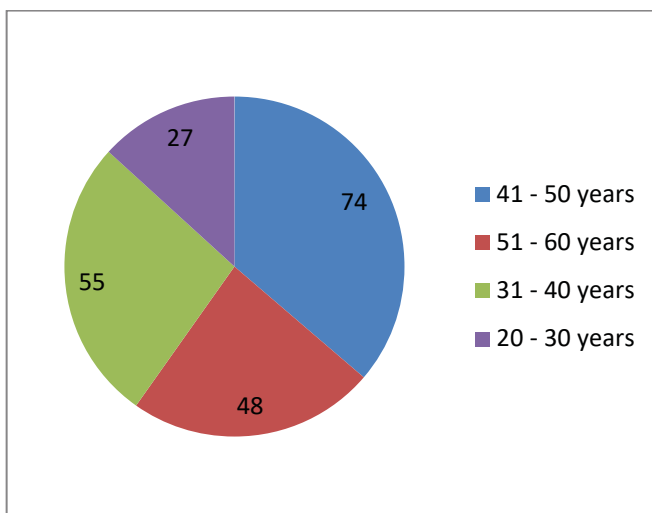
Individual Work Individual services are summarised in Table 1. The Staff Support Unit is open to all employees and their families who require counselling services. A confidential short-term service is rendered and – where necessary – employees are referred to resources in the community for further assistance.



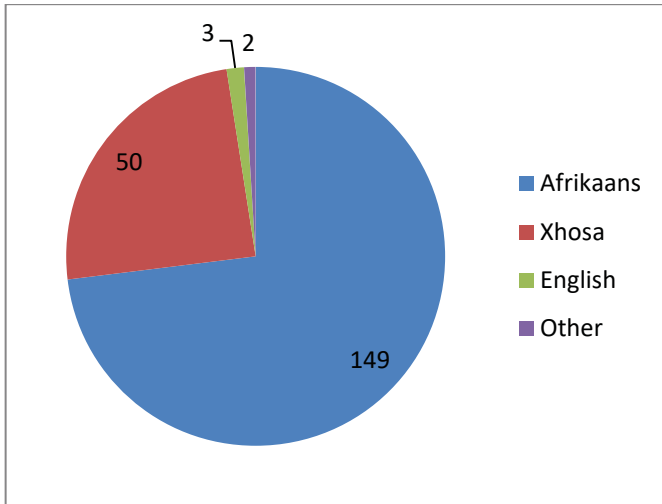
Client characteristics are summarised in the following table. More females utilised the services, and this is an indication of the staff complement:



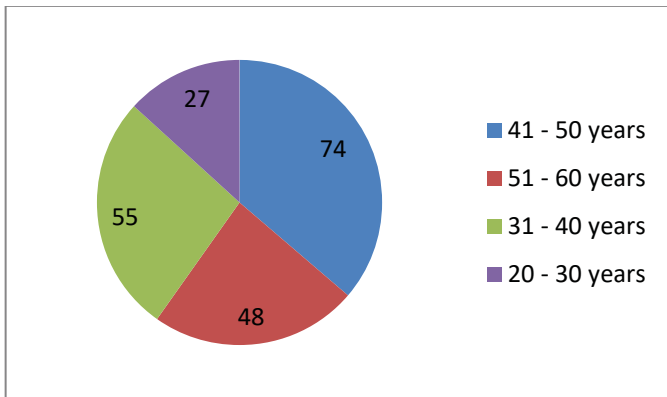
Age distribution is as follows:



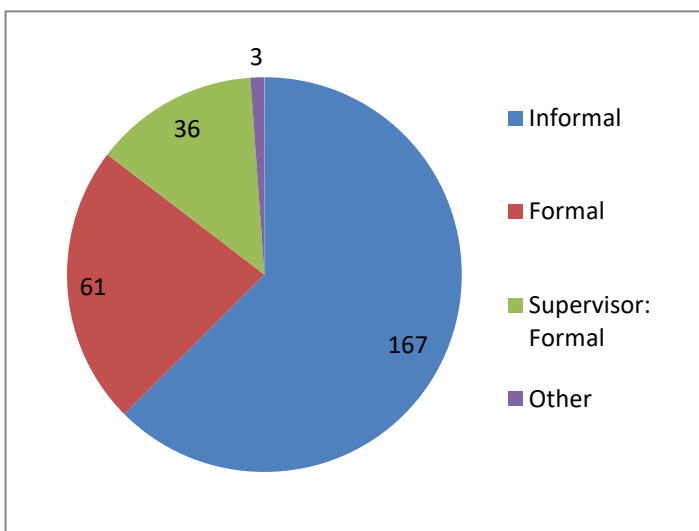
The majority of users were Afrikaans speaking:



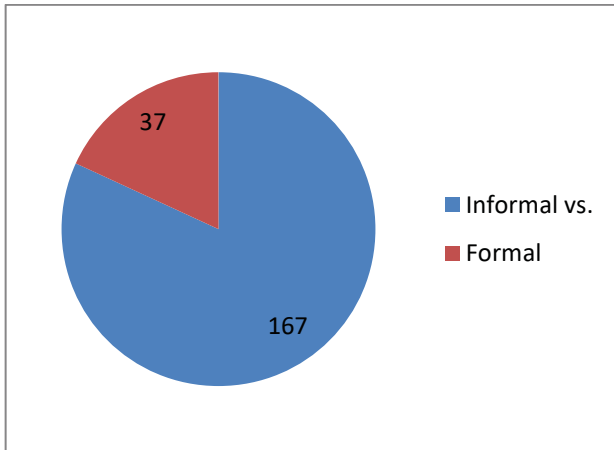
The following indicates that the service was predominantly used by those with more than 10 years' service:



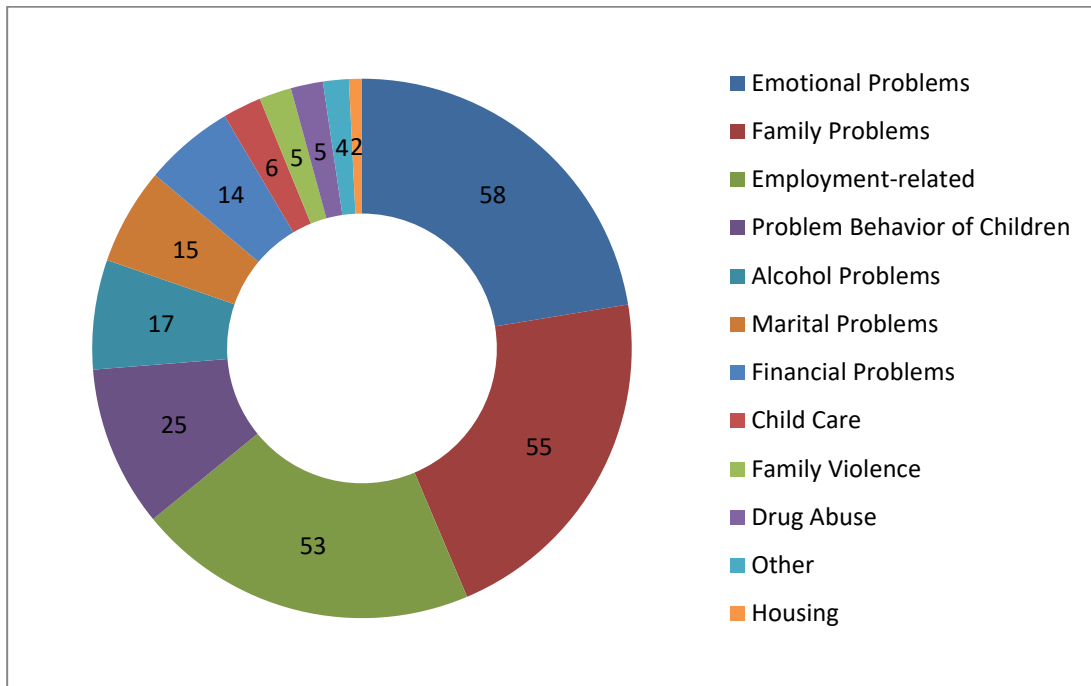
The service was well utilised by Nursing Staff, General Workers and Administrative Personnel. It can be promoted amongst the Technical Staff and Professional Workers:



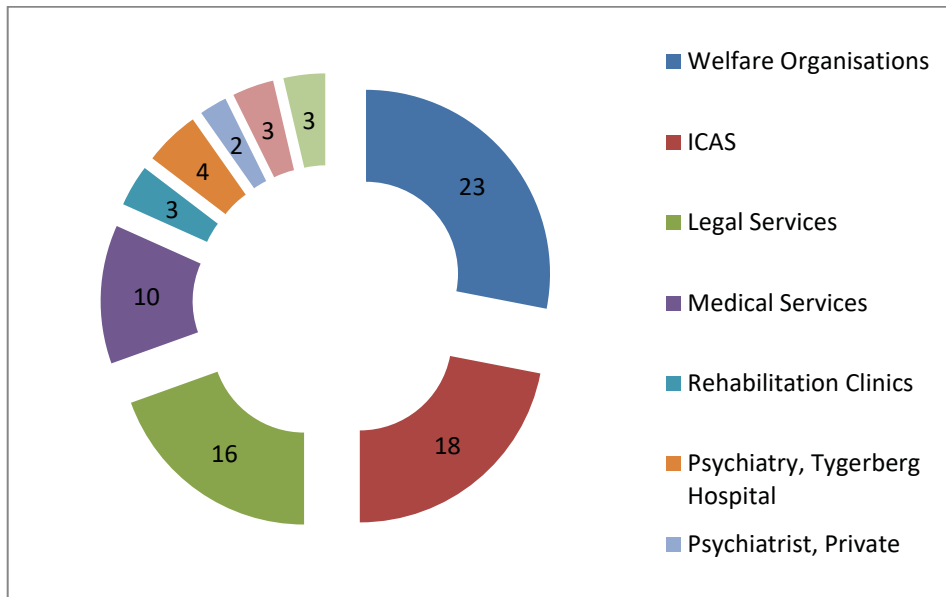
Formal referrals are done as part of the disciplinary process. More employees were referred by their Supervisors informally. This is an indication that Supervisors assist pro-actively:



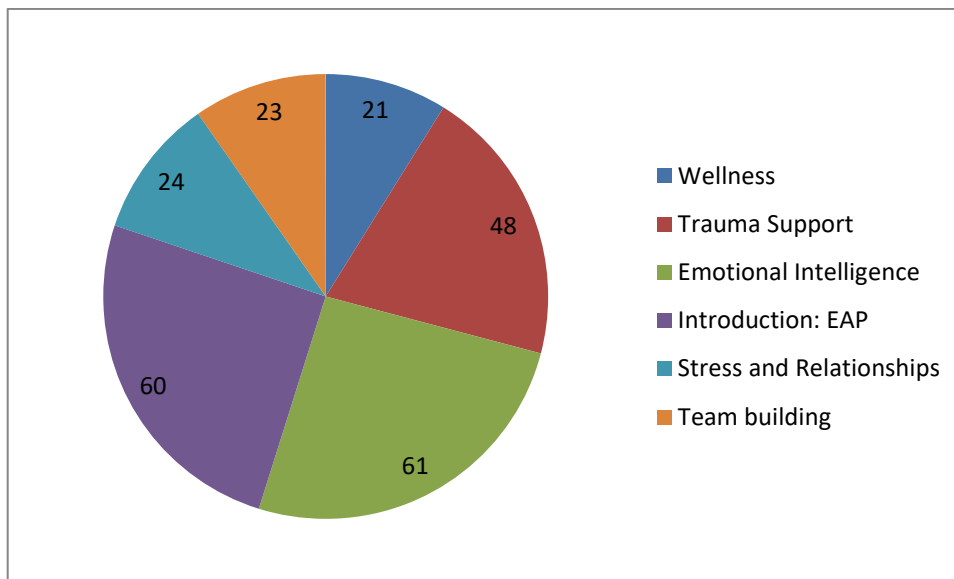
Problems Presented:



Employees were referred to resources in the community for ongoing assistance – if required. Predominantly referrals were to (a) Community Resources and (b) ICAS.



Group Work and Presentations: Numerous employees were reached through group work and presentations. The topics addressed are reflected in the following table:



Conclusion

In view of the above information, it is evident that the **dedication of the Social Workers** resulted in:

- * A significant improvement in the lives of **patients and families** referred to the Department of Social Work
- * Training opportunities for **students and other professionals**
- * **Support** – not only of Staff Members – but also their families
- * **Professional development**

Patient Administration

J. Jooste

Summary of activities : Allocation of receipts on BAS & AR
 Clearing of Journals
 Follow-up of outstanding invoices
 Reporting
 Submission of invoices to 3rd Parties

Resources:

(Please adapt this to your dept. e.g. if you don't have Radiographers, but have e.g. Pharmacists on your establishment, please substitute accordingly)

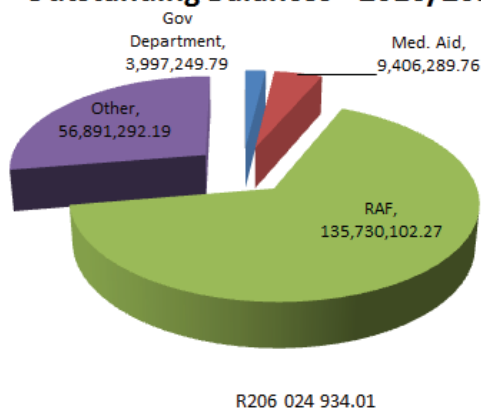
Posts (Full-time)	Number	Filled
Senior Administrative clerks	39	37
Administrative Officers	3	3
Senior Administrative Officer	1	1
Case Manager	4	3
Confirmation Clerk	2	2
Account Controllers	5	3
Registry Clerk	1	1
Posts (sessional – how many hours worked per week)		

Output

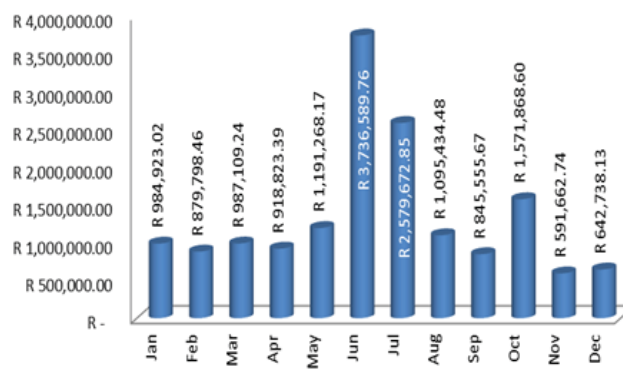
1. Outstanding Balances / Credit Balances
2. RAF
3. Government Departments
4. Medical Aid / Schemes
5. ID numbers
6. Accumulated Income vs. Target
7. Reconciliation
8. Complaints
9. Highlights
10. Personnel: Training, Absenteeism, Disciplinarys

1. Outstanding Balances

Outstanding Balances - 2016/2017



Credit Balances for Jan to Dec 2016



The outstanding balance increased from R202 634 643 in April to R206 024 934 end December 2016.

Credit Balances:

- During the month of June 2016, partially paid RAF cases were reclassified to **MVA cases** and the partially paid amount created a credit balance. These credit balances were all cleared during August
- The previous delegation on refunds was repealed during the first quarter of the financial year, and all cases were referred to Head Office for approval. Head Office informed this Office to withhold these cases. The delegation was subsequently amended for the institutions to authorise the refunds. This delay contributed to the increase in the credit balances of June and July 2016
- RAF credits are monthly identified and journalised to Head Office
- Medical Schemes credits in particular are time-consuming processes which lead to an increase in the credit balance

2. Road Accident Fund (RAF)

Month	Outstanding Balance	Payment
Jan	154 063 933,88	-
Feb	154 269 319,41	6 830 670,29
Mar	128 762 592,60	8 853 623,19
Apr	135 667 367,55	-
May	137 510 793,05	-
Jun	130 161 689,20	5 964 574,43
Jul	130 319 684,86	7 791 170,17
Aug	125 901 618,81	4 826 751,46
Sep	131 686 871,43	2 755 906,58
Oct	138 587 970,23	1 663 288,53
Nov	134 310 411,89	2 590 927,31
Dec	135 730 102,27	2 562 588,49

- Road Accident Fund remains the biggest contributor to the outstanding balance. An amount of R135 730 102,27 as at 31 December 2016 reflects as an outstanding balance
- An analysis between the Accounts Receivable system and Alexander Forbes revealed a discrepancy of R19 736 128,67 as a result of partial payments which was attended to
- The outstanding balance also increased due to no payments received and a decrease in the reclassifications of unsuccessful cases

3. Government Departments

3.1 IOD

Payments received are as follows:

Month	IOD Payment Amounts
Jan	R69 941,80
Feb	R97 264,60
Mar	R14 906,80
Apr	R318 466,30
May	R23 465,50
Jun	R662 973,00
Jul	R1 011 041,95
Aug	R129 110,00
Sep	R558 170,32
Oct	R419 852,90
Nov	R619 936,80
Dec	R0,00

- Bi-annual progress reports are received from Alexander Forbes to compare IOD reports submitted and received
- Differences were identified and the relevant actions performed

Differences on Progress Report : September 2016

Total Invoices not on AFCT Progress Report	287
Reclassifications Done	82
Queries referred to AFCT	195
Paid by COID	10

Outstanding WCA Documents Report

SUMMARY	Progress as at 14/07/2016	Progress as at 02/12/2016
TOTAL WCL5 OUTSTANDING	418	
Total Wcl5, Clinical Notes & OT Notes Submitted	232	319
Total Wcl5's Outstanding	127	1
No Clinical Notes	29	27
No Reopening – No payment Expected - Closed	3	0
Invoice Cancelled	5	9
Queries	22	62
TOTAL	418	418

3.2 South African Police Services (SAPS)

- The payment progress as at December 2016 is as follows:

Month 2016	Amount Submitted	No. of cases submitted	Payments Received	Outstanding Balances	No. of cases outstanding
January	R300 291,10	34	R176 386,80	R1 621 839,90	54
February	R136 850,20	9	R193 634,90	R1 762 297,10	66
March	R256 831,90	16	R35 279,00	R1 692 007,60	53
April	R297 900,20	27	Nil	R1 907 727,20	67
May	R187 506,90	19	R233 594,90	R1 867 633,30	64
June	R431 825,40	79	R174 137,30	R1 995 760,70	72
July	R114 257,60	27	R91 655,70	R2 290 170,10	67
August	R44 530,00	19	R71 252,00	R2 383 195,20	60
September	R56 467,00	14	R3 971,00	R2 555 033,60	58
October	R7 296,00	7	R3 672,00	R2 697 954,60	78
November	R79 649,00	14	R112 281,00	R2 738 525,90	87
December	0	0	0	R2 708 022,20	99

- The SAPS reports back on a monthly basis on all outstanding cases. Only **six** invoices, which amount to R846 345,60, older than a year are outstanding. These invoices were referred to Head Office for further follow-up. It has been noted that the SAPS is hesitant to pay high amounts

3.3 Correctional Services (DCS)

Month 2016	Amount Submitted	Payments Received	Outstanding Balances	No. of cases outstanding
January	R400 555,90	R142 678,10	R634 451,44	98
February	R487 153,30	R266 486,60	R380 343,54	107
March	R271 338,70	R116 124,20	R419 826,09	91
April	R305 310,50	R102 233,20	R319 449,68	83
May	R98 826,20	R186 356,20	R450 198,38	142
June	R233 726,80	R115 887,50	R522 586,90	153
July	R154 865,70	R215 102,00	R431 646,20	136
August	R378 631,00	R78 068,02	R549 267,90	117

September	R155 181,00	R449 122,90	R533 569,40	103
October	R175 074,00	R155 163,00	R779 726,00	130
November	R445 456,00	R280 689,10	R814 522,60	148
December	R450 947,00	R349 821,70	R828 141,00	205

- There are no invoices older than a year outstanding. Continues follow-up with the different institutions ensure payment

4. Medical Aid / Schemes

Medical Scheme Challenges:

- A major challenge is the non-payment of Prescribed Minimum Benefits (PMB). The outstanding PMB amount is in excess of R1M. Final action is to list all these cases and lodge a complaint with the Council for Medical Schemes
- If follow-up between the hospital and Medical Schemes (e.g. GEMS) exceeds four (4) months, these cases are regarded as stale claims and are referred to the Fund Manager for investigation
- Approved claims are submitted via EDI to the Medical Schemes. A few cases have been identified that did not reflect on the Medical Scheme's system and causes further delays
- Certain Medical Schemes do not initially accept PET scan 1900 code and demand Nappi Codes

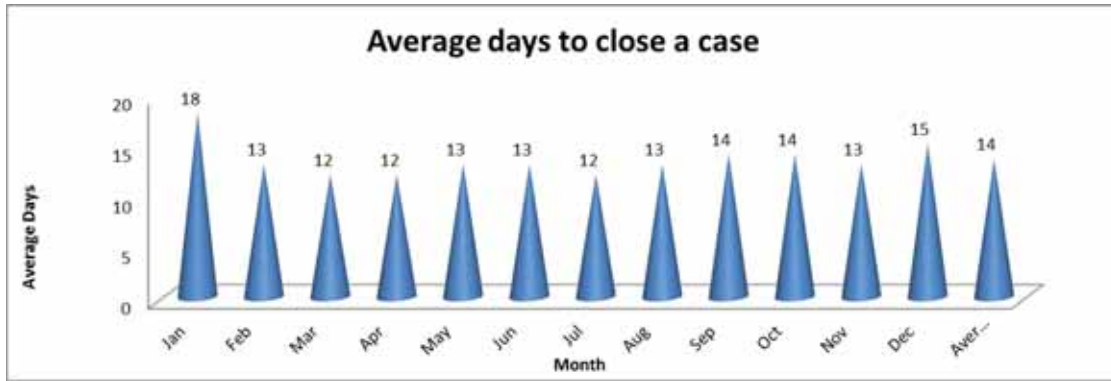
4.1 Stale Cases (cases submitted to the Schemes after 4 months)

STALE CASES STATISTICS – JAN TO DEC 2016		
Month	No. of Cases	Amount
January	40	R288 124,00
February	55	R298 393,00
March	8	R41 932,00
April	8	R41 932,00
May	12	R736 602,00
June	8	R721 490,00
July	8	R58 871,70
August	9	R58 983,70
September	11	R56 284,00
October	16	R65 249,00
November	18	R79 221,00
December	13	R62 234,00

Reasons:

- Patients/Debtors do not declare Medical Aid status which results in rejected claims by the Medical Schemes
- Follow-up by Fees staff can be a tedious task which can lead to claims not finalised within the submission period

4.2 Average days to submit a Medical scheme account: TBH – 14 days

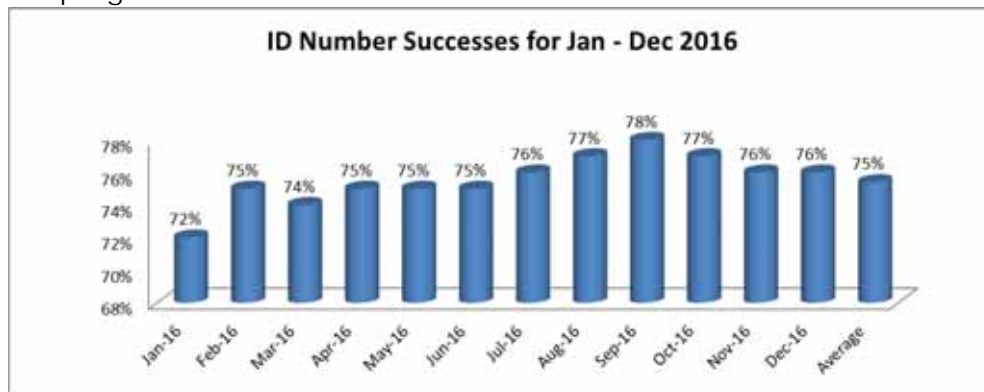


Average days to close a case for the Western Province		
2014	2015	2016
22 Days	22 Days	19 Days

- TBH successes are due to:
 - A dedicated person who manually flushes invoices on a daily basis,
 - Rapid finalisation of EDI rejections,
 - Procedures that are in place to monitor outstanding cases
- As a result, TBH is the only Central hospital that submits invoices to the Medical Schemes within the norm of 14 days

5. ID numbers

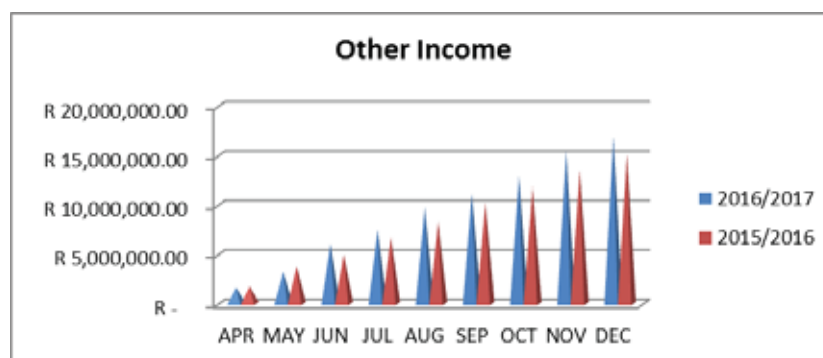
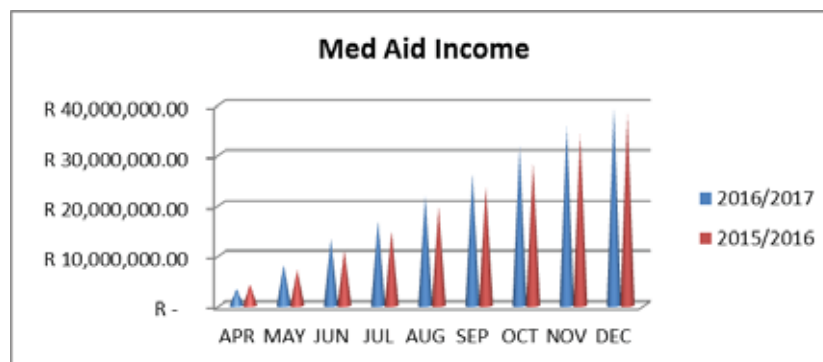
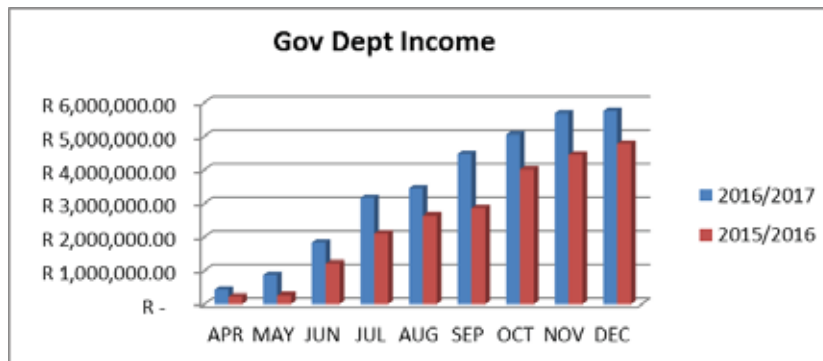
The progress of the ID numbers successes are as follows:



- Debtors are contacted by Fees and Patient Reception to obtain ID numbers
- Checks are done to identify ID numbers captured in incorrect fields on the Clinicom system
- Schedules with invoices outstanding 90 to 120 days are utilised to follow-up ID numbers before the invoices are handed over to a Debt Collector

6. Accumulated Income vs. Target

DESCRIPTION:	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
TOTAL INCOME 16/17	R 105,524,128.41	R 119,186,435.68	R 134,884,082.13	R 5,455,773.61	R 12,315,318.88	R 27,126,584.98	R 41,329,882.90	R 53,626,417.49	R 63,136,785.87	R 72,567,593.77	R 82,395,654.62	R 90,090,857.14
TARGET	R 89,025,833.30	R 97,928,416.63	R 106,830,999.96	R 9,047,250.00	R 18,094,500.00	R 27,141,750.00	R 36,189,000.00	R 45,236,250.00	R 54,283,500.00	R 63,330,750.00	R 72,378,000.00	R 81,425,250.00
OVER/UNDER TARGET	R 16,498,295.11	R 21,258,019.05	R 28,053,082.17	R -3,591,476.39	R -5,779,181.12	R -15,165.02	R 5,140,882.90	R 8,390,167.49	R 8,853,285.87	R 9,236,843.77	R 10,017,654.62	R 8,665,607.14
PERCENTAGE	18.5%	21.7%	26.3%	-39.7%	-31.9%	-0.1%	14.2%	18.5%	16.3%	14.6%	13.8%	10.6%



7. BAS/AR Reconciliation

The BAS/AR Recon has been successfully reconciled every month in spite of the following challenges:

- Incorrect Accounts Receivable reports that are identified and referred back to Head Office so that the correct reports can be sent for reconciliation purposes. The recon clerk was compelled to use his own time to complete the BAS/AR reconciliation
- The computer system does not automatically default dates and references through to the correct transaction. This has to be done manually to reduce the differences on the final report
- Hospitals do not always transfer payments timeously. Reconciliation clerk has to follow-up with the relevant hospitals
- The due dates for the submission of the Reconciliation compliance certificates were also reduced by a week and all transactions still had to be verified in a short period of time
- Debits were reduced considerably due to the diligent effort of staff to successfully clear errors in the same accounting month
- To expedite the reconciliation process, as soon as payments are authorised on the system it is immediately updated on the reconciliation list

This has also reduced the Debits as follows:

Book Year	2014/15	2015/2016	2016/17
Debits	R461 169,06	R129 144,66	R86 687,44

8. Complaints

- The dispute of accounts is mainly due to the dissatisfaction with Clinical Services and the unaffordability of services at a Central hospital
- An increase in complaints annually is experienced
- Debtors/Patients are more aware of the different channels where complaints can be lodged
- A generic email address was created during October 2016 and this enables debtors to communicate online with this Department

Stats of complaints (Incl. PALS) from April to December 2016 are as follows:

Month 2016	Total	Medical Manager	General Complaints	Resolved	Outstanding
January	20	4	16	20	0
February	25	6	19	25	0
March	27	9	18	27	0
April	30	15	15	30	0
May	30	13	17	30	0
June	27	12	15	27	0
July	32	5	27	32	0
August	26	6	20	26	0
September	28	10	18	28	0
October	29	3	26	27	2
November	44	6	38	38	6
December	24	4	20	20	4

9. Highlights

- The days to close EDI rejected cases still remain at a high successful rate
- The monthly audit by DICU on the Compliance Assessment Report has no discrepancies (2 discrepancies October 2016 – cashier viewer sessions not closed timeously)
- The IOD and RAF reconciliation were reviewed and cases referred to as paid were forwarded to Head Office to allocate against the Accounts Receivable System
- Two interns were appointed on 1 April and one transferred to another institution on 1 September. Their continuous assistance to staff ensures that they receive the necessary experience
- The annual revenue target is set at R81 425 250,00 as at 31 December, the actual revenue totals R90 90 857,14
- The target set for the financial year is R108 567 000,00. It is foreseen that the total income for the financial year will exceed

10. Personnel

10.1 Training

TRAINING STATISTIC: HOSPITAL FEES			
TRAINING	DURATION	TARGET GROUP	NUMBER OF STAFF
Introduction to BAS	5 days	Admin. Clerks	1
Absenteeism in the workplace	1 day	Admin. Officer	2
Office Management	1 day	Admin. Officer	1
MS Excel Level 1-3	3 days	Admin Officer & Admin. Clerks	6
Ms Access Level 1-3	3 days	Admin. Clerks	2
Project Management	5 days	Admin. Clerks	2
MS Word	2 days	Admin. Clerks	4
Health and Safety	2 days	Admin. Clerks	4
Disciplinary and Grievances Sessions	2 days	Admin. Officer	2
Bas Sundry Payments	5 days	Admin. Officer & Admin. Clerks	3
MS Power Point Level 1-2	2 days	Admin. Officer & Admin. Clerks	6

10.2 Absenteeism

It has been brought to the attention of personnel, it is monitored.

10.3 Disciplinary

Verbal Warning	x 4
Written Warning	x 1
Counselling	x 4
Dismissed	x 1

Medical Records

J. Jooste

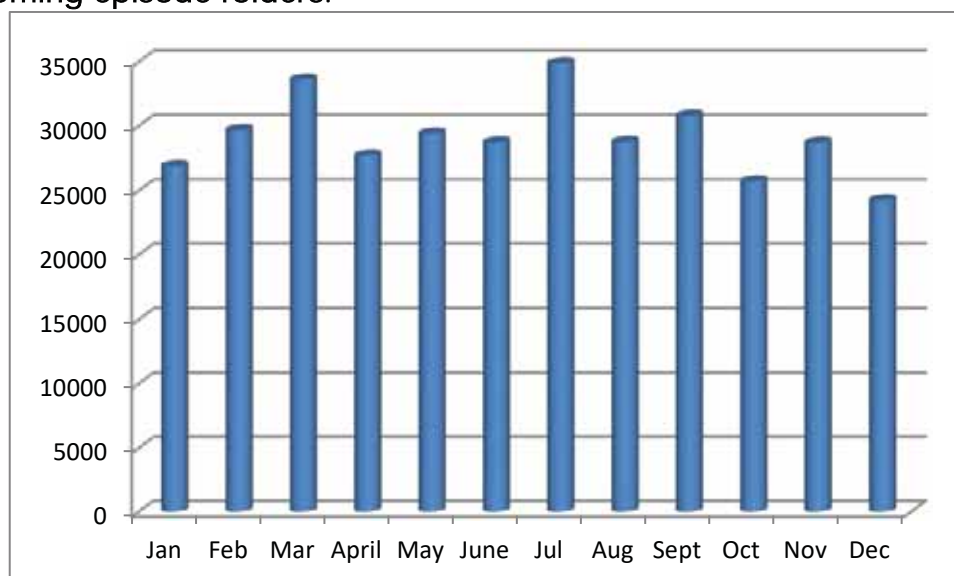
Summary of activities : Managing patients case notes
ECM Scan Centre
Archiving
Training stats
Disciplinary

Resources:

Posts (Full-time)	Number	Filled
SAO	1	1
AO	2	2
SAC	51	46
Messengers	5	5
Posts (sessional – how many hours worked per week)		

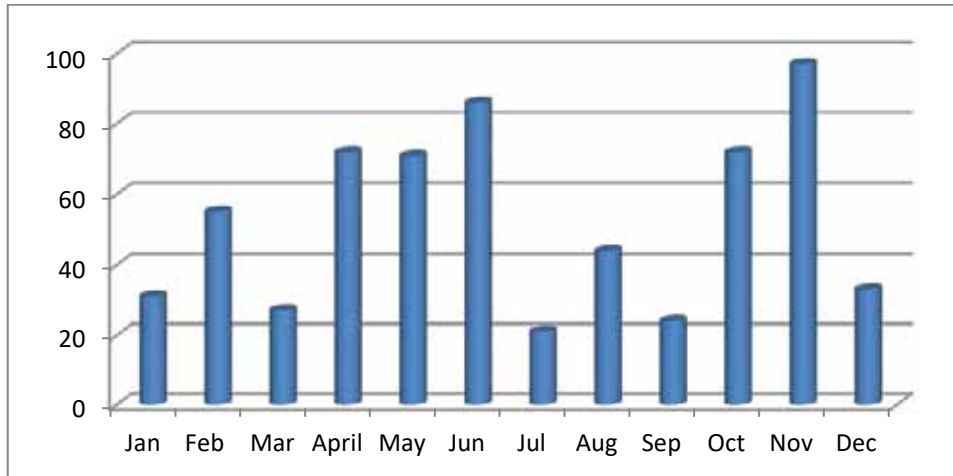
Output: Managing Case Notes

- Incoming episode folders:



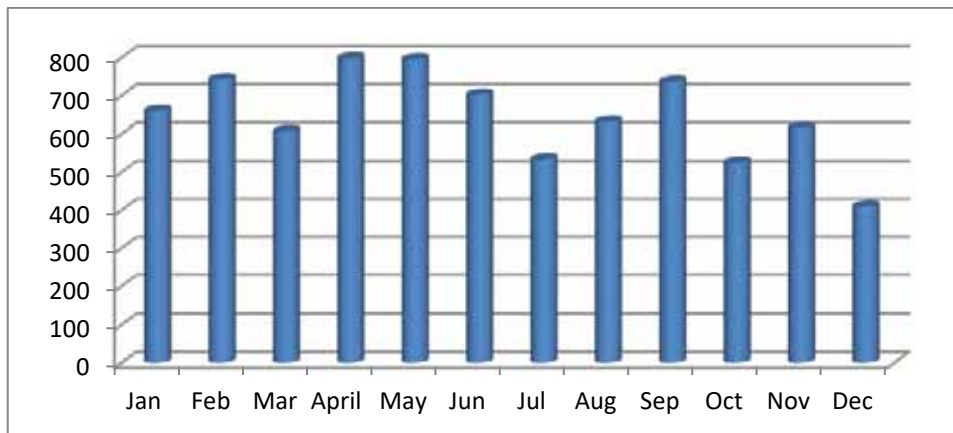
A batching spreadsheet is used by Medical records to track incoming episode of a patient's visit. We do not issue folders hence we cannot track outstanding folders; this is due to the implementation of ECM.

- Merging of Duplicates folders



The Hospital still experience challenges with incomplete discharges of referral hospitals. The receiving hospital is unable to merge the duplicate folders.

- Appointment list – ENT not on ECM

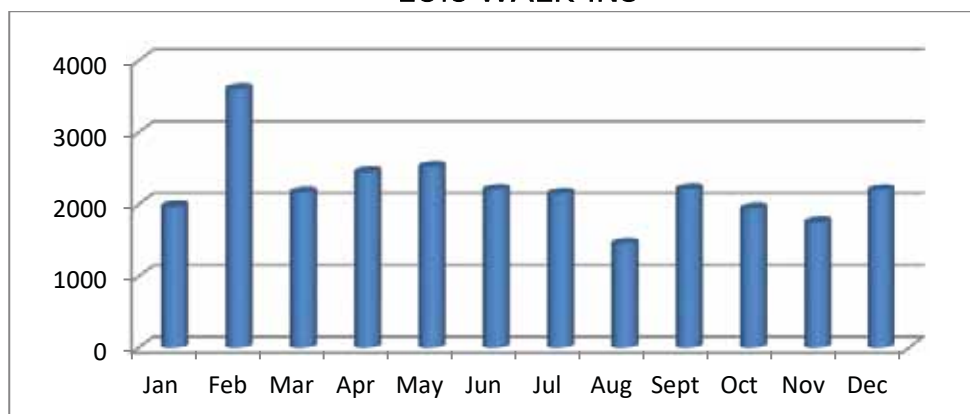


Challenges

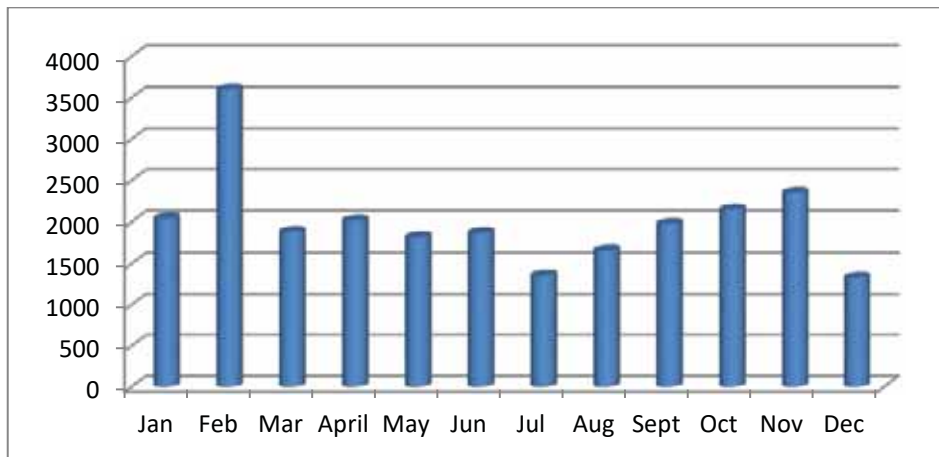
Requests from other disciplines that require ENT information which is not scanned create friction and additional work for Medical Records as the main folder has to be retrieved and issued.

- Walk-ins: 2016 VS 2015

2016 WALK-INS



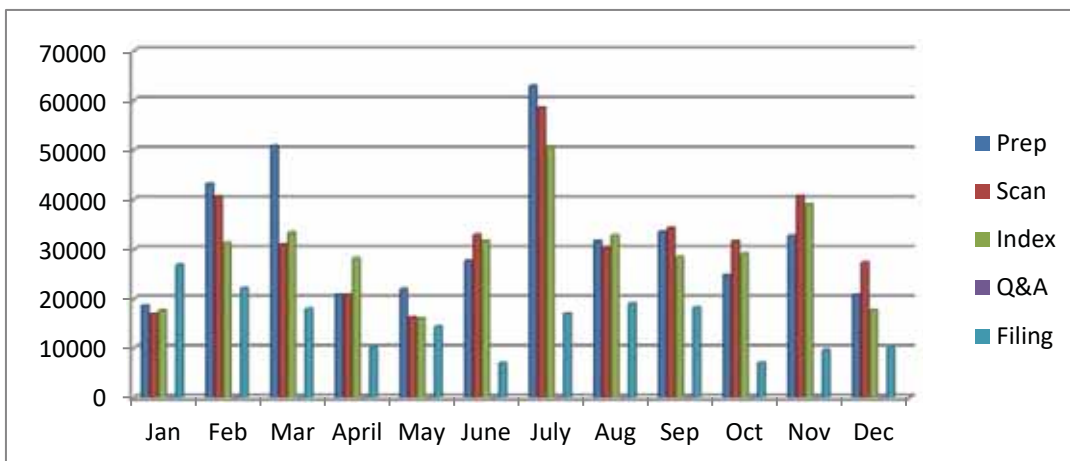
2015 WALK-INS



Average is the same for both 2015 and 2016. We are of the opinion that the January holidays may have impacted on the higher number of walk-ins during February.

Output: Ecm Scan Centre

- ECM Processes: January To December 2016



Analysis of the above table:

Highlights:

- The record number of episode folders scanned during the month of July 2016 was due to a large number of staff performing overtime duties to eradicate the ever increasing backlog in the scan centre. In general, overtime has to be performed to keep up with the demand.
- February and March depict the highest number of prepping, this due to the fact that additional staff was put in that area to ensure that more folders are ready for scanning.

Challenges:

- Indexing of episode folders are sabotaged by the using of non-barcoded forms, prohibited of copies at the service areas, utilising incorrect barcode forms, etc.
- Quality Assurance functions could not be performed due to the labour intensive processes of the electronic filing system and insufficient staff. This poses a big risk.
- There is great disparity between the folders scanned and the folders refiled. This due to the fact that permanent folders have to be traced on Clinicom and drawn at one of four (4) storerooms.

Output: Archiving

Highlights:

- A destruction certificate was received for 360 000 thick inactive folders during 2016
 - 120 000 inactive folders, less than 3 cm, were scanned and in the process to be archived into ECM. Destruction certificate is awaited
- Challenges:
- A total of 480 000 inactive folders still need to be Indexed (publishing of information on ECM), however this enormous task is dominated by current active episode information that require immediate attention

Training stats

Month	Course	Total
April	Introduction to Junior Management	2
	Progressive Discipline	1
June	Office Management	5
	Time Management	1
September	Etiquettes and ethics in the work place	3
	Managing Absenteeism	4
	Customer Care	5
November	Induction	1
	Project Management	1

Disciplinary Stats

Date	Name	Transgression	Measure taken
April / September / November	Registry Clerk	No communication	Verbal warning AWOL and Dismissal
November	Registry Clerk	No communication	Written warning
August	Registry Clerk	Working Performance	Counselling Session, referred to EAP
September	Registry Clerk	Away from workstation	Counselling
November	M v/der Bergh	Late coming	Counselling

Patient Reception services

J. Jooste (Patient Administration)

Summary of activities: Patient Reception Services is responsible for the administrative processes pertaining to the registration, admission and discharges of in- and outpatients on the Health Information System as per financial prescripts. This also includes the raising of tariffs and the issuing of invoices.

Resources:

Posts (Full time)	Number
Senior Administrative Officer	3
Administrative Officer	8

Senior Administrative Clerk	231
-----------------------------	-----

Outputs:

ICD 10 Coding % for January - December 2016 – OP and Inpatients
 Patient stats January – December 2016
 IT Related Matters
 Cashier Stats
 JAC
 Ordering of stock
 Theft at receptions
 Training stats
 Disciplinary stats

ICD 10 Coding Stats 2016

Month	OPD	IPD
January	94,99	95,81
February	96,50	96,48
March	96,45	95,21
April	98,53	96,56
May	96,63	94,85
June	96,67	96,10
July	96,31	95,73
August	95,69	95,46
September	96,53	92,87
October	97,03	91,29
November	96,00	89,70
December	96,70	89,00
Average	96,00%	94,00%

2015

Month	OPD	IPD
January	95,73	96,31
February	92,87	96,53
March	96,56	98,53
April	97,54%	96,23%
May	98,68%	94,40%
June	98,76%	96,94%
July	97,47%	96,86%
August	97,48%	95,37%
September	97,98%	94,03%
October	96,55%	95,28%
November	97,00%	95,00%
December	97,42%	94,23%
Average	97,00%	95,80%

Comments:

The stats were monitored to ensure that a high percentage of ICD10 codes were captured. There have been marginal drops in the percentages when compared to the performance during the previous calendar year.

Action:

Patient Reception Services assist the doctors with this task by making use of Generic code lists, which enable the clerks to provide the codes for common conditions and make use of previously used codes for patients who attend follow-up visits within the same clinic or discipline.

Patient Visit Stats

- Inpatient and Outpatient visit stats January to December 2016

Visit stats: January 2016 – November 2016			
Outpatients		Inpatients	
Grand Total	304 049	Grand Total	65 725
Monthly average	27 641	Monthly average	5 477

Comments

During the financial year, the Section was incapacitated by personnel shortages due natural attrition.

Although these positions were mostly filled towards the latter half of the annual year, the Section mostly had to function despite these demanding conditions.

Challenges

Not all vacancies filled

Ten (10) staff appointed as at 01/12/2016

Eight (8) posts still remain vacant

Actions:

- Interns are used to fill in in areas where there are staff shortages
- Permanent staff used to cover two – three wards in the absence of ward clerks

IT-related Matters

Comments

Replacement of printers due to budget constraints is still a challenge and negatively impact on work processes

Seventeen (17) requests for new or replacement printers placed during 2014/2015

Five (5) printers received during 2016

Twelve (12) printers to be ordered

Cashier Stats January – December 2016

Month	Collections at Receptions
January	R163 755
February	R211 789
March	R213 750
April	R204 536
May	R237 918
June	R215 324
July	R205 854
August	R239 861
Sep	R232 290
Oct	R199 727
Nov	R242 220
Dec	R140 840
Average	R208 909

Cashier Stats January – December 2015

Month	Collections at Receptions
January	R196 047
February	R222 059
March	R245 383
April	R181 670
May	R238 675
June	R238 605
July	R237 605
August	R213 131
Sep	R218 206
Oct	R246 417
Nov	R212 744
Dec	R128 533
Average	R214 923

Comments:

On average, Patient Reception Services maintained an income generation of above R200 000 monthly.

The top achievers – cashiers' stats: (Annual Summary)

Area	Amount
E7 Reception	R173 876,60
E5 Reception	R165 388,85
H7 Reception	R161 637,69
.E3 Gynaecology	R118 172,40
E8 Reception	R117 035,70
X Block Gene Louw	R114 020,80

H4 Reception	R55 937,60
H6 Reception	R14 384,00

ID and Cellphone Successes Comparison

Cell & ID No's Success Rate 2015		
Month	ID no	Cell no
Jan-15	69%	72%
Feb-15	72%	73%
Mar-15	73%	74%
Apr-15	70%	73%
May-15	72%	74%
Jun-15	74%	75%
Jul-15	73%	75%
Aug-15	74%	75%
Sep-15	75%	76%
Oct-15	75%	77%
Nov-15	76%	77%
Dec-15	75%	78%
Average	73%	75%

Cell and ID No's Success Rate 2016		
Month	ID no	Cell no
Jan-16	72%	77%
Feb-16	75%	78%
Mar-16	74%	78%
Apr-16	75%	79%
May-16	75%	78%
Jun-16	75%	79%
Jul-16	76%	80%
Aug-16	77%	80%
Sep-16	78%	81%
Oct-16	77%	80%
Nov-16	76%	Not Available
Dec-16	76%	
Average	75%	79%

Comments:

ID stats were vigilantly reported on and monitored during the annual period.

An average success rate of 75% was maintained during this year.

The target for the ID stats is 80%, however this target poses some challenges which are the following:

- Patients who do not present their IDs during their visit
- Patients may not have their IDs during emergency attendances
- Foreigner patients count as visit stats, but do not have IDs

JAC

Comment

Below a comparison of the Pharmacy (JAC) and Billing Interface Error List for the current and previous annual report

Report Date	Drug Items	Folders
05/01/2016	1 140	433
01/02/2016	1 397	533
01/03/2016	1 570	603
04/04/2016	1 681	600
03/05/2016	1 524	677
01/06/2016	1 201	577
01/07/2016	1 420	622
01/08/2016	1 072	517
01/09/2016	1 309	620
01/10/2016	1 262	669
02/11/2016	1 399	736
01/12/2016	1 267	694
Average	1 353	606

Report Date	Drug Items	Folders
01/01/2015	No report Received	
01/02/2015	40 433	8 734
01/03/2015	38 977	8 573
01/04/2015	36 679	8 102
04/05/2015	38 298	8 601
01/06/2015	39 032	8 751
01/07/2015	4 268	1 366
03/08/2015	1 509	532
03/09/2015	1 988	703
01/10/2015	2 195	805
02/11/2015	1 482	545
01/12/2015	1 337	543
Average	18 745	4 295

Action:

Processes have been put in place to significantly decrease the numbers reflecting on this report, e.g.

- Day surgery sends lists of patient names and medication back to Pharmacy so that it can be removed from JAC
- ARV Clubs make use of club registers to attend patients who receive medication off-site
- A JAC report is drawn on a daily basis and sent to Patient Reception Services for investigation

Challenges

- Medication issued to patients who have not been attended at a clinic or ward at Tygerberg Hospital
- There is a percentage of unknown cases that cannot be linked to medication issued on JAC
- Incorrect patient numbers captured on JAC to issue medication

Ordering of stock

The delivery of crutches and artificial aids were delayed due to procurement processes. Subsequently patients were requested to come back for devices.

The following summary is a list of outstanding items ordered between January 2016 and October 2016 that have not been delivered as at the end of December 2016:

- 2 400 Adult Crutches
- 300 Child Crutches
- 130 Crutch Gutters
- 2 500 Crutch Elbows
- 690 Don Joy Braces
- 2 100 Hosiery
- 1 030 Moonboots
- 300 Philadelphia Collar
- 1 140 Post Op Shoes

Thefts at receptions

Comment

During the previous reporting year Patient Reception Services had 12 break-ins at various reception points. There have been two reported incidents of attempted break-ins during October 2016.

Action

The list below indicates security reinforcements that have been made to secure the computers and hardware from theft at all reception areas, with the exception of E5 which is a precast office space.

Security Upgrades:

- Mesh Wiring
- Shutters
- Access Controlled Gates and Doors

Ongoing and Future Plans:

Security improvement at Receptions

Procure additional Computer cages for remaining reception areas.

- Ten (10) Received and installed
- Twenty (20) to be procured in new financial year

Healthnet Booking System:

Access to the Healthnet Application enables the clerks to make transport bookings for rural

patients.

Below follows a summary of the areas that have received the Healthnet Application and those areas that are currently awaiting installation.

Summary:

Twenty-six (26) Areas Active on Healthnet

Sixty-four (64) Inactive

Highlights

Appointment of 10 staff members as of 1 December 2016

Revenue generated at reception points R2 507 864

September: 78% ID success rate

Printers:

Five (5) Label printers received and installed during the first quarter

Training stats

RANK	Title of Short Course	
Sen. Admin Clerk	Clinicom training	16
Sen. Admin Clerk	Conflict Management	3
Sen. Admin Clerk	Life Skills	5
Sen. Admin Clerk	Managing Absence in the Workplace	4
Sen. Admin Clerk	Public Service Induction	6
Sen. Admin Clerk	Intro to Junior Management	1
Sen. Admin Clerk	Foreigners Training	198

Notwithstanding a high number of vacancies, the supervisor managed to nominate a substantial number of staff members for skills development.

17. Disciplinary stats

The table hereunder collectively displays transgressions where disciplinary measures were necessary for the period January to December 2015. The sanctions actioned for each case were adjudicated according to the severity of the misconduct.

Nature of transgression	Warnings issued (Quantity)	Sanction
Absenteeism	7	4 Verbal, 3 Written warnings
Abuse of Leave	2	Final Written warnings
Incorrect application of policies	87	Counselling
Unprofessional Conduct	1	Verbal
Not Adhering to Financial Prescripts	1	Counselling

Case Management

J. Jooste

Summary of activities:

All medical scheme-related activities,
i.e. Pre-authorisations,
Continuous updates of Pre-authorisations,
Auditing of Medical Scheme accounts,
Addressing medical scheme enquiries

Resources:

Posts (Full-time)	Number	Filled
Registry Clerk	1	1
Case Managers	4	3
Account Controllers	5	4
Confirmation Clerk	2	2

Output:

- Missing and Invalid ICD10 coding – EDI rejected cases
- Top 10 ICD10 Codes
- Top 5 Medical Schemes
- Admissions per scheme
- Average days to close a case
- Challenges
- Teaching and training
- Misconduct

Electronic Data Interface Rejections (EDI)

Month 2016	No. of cases	Cost
April	17	R102 112,60
May	18	R28 209,00
June	35	R99 679,00
July	42	R100 093,00
August	19	R294 673,00
September	48	R302 628,00
October	49	R145 341,00
November	17	R42 770,00
December	39	R133 938,00

- All Medical Schemes rejections are followed up and corrected by Hospital Fees on a daily basis
- Our main contributors to our rejections: Member Number Invalid, Patient First Name Invalid Member Suspended

The reasons for these rejections are, among other, as follows:

- Due to the high volume of outpatient invoices, all OP cases are not coded by the Case Management Department. Follow-up OP cases to be strictly monitored by Patient Reception Services (Invoice tracking report)
- Patients not declaring their Medical Aid status on day of visit
- Codes are supplied but not accepted by Medical Aids – these cases are resubmitted

Top 10 ICD10 Codes:

Top 10 Outpatient Codes													
Sum of TTL	Diag Code Primary	Description	Years Date 2016										Grand Total
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	
	C50.9	Malignant neoplasm, breast, unspecified	911	1208	1223	1126	1239	1079	1107	1248	1129	1107	11377
	O26.9	Pregnancy-related condition, unspecified	2129	1998	2140	1922	1749	1937	1707	1969	1721	1851	19123
	Z01.6	Radiological examination, not elsewhere classified	6896	7966	8009	7908	8824	8952	8037	7651	8127	8824	81194
	Z01.8	Other specified special examinations	2787	3192	3041	3023	3517	3594	3198	3331	3164	2649	31496
	Z09.9	Follow-up examination after unspecified treatment for other conditions	1195	1342	1290	1178	1365	1314	1274	1446	1435	1236	13075
	Z35.8	Supervision of other high-risk pregnancies	1027	1430	1343	1285	1441	1532	1239	1449	1478	1789	14013
	Z35.9	Supervision of high-risk pregnancy, unspecified	990	986	1230	1195	992	935	1210	1199	1256	1010	11003
	Z47.9	Orthopaedic follow-up care, unspecified	2223	2371	2193	2104	2768	3022	2911	3231	2641	1793	25257
	Z76.0	Issue of repeat prescription	806	968	947	869	1106	1031	936	1164	1046	958	9831
	(blank)	(blank)	2057	1549	1591	1453	1586	1564	1547	2214	1565	1419	16545

Top 10 Inpatient Codes

Sum of Istat Count	ICD 10 Code	ICD 10 Description	Years Disch Date 2016										Grand Total
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	
10			113	107	107	123	100	128	92	126	118	96	1110
10.4		Other and unspecified abdominal pain	151	127	139	109	101	115	139	154	127	169	1331
H26.9		Cataract, unspecified	123	116	120	91	57	61	67	103	63	71	872
I25.9		Chronic ischaemic heart disease, unspecified	75	101	107	86	110	100	105	101	116	103	1004
O14.9		Pre-eclampsia, unspecified	167	180	213	237	180	203	232	152	169	154	1887
O60.0		Preterm labour without delivery	114	96	85	25	92	69	78	43	61	85	748
O80.0		Spontaneous vertex delivery	129	147	185	173	180	154	155	165	176	147	1611
P07.3		Other preterm infants	186	157	197	190	197	183	171	146	167	164	1758
Z00.8		Other general examinations	55	67	30	87	76	184	136	118	144	162	1059
(blank)		(blank)	206	174	211	213	275	207	226	241	395	467	2615
Grand Total			1319	1272	1394	1334	1368	1404	1401	1349	1536	1618	13995

Stat for Nov/Dec 2016 was not yet available at time of compiling the annual report.

Top 5 Medical Schemes:

Total Cost (Submitted)	In Patient		Out Patient	
	Current Financial YTD	Prior Financial YTD	Current Financial YTD	Prior Financial YTD
82899 GOVERNMENT EMPLOYEES MEDICAL SCHEME	R23 601 476,87	R18 087 104,69	R10 346 760,16	R8 993 347,74
35092 TRANSMED	R22 396 983,38	R20,488,360.72	R4 274 033,32	R4 412 169,86
66850 DISCOVERY HEALTH ADMINISTERED SCHEME	R14 295 497,50	R12 007 256,70	R6 654 855,76	R5 820 065,60
87327 SAMWUMED NATIONAL MEDICAL SCHEME	R6 138 666,60	R5 823 596,10	R2 523 553,20	R2 887 591,90
24171 MEDSCHEME POLMED SCHEME	R3 346 021,40	R0,00	R1 417 707,46	R0,00

As seen above, GEMS still remain our Top medical aid generating the most income with R23 601 476,87.

Admissions per scheme:

Number of Admissions	Inpatient		Outpatient	
	Current Financial YTD	Prior Financial YTD	Current Financial YTD	Prior Financial YTD
82899 GOVERNMENT EMPLOYEES MEDICAL SCHEME	1 917	1 843	16 962	17 179
66850 DISCOVERY HEALTH ADMINISTERED SCHEME	1 127	1 146	9 082	8 643
35092 TRANSMED	1 558	1 633	6 039	6 578
76759 MEDSCHEME BONITAS SCHEME	454	464	2 970	3 167
87327 SAMWUMED NATIONAL MEDICAL SCHEME	307	376	2 949	3 292

Challenges:

Queries/rejected cases:

Most of our queries and rejected payments are received from GEMS.

- One example is patient with invoice T15160009533 – Gems Emerald –admitted from 05/01/2016 to 15/01/2016 to the amount of R37 983,70. After several attempts from Medical Aids Office and Case Management for Chemotherapy medication authorisation, the account was finally paid in full.

Absenteeism:

Backlogs develop when an Account Controller or Case Manager goes on extended leave.

During these time periods, overtime and redistribution of duties are performed to eradicate the backlog.

Challenges in Oncology Department

1. Patients still not declaring their medical aid status until after treatments have been started.
2. There has been some difficulty during October and November to get authorisation from Medical Schemes. However, with the help of Head Office this problem has now been resolved.

Challenges in the Auditing Department

During the months of November and December there was only one Case Manager in the main hospital due to resignation of one Case Manager and one Case Manager on maternity leave. The result was a slight backlog with Medical Aid accounts.

Actions

Staff worked overtime, work was re-distributed and backlog was eradicated.

Challenges in the Case Management Department

During the months of October, November and December, there was only one Case Manager in the main hospital due to resignation of one Case Manager and one Case Manager on maternity leave.

Remunerated Overtime was performed to ensure all cases are attended to.

Teaching and Training

<u>Official</u>	<u>Training Intervention</u>	<u>Dates</u>
P. Krotz	ICD10 Training	November 2016
M. Boraine	ICD10 Training	November 2016
C. Laubscher	ICD10 Training	November 2016
V. Abrahams	ICD10 Training	November 2016
J. van Wyk	ICD10 Training	November 2016
W. Witbooi	ICD10 Training	November 2016

Misconduct

None.

NURSING AND SUPPORT SERVICES

Senior Manager: Ms Francilene Baartman

The Department is responsible for the provisioning of nursing and support services within the entire clinical platform of Tygerberg Hospital, which is divided into eight (8) modules, namely, Emergency, Internal Medicine, Outpatients Department, Obstetrics and Gynaecology, Paediatrics and Neonatology, Surgical and Orthopaedics services, Operating Theatres and Intensive Care. Each of these modules is under the Assistant Manager supported by the Deputy Manager Nursing.



Ms Francilene Baartman

As at 31 of December 2016, the staff compliment for the Nursing and Support Services Department is as follows:

Category	Filled
Senior Manager Nursing	
Deputy Manager Nursing	3
Assistant Managers Nursing	10
Professional Nurses	725
Professional Nurse Community Service	30
Bed Managers	1
Enrolled Nurse	413
Enrolled Nursing Auxiliary	797
OTP	4
CSSD Operators	70
Senior Housekeepers	222
Household Aids	380

During the period under review, particularly towards the end of the year, the Nursing Department had a serious shortage of staff specifically in clinical speciality areas such as Operating Theatre, Intensive Care, Trauma and Emergency, Paediatric, Neonatology, and Obstetrics and Gynaecology units. Ninety-three (93) posts were disabled in December as part of a savings measure. These posts have been opened in the new financial year. To mitigate this shortage, additional nursing personnel were procured either through the nursing agencies or Tygerberg overtime. However, nursing agencies were in most instances also unable to provide staff with required experience, skills and competencies, and in some instances the nursing personnel supplied by the nursing agencies did not honour the scheduled shifts.

Notwithstanding the challenges above, high patient's turnover and resource constraints the Nursing Department had some remarkable achievements which are but not limited to the following:

- Best care always was strengthened
- CLABSI and VAP continued as well as the surgical site infection bundle for Caesarean section surgery

Neonatal

- A9 NICU CLABSI programme was implemented in 2012 and the compliance with the bundle elements remains 100%
- Nurse Mentor was appointed at Surgical and Orthopaedics

- Two nursing audits were conducted to monitor nursing care standards and to ensure compliance with NCS
- Sixty-six (66) Operational Managers completed Operational Manager's development programme. As part of the Tygerberg Hospital (TBH) Nursing Management's Leadership Development and Succession planning, the TBH Operational Managers' training programme was initiated in 2014

The aim of the programme is:

- Part of induction and orientation for the newly appointed Operational Manager
- A skills development intervention for current incumbents of posts
- Update of the knowledge base and of departmental policies, legislation and practices
- To train and update the Managers on managerial processes, concepts and principles
- The expected outcome is to develop effective leadership in order to deliver quality patient care
- Fourteen (14) IPC LINK Nurses were trained
- Caring Ethos, 88 nurses were trained

Tygerberg Hospital Nursing Organogram



- Thirty-four (34) Nurses obtained Specialist Nursing qualifications (completed post basic training programmes)
- Hartman Nursing Leadership and Clinical Excellence Awards was held in October 2016

In our quest to improve nursing care, in-service training was provided to staff both on night duty and day duty. Nursing staff attended various national workshops and conferences. The Department also serve as a clinical training platform for nursing students from various accredited nursing education institutions in the province.

Outpatients Department

Mrs M. Majiedt

Services Offered:

The Outpatients Department consists of 25 clinics.

Two of the three clinics are neutrally staffed, i.e. Pain Clinic and the Phlebotomy Clinic.

The Unit for Infection Prevention and Control is also under supervision of the Nursing Manager OPD.

The location and brief description are as follows:

Ground Floor: Registration. All new patients report there and folders are opened and directed to the various floors.

- Third Floor:**
- (a) Termination of pregnancy – first and second trimesters. Small gynaecological procedures are also done.
Service to free up theatre clinic
 - (b) Gynaecology Clinic – Urogynae, Endogynae, Infertility and general gynae
 - (c) Oncology – Colposcopy and staging

Fourth Floor: Radiology Department: General X-rays Investigative radiological examinations sonar
Barium swallow MRI CT Scan fluoroscopic examinations mammography

- Fifth Floor:**
- (a) Head, Neck and Breast Clinic, Abdominal Oncology, Thyroid Breast Clinic
 - (b) Pain Clinic – Wednesdays only
 - (c) Collateral Surgery
Neurosurgery Surgery
Abdominal Surgery
Paediatric Surgery
Vascular Surgery
Burns
Maxillofacial
Plastic Surgery – Harelip and Cleft Palate
Anorectal Clinic
Dressing room
 - (d) Stoma Clinic – Renders a service to the wards as well as an outpatient
Service Includes dressings of large oozing wounds
 - (c) ENT Clinic and Audiology

- Sixth Floor:**
- (a) Orthopaedic East, hand, sports injuries, special orthopaedic frame and all trauma injuries
 - (b) Orthopaedic West – Specialised orthopaedic treatment, replacements hip, knee, shoulder, club feet, chiropody service
 - (c) Urology Clinic

- Seventh Floor:**
- (a) Specialised clinics - Rheumatology, Nephrology Allergy
 - (b) Diabetic Endocrine Epileptic Clinic
 - (c) Ophthalmology

- Eighth Floor:**
- (a) Cardiac Clinic – ECF room + Echo room
 - (b) Internal Medicine
 - (c) Occupational Health and Staff Clinic
 - (d) Dermatology
 - (e) Infectious Disease Clinic

Ninth Floor: Haematology (Bone Marrow Clinic)

Tenth Floor: Nuclear Medicine – Various investigative radiological examinations to:
Thyroid Bone lung scans, Renograms MIBI's

Patients seen: 284 885

Highlights of the year

1. Various clinic toilets were renovated.
2. Staff at Stoma Clinic received training in Fistalaclysis nursing care. The service to be introduced at TBH scan.
3. Occupational Health Clinic received audio booth awaiting installation of software.
4. Phlebotomy Clinic fully functional by July 2016. Nursing and medical students are placed to learn the skill of drawing blood. Total patients attended 22 516.
5. Diabetic Clinic has attained sonar machine.
6. IDC – Adolescent patients attended a camp during September school holidays. A reading room for younger children manned by volunteers was also opened.
7. Ophthalmology Clinic appointment of Unit Manager Nursing. Outreach to Caledon Hospital. The Vala referral method was implemented.
8. ENT received new optic fibre scope.
9. Orthopaedic group doctor's upgraded Nurses' tea room.

Theatre/Operating Rooms

Mr R. Visagie/ Ms M. Nel

Overview of Services

- This unit renders a competent, safe, compassionate and ethical-based health service to hospitals and clinics in the drainage area.
- The unit performs in average ± 165 cases per day in the general theatres and ± 25 cases per day in the emergency theatres.

Resources

- Area Managers 2
- Professional Nurses Total 76
- Specialty Professional Nurses 46
- General Professional Nurses 30
- Staff Nurses 37
- Nursing Assistants 55
- Admin Clerks 5
- General Assistants 38
- Housekeepers 5

Output

- Theatres for elective cases 28
- Catheterization Laboratory 1
- Radiology Theatre 1
- Emergency Theatres 3
- Decontamination Theatre for Nuclear Radiation 1

Comment on Output

± 31 498 cases were done in 2016.

Infrastructural Development

The upgrading of third floor and the theatre doors are postponed until further notice.

Highlights of the year

Hartman Awards handed to:

- C. Andrews: Professional Nurse

- P. Seconds: Staff Nurse
- D. Bostander; Nursing Assistant
- Strategic Planning session was held at Buffelsjag
- 10% of objectives for 2016 were reached
- Testing the readiness for a Nuclear Decontamination theatre was held 9 November 2016 with Eskom

Conclusion

The planning for upgrading of the third floor theatres, doors and staff rest rooms to uplift the morale is a priority.

Obstetrics And Gynaecology

Mrs J.R. Sapto

1. Services:

WARD	NO. OF BEDS
C2A LABOUR WARD	19
C2A EAST	27
C2A RECOVERY ROOM	
F2 ANTENATAL	34
J2 POST CEASAREAN SECTION	28
J5 POSTNATAL	23
J4 GYNAECOLOGY	33
F-GROUND GYNAECOLOGY	25
C3B HIGH RISK CLINIC, SONAR, FETAL EVALUATION CLINIC AND FAMILY PLANNING	
TOTAL	189

Resources:

Assistant Manager Nursing	1
Operational Manager nursing	7
Professional Nurses	98
Enrolled Nurses	44
Nursing Assistants	98
Administration	2
Housekeeping staff	42

2. Number of beds: 189

3. Average bed occupancy: 85%

4. Highlights of the year

- The institution maintained MBFI status after a national evaluation
- Remarkable improvement from 2% to 87% in SSI-compliance due to improvement in pre-operative care

- The staff of Obstetrics and Gynaecology reached out in a combined efforts with the metro police and present 67 bags with toiletries to the Sarah Baartman home for abused women on Madiba Day 2016
- Employee of the Quarter for each ward was implemented to acknowledge Nursing and Support staff for excellent performance in the workplace
- All events on the Health calendar were celebrated and formed part of the teambuilding events in the Module

Academic:

- Four Professional Nurses successfully completed the Diploma in Advanced Midwifery
- One Nursing Assistant successfully completed the R2175 course
- The Hartman Memorial Award Ceremony: Three Nurses were awarded for Clinical Excellence

Special events:

- The Module hosted the first seminar for Housekeeping Staff in Tygerberg Hospital with the theme “Enhance Service excellence in the workplace”. The seminar was well attended by staff from the institution as well as surrounding hospitals. Total number of 80 staff members attended the seminar. The topics that were covered included Compassionate Care, Role of Environmental Cleaning in Infection Control, Problem Solving and Decision Making, Human Resource Management, Support Services in the Public Service and Serving of Meals. The organising team of this event consisted of Nursing and Housekeeping staff. This also served as empowerment of staff in organising and hosting of events.

INTERNAL MEDICINE

Mrs L.A Paterson

1. Services:

- The Internal Medicine Module consists of Internal Medicine, Psychiatry and an Oncology Unit
- The Module includes 4 Medical wards, 1 Metabolic Unit, 1 Dermatology and Neurology Ward
- Psychiatry – 3 Inpatient wards (1 Adolescent Unit and 2 Adult wards) and 2 Outpatients Clinics, namely Child Psychiatry and Adult Psychiatry
- Oncology – 2 Oncology wards with an Oncology Outpatient Department

2. Number of beds:

Internal Medicine	:	156 beds
Psychiatry	:	48 beds
Oncology	:	47 beds

Resources:

Operational Nurse Managers	11
Professional Nurses	77
Staff Nurses	43
Assistant Nurses	86
Administration Clerk	1
Housekeeping Supervisors	9
Household Aids	56

3. Average bed occupancy

WARD	UNIT	BOR
INTERNAL WARDS		
(Highly specialised service) A10 and A8W	METABOLIC UNIT NEUROLOGY/ DERMATOLOGY	78%
(General specialised service) D10 D9 D8 A8E	TUBERCULOSIS INTERNAL MEDICINE HAEMATOLOGY INTERNAL MEDICINE	97%
PSYCHIATRY WARDS		
DG and DLG	ADULT PSYCHIATRY	109%
GLG	CHILD AND ADOLESCENT PSYCHIATRY	82%
ONCOLOGY WARDS		
H1X	ONCOLOGY	86%
H2X	ONCOLOGY	86%

4. Highlights of the year

- Link Nurse (IPC Training) was done to improve IPC skills by Registered Professional Nurses for 2016 (total = 9)
- Hemophilia course was done by x1 Registered Professional Nurses for 2016
- One Registered Enrolled Nurse attended the MASAC Conference (Haemophilia) in Johannesburg
- The second Mental Healthcare Seminar held on 29 October 2015
- X1 Operational Manager attended a Mental Healthcare Seminar in Johannesburg
- The Annual Hartman Awards was held on 25 October 2016. The Nurses awarded for Clinical Excellence were RPN L. Sefela; REN J. Hendricks and RAN N. Matinisi
- RPN R. Abrahams received an award as the 2nd runner-up for Best Performance in IPC for 2016
- The first Breast Cancer Seminar was held on 7 October 2016
- Staff development took place among all categories of staff throughout the year

Surgical

Mr R de Bruyn

1. Services:

Area	Beds	Service	Average Bed Occupancy
Ward D1	25	• Vascular surgery	96%
Ward D2	31	• Abdominal surgery	76%
Ward D3	30	• Plastic /Max Fac. Surgery	69%
Ward D4	28	• Private (Medical/Surgical/Orthopedics/ Cardiology)	110%
Ward D5	31	• Head, Neck and Breast surgery /Abdominal Surgery	71%
Ward D6	31	• Urology	76%
Ward D7	31	• Ophthalmology surgery (Speciality)	69%

Ward G5	22	<ul style="list-style-type: none"> • Ear Nose and Throat surgery 	94%
Ward A3H	31	<ul style="list-style-type: none"> • L 2 – General orthopaedic ward 	80%
Ward A3W	31	<ul style="list-style-type: none"> • L 3 – Orthopaedic ward (Neck and spine injuries) 	86%
Ward F4	32	<ul style="list-style-type: none"> • L 3 – Orthopaedic ward (Hip and knee replacements) 	86%
Ward J6	29	<ul style="list-style-type: none"> • L 2 – Septic orthopaedic ward 	81%

2. Total Number of beds: 352

3. Resources:

Assistant Manager Nursing	1
Operational Nurse Managers	12
Professional nurses	66
Staff Nurses	51
Nursing Assistant	129
Housekeepers	12
Household Aids	44

4. Highlights of the year:

Hartman Clinical Excellence Awards 2016

- Professional Nurses Award: RPN M. Damons
- Staff Nurse: REN R. Viljoen
- Nursing Assistant: RAN R. Sivanda

Smile Week

The Smile Week outreach programme to children with cleft lips and palates was held from 7-11 November 2016. Operations done were 37.

Through the Smile Foundation a wound care workshop was arranged and attended by both Tygerberg Hospital and Nurses from other hospitals.

5. Academic:

- Professional Nurse x1 completed the Basic Diploma in Midwifery
- Professional Nurses x2 completed Post Basic Diploma in Orthopaedic Nursing.

Intensive Care

Mrs R Walsh

1. Services:

- A1 W Surgical ICU
- A1 E Burn Unit
- A2 Cardiac Thoracic Surgery
- A4 Neuro Surgery Adults & Paediatrics, Thoracic Surgery
- A5 High Care – Medical & Surgical
- A5 Bronchoscopy theatre
- A5 Medical Unit
- A6 High Care Cardio
- A6 Unit Cardio

- A7 Peritoneal dialysis and haemodialysis procedures, kidney transplant, transplants and peritoneal dialysis, outpatient's clinics+
- Total Parenteral Nutrition Care

2. Resources:

Assistant Manager Nursing	1
Operational Managers	10
Registered Professional Nurses	155
Registered Staff Nurses	73
Registered Nursing Assistants	88
Nursing Administration Clerks	4

3. Number of Beds:

174

4. Average bed occupancy:

100%

5. Highlights of the year:

- Open Day was held by A7 Nephrology Department on World Kidney Day in March 2016. This function was attended by members of the public
- Open Day was held by A7 Nephrology Department in August 2016 to make public and staff aware of organ donation
- Good progress with Best Care Always bundles – VAP (Ventilated Associated Pneumonia) in A5 Medical Unit, A4 Neurosurgical Unit, A5 High Care medical and surgical, A1 Burn Unit and CLABSI (Central Line Associated Bloodstream Infection) A1 West, Surgical Unit and A5 Medical Unit and A1 Burn Unit
- Surgical Site Infection Bundle (SSI) is rolled out to the Cardio Thoracic Unit (Ward A2) October 2016

6. Academic:

- Four Professional Nurses successfully completed the Diploma in Critical Care during 2016
- Three Professional Nurses successfully completed the Diploma in Obstetrics 2016
- Two Enrolled Nurses successfully completed the R683 course
- Three Nurses were awarded Clinical Excellence Awards at the Hartman Memorial Award event in October 2016
- Conferences attended by Nursing Staff: Nephrology Conference September 2016 – Critical Care conference August 2016 – Neurosurgical Congress July 2016
- COPD workshop was held on 23 November 2016. (Manage the COPD patient). Thirty-four (34) officials attended
- Burn workshop was held on 28 October 2016 (Manage the burn patient). Sixty-two (62) officials attended

7. Special Events

- Staff Celebration functions was successfully held on International Nurses' Day 2016, Mandela Day 2016 and Women's Day 2016.
- Several teambuilding efforts for staff in the ICU during December 2016
- The ICU Department was visited by the Minister of Health on 9 May 2016 to bid farewell to an Enrolled Nurse who retired after 47 years of Nursing service at Tygerberg Hospital

Emergency Services

Mrs S. Kleinsmith

1. Services:

Ward/Area	Beds	Service	Ave. Bed Occ.
F1	12 + Trolleys	Medical emergencies	112%
JG	32 beds	Medical emergencies	104%
J1	32 beds	Surgical emergencies	164%
C1A	25 trolleys	Trauma	199%
C1D East	19	Surgical emergencies <ul style="list-style-type: none">• 19 beds• 10 chairs• 3 cots	195%
J7	31	Trauma ward	89%
Resus	6 trolleys	Surgical Emergency	131%
Day Surgery	15	Day ward	26%
	Total: 141 beds only 31 (trolleys)		

2. Resources

Assistant Manager: Nursing	1
Operational Nurse Managers	8
Professional Nurses	72
Staff Nurses	47
Nursing Assistants	88
Housekeepers	6
Household Aids	41

3. Number of Beds:

Emergency: One hundred and forty-one (141) beds and use of 31 trolleys in emergency areas

4. Highlights of the Year

- Hartman Award Ceremony: x3 Nurses received awards for Clinical Excellence
- Installation of Trellidor burglar bars in Trauma
- Installation of blinds in Ward CID East

5. Academic

- X4 Professional Nurses completed Post Basic Diploma in Trauma and Emergency
- X2 Staff Nurse selected for R683 bridging course (still in training)

6. Special Events

- Various teambuilding events involving stakeholders in different wards, e.g. breakfast for Nurses' Day
- Serving of bread to patients on Mandela Day in Trauma

PAEDIATRICS

Mrs A. Jacobs

1. Services:

Paediatrics

Paediatric Intensive Care and High Care

Neonatology

Neonatal Paediatric Orthopaedics

Paediatric Surgery

Paediatric Oncology

KMC

2.

Area	Beds	Service	Average Bed Occupancy
Ward GGR	24	Paediatric Emergency	59%
Ward G1	30	Neonatology	91%
Ward G2	27	Neonatology	104%
Ward G3	18	Oncology	75%
Ward J3	25	Neonatology	108%
Ward G4	27	Surgery	72%
Ward G6	25	Orthopaedics	75%
Ward G7	25	General	82%
Ward G8	30	Neonatology	89%
Ward G9	30	Neurology	73%
Ward A9 PICU	10	Paediatric Intensive Care	81%
Ward A9 Paeds High Care	4	Paediatric High Care	59%
Ward A9 NICU	8	Neonatal Intensive Care	132%
Ward A9 High Care	4	Neonatal High Care	55%
Ward A9 Trachea	6	High Care	45%
Ward G10	23	Infectious Diseases	70%

3. Highlights of the year:

Hartman Awards:

ENA G. Taylor

EN C. Laban

PN M. Njoli

Elsa Reiner Trophy:

E. de Kock

Infection and Prevention Trophy

Ward J3 –E. de Kock

Mandela outreach to West Bank Educare

Mandela event from Managers to staff – handing out of soup

Four Operational Managers completed the OPM Programme

Head of Department
Prof. Gerhard Walzi

Summary of activities:

a) Molecular Biology and Human Genetics

Advisory Service

- The Animal TB Research Group provides technical and scientific services to veterinarians working in South African National Parks, KZN Wildlife Services, Department of Agriculture, Forest and Fisheries, and private veterinarians.
- The division also provides advice and assistance to other research groups and institutions both locally and internationally.
- The division has been consulted by international agencies regarding disease issues and testing for animals being moved across borders, ex. Australian Department of Agriculture.



Prof. Gerhard Walzi

Client / Community benefit

- Due to the lack of available diagnostic tests for TB in wildlife, the department is working with the national parks in South Africa to develop and test new techniques for detecting TB in these populations.
- Sharing information and engaging with the Department of Agriculture, Forest and Fisheries, and state veterinarians to provide access to testing at our laboratories.
- Collaboration with the National Health Laboratory Service (NHLS) immunology group at Medical Microbiology (Prof. Esser) on development of immunological assays for evaluation of primary immunodeficiencies, as well as working with this division for Toxoplasmosis diagnostics.
- Collaboration with Prof. Jonathan Carr from Neurology (Tygerberg Hospital and Stellenbosch University) to evaluate the genetics of Parkinson's disease patients.

Public awareness, public engagement and publicity

- Interviews and press releases in The Times (South Africa), Mail & Guardian (South Africa), multiple radio broadcasts on East Coast Radio, Algoa FM, Jacaranda Radio, online publications Biz Community, Lifestyle, OFM, Health24, and posting on the Medical Research Council's website
- Prof. Miller was invited to or keynote speaker at four international conferences or workshops
- Two radio interviews on Valley FM and VOC FM regarding KhoiSan genetics.
- 11 April 2016 was World Parkinson's Disease Day to increase awareness about Parkinson's disease. Members of the Parkinson's disease group gave several interviews to local newspapers about Parkinson's disease.

Laboratory work

- PCR speciation and genotyping of different TB isolates from animals
- Cytokine release and gene expression assays for detection of TB in various wildlife species
- Serological testing for TB in animals
- Train postgraduate students and staff in the division so that they can be competent in working in a biosafety level 3 laboratory.
- Provide a safe and efficient laboratory working environment for research
- Assist in planning and managing the laboratory budgets, and ensure proper and operational needs or capabilities for the laboratory

- Oversee and provide administrative and technical support that is critical for sustaining a functioning laboratory to enable researchers and staff to work safely and productively
- Maintain an inventory of consumable safety supplies (PPE, decontaminating chemicals etc.) and purchases as needed to sustain the overall operations of the laboratory
- Train technical, postgraduate and professional laboratory users to working safely in a BSL3 laboratory to include defining and establishing laboratory procedures and guidelines for laboratory activities
- Monitor and ensure that all equipment is functioning properly and maintain preventive maintenance and repair agreements
- Monitor operational status weekly; perform routine maintenance, as needed, to keep the equipment operational and assists with decontamination and moving equipment in and out of the laboratory
- Schedule decontamination of the Biosafety level 3 laboratory for annual maintenance of the laboratory and repair or replacement of equipment
- PID diagnostics

Clinical Genetics and Counselling

A wide range of clinics providing medical genetic and genetic counselling services
At Tygerberg Hospital these include:

- Clinical Genetic assessment or counselling for foetal anomalies, teratogens and family history of birth defects (Interdisciplinary Clinic with Foetal Medicine)
- Genetic counselling for pregnancies at increased risk of Down syndrome (Interdisciplinary Clinic with Foetal Medicine)
- Perinatal assessment of all stillbirths for birth defects, and counselling of parents
- Paediatric Genetic Clinic and Ward Call service
- Paediatric and surgical specialties: Interdisciplinary Clinics for Haemophilia (together with Paediatric Haematology), cleft lip and/or palate (with Plastic Surgery), and craniosynostosis syndromes (with Plastic Surgery and Neurosurgery)
- Cancer Genetics (currently mainly for familial breast cancer and familial colon cancer) – this is a growing service. The breast cancer service is interdisciplinary, in collaboration with the Mamma Clinic team
- Neurogenetics – a relatively new clinic in collaboration with Adult Neurology
- Two new clinics have been established: Cystic Fibrosis Clinics (interdisciplinary with Paediatrics Respiratory and GIT teams) and Adult Genetics Clinic
- Outreach services include those to:
 - Level 2 hospitals (Paarl and Worcester)
 - Schools for children with disabilities (blindness, deafness and intellectual disability)

Teaching – HonsBSc, MSc, PhD

- Research – Projects of the Animal TB Research group cover the range from basic to applied research on animal TB
- Molecular epidemiology
- Diagnostic test development
- Immunology of animal TB in various species
- Identification of biomarkers
- Prof. Walzl teaches respiratory unit registrars one lecture on tuberculosis in each semester.
- Prof. Walzl lectures immunology to MBChB I, II and IV and takes part in final-year MBChB internal medicine examinations.

Other services

The Animal TB Research group provides laboratory testing, advice, and consultation for the general veterinary community for TB when other resources are unavailable in the country.

The students and staff of the South African Tuberculosis Bioinformatics Initiative (SATBBI) housed in the Division of Molecular Biology and Human Genetics have been

supporting projects requiring bioinformatics expertise at Stellenbosch University as well as at the University of the Western Cape, the University of Cape Town, the Cape Peninsula University of Technology, as well as reaching out to other institutions. A significant portion of activity included performing bioinformatic and statistical analyses for large ongoing multinational research consortia studying tuberculosis (TB) i.e. participating in the analyses of TB cohorts and providing analyses in designing new research and clinical studies.

SATBBI personnel were co-investigators on at least 12 grant applications submitted during the period, providing the bioinformatic and statistical expertise for those applications.

The outreach activities to other institutions include providing advice with respect to experimental design and assistance with analyses.

Dr Stephanus Malherbe takes part in the respiratory outpatient clinic in Tygerberg Hospital one day per week (not remunerated).

b) Medical Physiology

Clinical Services

- Specialised consultation to Division of Pulmonology at Tygerberg Hospital
- One bronchoscopy theatre session per week
- Eight weeks per year on Medical ICU call duty, including ward rounds, consultation service (ward referrals), after hours on-call and weekend ward rounds
- Active participation in training of clinical assistants

Teaching

The Division of Medical Physiology is predominantly responsible for teaching and training of both undergraduate (MBChB, BSc Physiotherapy, Occupational Therapy, Dietetics: total of approximately 400 undergraduate lectures per year) and postgraduate students (BScHons, MSc, PhD, MMed) studying at the Faculty of Medicine and Health Sciences.

Resources:

a) Molecular Biology and Human Genetics

Posts (Full-time)	Number	Filled
Professor	3	3
Post-Doctoral Fellow	1	0
Doctoral Students	2	1
Senior scientist	1	1
Medical geneticist	2	2
Genetic counsellor	1	1 (6/8ths time, permanent post)
Registrar medical genetics	1	1
Supernumerary – genetic counselling intern (NRF-funded)	1	1
Posts (sessional – how many hours worked per week)		
Medical Geneticist	2 sessions	2 sessions

b) Medical Physiology

Posts (Full-time)	Number	Filled
Professor	1	1
Associate Professor	2	2
Lecturers	4	4
Jnr Lecturer	1	1
Administrative	1	1
Technical	2	2
Posts (sessional – how many hours worked per week)		

Output:

a) Molecular Biology and Human Genetics

- Prof. G Tromp is participating in the DST and SAMRC joint workshop and course 'Big Data Africa Summer School'. Will be presented in April 2017, but required coordination and preparation during this period.

Clinical outputs:

CLINIC	CLINIC FREQUENCY	TYPE OF VISIT	PATIENTS SEEN 2016	PATIENTS SEEN 2015
TBH STILLBIRTH ASSESSMENTS	Daily		737	729
TBH Prenatal Down Syndrome counselling	1/week (and on call)	1 st visit Follow-up	762 74	753 62
TBH Prenatal Foetal Anomaly Counselling	1/week (and on call)	1 st visit Follow-up	215 40	192 43
TBH Prenatal (FH)	1/week (and on call)	1 st visit Follow-up	46 2	39 2
TBH Prenatal (Other)	1/week (and on call)	1 st visit Follow-up	27 3	20 2
PRENATAL TOTAL			1 169	1 113
TBH Paediatric Genetic Clinic and ward call out	1/week (and ward call)	1 st visit Follow-up	282 241	307 285
TBH Cystic Fibrosis*	1/month	New clinic	22	-
TBH Cleft Palate	2/month		120	96
At Paarl and Worcester Hospitals, and Grabouw CHC			96	54
PAEDIATRIC TOTAL		First visit + follow-up	761	742
TBH Cancer Genetics	1/month (and ward call)	Breast cancer Ovarian cancer Colon cancer	91 9 27	77 - 35
TBH Neurogenetic Clinic	1 in 3 months		12	12
TBH Adult Genetics*	1/week		20	-
ADULT TOTAL			159	124
LSEN SCHOOLS OUTREACH**	Regular (~1/month)		120	88
TOTAL			2 946	2 796

Comment on output

Clinical Genetics and Counselling

The total caseload in 2016 was 2 946 patients. This represents a steady year-on-year increase, with a 30% increase since 2011. The increase in more specialised cases has been substantially

greater. For example, in this time period the number of familial cancer cases more than doubled from 54 to 127, and cystic fibrosis cases increased from 0 to 22.

Two new clinics were established in 2016: Cystic Fibrosis Clinics (interdisciplinary with Paediatrics Respiratory and GIT teams), and the Adult Genetics Clinic.

It should be noted that, due to the interdisciplinary nature of much of our work, many patients that we see are booked in under other departments e.g. Foetal Medicine, Mamma Clinic. Clinical genetic and genetic counselling consultations are long (assessment of a new case takes ~45 minutes, and follow-up cases ~30minutes). As part of an assessment, there may be contact with multiple family members for information, especially in the cancer genetic, neurogenetic and cystic fibrosis.

Part 2 Faculty Of Health Sciences

Infrastructure development – upgrading, new equipment etc. (highlights)

a) Molecular Biology and Human Genetics

- Dr N Allie (BSL-3 Manager) was involved in the upgrade of the BSL-3 (4th floor, FISAN Building, Tygerberg Campus) and the renovation of a new site for a second BSL-3 on the 5th floor, Teaching building, Tygerberg Campus, which is operational this year.
- We have expanded our ability to identify pathogenic mutations in patients with Parkinson's disease by introducing high-throughput targeted next generation sequencing.

b) Medical Physiology

The following research equipment was procured:

- Direct Detect System – provides improved and accurate protein quantitation
- Electronic Balance
- Temperature controlled centrifuge

Community outreach programmes/community services and interaction.

a) Molecular Biology and Human Genetics

- 11 April 2016 was World Parkinson's Disease Day to increase awareness about Parkinson's disease. Members of the Parkinson's disease group gave several interviews to local newspapers about Parkinson's disease.

Clinical Genetics and Counselling

We provide a Medical Genetics screening service to 9 LSEN Schools in the Tygerberg Hospital drainage area.

In collaboration with the Foundation for Alcohol Related Research (FARR), we provide foetal alcohol syndrome surveillance activities at the request of government departments (most commonly the provincial Department of Social Development).

b) Medical Physiology

- Prof. Hans Strijdom and members of the Cardiovascular Research Group (Mr Frans Everson, Ms Sana Charania and Drs Mushuda Mthethwa, Nyiko Mashele and Shantal Windvogel) participated in the Heart of the Matter Community Outreach Project. The project created a unique partnership between residents of the Delft community and cardiovascular scientists from Stellenbosch University. This project, funded by a Wellcome Trust International Engagement grant, was led by Gill Black of the Sustainable Livelihoods Foundation.
- In 2016, researchers, students and postdoctoral fellows of the Cardiovascular Research Group (Division of Medical Physiology) collaborated with an NGO (Sustainable Livelihoods Foundation) in a Wellcome Trust funded project as part of the International Engaging Science programme. The project, called Heart of the

Matter, sought to respond to the challenge of cardiovascular disease (CVD), a growing public health concern in South Africa. The risk of CVD is heightened in marginalised communities where social, cultural, financial and environmental factors intersect to promote lifestyles that undermine good heart health. Prof. Hans Strijdom, Dr Shantal Windvogel, Dr Nyiko Mashele, Dr Mashudu Mthethwa, Mr Frans Everson and Ms Sana Charania participated in this year-long community outreach project, which was also presented to the Faculty during the Annual Research Day in August 2016.

- Members of the EndoAfrica research team engaged with the Worcester community in July 2016 at the Worcester Community Health Centre by providing beverages to clinic patients. This was an effort to give back to this community where EndoAfrica recruits a large number of study participants for one of its projects.
- Dr Ingrid Webster served as regional finals judge in the ESCOM Expo for Young Scientists, a competition with the aim to create awareness for sciences amongst all school children.
- Prof. Andreas Diacon is involved in the clinical service component of the Department of Medicine at Tygerberg Hospital, where he makes a significant contribution to service delivery, as well as student teaching (both under- and postgraduate). He also maintains outreach activities for clinical research at various healthcare facilities and contributes to health care in study participants.

Partnerships

a) Molecular Biology and Human Genetics

National:

- Prof. AL Michel, University of Pretoria
- Dr D Cooper, Ezemvelo KZN Wildlife
- Dr PE Buss, South African National Parks
- Dr LM de Klerk-Lorist, Department of Agriculture, Forest, and Fisheries

Private:

- Dr K Lyashchenko, Chembio Diagnostic Systems, Inc.
- Qiagen
- Network collaboration with the Catalysis Foundation for Health, Emeryville, CA, USA.

International:

- Dr S Patterson, Royal Veterinary College, UK
- Dr SL Robbe Austerman, National Veterinary Services Laboratory, USA
- Dr C Foggin, Vic Falls Wildlife Trust, Zimbabwe
- Network collaboration with Max Planck Institute in Berlin, Germany, Centre for Infectious Disease Research in Seattle, USA, Leiden University Medical Centre in Leiden, the Netherlands, London School of Public Health in London, UK, Case Western Reserve University, Cleveland, USA.

Clinical Genetics and Counselling

National:

- Foetal alcohol syndrome surveillance is facilitated by a collaboration with Ms Leana Olivier, CEO Foundation for Alcohol Related Research (FARR).

b) Medical Physiology

National:

- Prof. Hans Strijdom has initiated and coordinated a partnership agreement with Prof. Benedicta Nkeh-Chungag from Walter Sisulu University (Mthatha) and Prof. Carla Fourie from North-West University (Potchefstroom) to join the EndoAfrica study. The Department of Science and Technology has agreed to fund these groups.

- There is ongoing collaboration between the Cardiovascular Research Group and EndoAfrica project with Prof. Faadiel Essop from the Department of Physiological Sciences.
- The Cardiovascular Research maintain close ties with Prof. S Lecour from the Cape Heart Centre (Hatter institute, UCT), Prof. A-M Engelbrecht from the Disease Signalling Group (Physiological Sciences, US), Prof. Daneel Dietrich from the Department of Medical Biosciences (UWC) and Dr Dirk Bester from the Cape Peninsula University of Technology.
- The Reproductive Research Group (SURRG), headed by Prof. Stefan du Plessis, actively collaborates with the research groups of Dr Liana Maree and Prof. Gerhard van der Horst (Medical Biosciences, University of the Western Cape) and Dr Guillaume Aboua (Cape Peninsula University of Technology).
- Prof. Andreas Diacon, together with Dr Sven Friedrich, is maintaining high outputs in basic science and clinical application of TB diagnostics and TB treatment. Prof. Diacon is involved with clinical research at the Department of Medicine.

Private:

- Prof. Andreas Diacon is investigating novel antituberculosis agents and regimens in collaboration with drug manufacturers and international partners.

International:

- Dr Derick van Vuuren is collaborating with Dr Tzu-Ching Meng (Academia Sinica, Taipei, Taiwan) and Prof. Shih-Chieh Hung (China Medical University, Taichung City, Taiwan) on investigating the role of Protein Phosphatase 2A in the heart exposed to ischaemia/reperfusion, making use of a cardiac-specific PP2A knock-out mouse model, as well as phospho-proteomics.
- Prof. Hans Strijdom has an ongoing collaboration with Prof. Nandu Goswami (Medical University of Graz, Austria), Prof. Patrick De Boever (Flemish Institute for Technological Research, Belgium) and Prof. Tim Nawrot (University of Hasselt, Belgium).
- Prof. Hans Strijdom: Finalisation of joint PhD agreement between SU and Hasselt University (Belgium) – first candidate: Mr F Everson (Cardiovascular Research Group / EndoAfrica).
- Prof. A Lochner is collaborating with Prof. EF du Toit, Griffith University Gold Coast Campus, Qld, Australia.
- Dr I Webster is collaborating with Belgium – VITO and Hasselt University and Medical University of Graz.
- Prof. Stefan du Plessis is collaborating with Dr Hans Ingolf Nielsen (Aalborg University, Denmark), Dr Eva Tvrda Agricultural University of Nitra, Slovakia), Dr Walter D. Cardona-Maya (Universidad de Antioquia, Medellin, Colombia) as well as Dr Kavoo Linge from the University of Nairobi, Kenya.
- Prof. Andreas Diacon continued his research activities into novel antituberculosis agents and regimens in collaboration with drug manufacturers and international partners. The SU-based part of the enterprise has now grown to 20 members of staff performing tests on sputum samples that are collected at various research locations in Cape Town such as Delft, Mfuleni, Brooklyn Chest Hospital and at the Task Clinical Research Centre in Bellville. Prof. Diacon is also involved with clinical research at the Department of Medicine and is rendering clinical services.

Achievements w.r.t research activities and research outputs:

Research

Research conducted related to the genetics and pathobiology of Parkinson's disease.

Clinical Genetics and Counselling

Research interests are prenatal diagnosis, foetal alcohol syndrome and primary immunodeficiencies.

Number of publications from the department/division

a) Molecular Biology and Human Genetics

Publications in peer-reviewed research papers:	87
Conference Presentations:	8
PhD Graduates:	13
MSc Graduates:	15
Hons Graduates:	12
Conference plenary keynote lectures:	3
Workshop/meetings organised:	2
Text books and contributions to text books	1

Text books and contributions to text books

Book chapters

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(http://www.frontiersin.org/books/The_Foundation_of_Precision_Medicine_Integration_of_Electronic_Health_Records_with_Genomics_Through_1/9140)

Publications of peer-reviewed research papers

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b) Medical Physiology

Publications in peer-reviewed research papers:	23
Books	1
Book chapters	3
Training courses attended:	5
Conference Presentations:	19
Conference Posters:	15
PhD Graduates:	5
MSc Graduates:	4
Hons Graduates:	6
Conference plenary keynote lectures:	4

Books

1. *Exercise and Human Reproduction: Induced fertility disorders and possible therapies*. Eds Diana Vaamonde, Stefan S du Plessis, Ashok Agarwal, Springer New York 2016, P351.

Chapters in Books

1. JIMENEZ-REINA L, MAARTENS PJ, JIMENA-MEDINA I, AGARWAL A, DU PLESSIS SS. *Overview of the Male Reproductive System*. In: Vaamonde D, Agarwal A, DU PLESSIS SS (eds.) *Exercise and Human Reproduction. Induced fertility Disorders and Possible Therapies*, Springer, New York, USA, 2016: 1–17.
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Doctoral completed

1. KAVOO LINGE AUGUSTINE PETER (2007–2016) Black male (Kenyan)
The dietary ionic effects on sex selection in animal models and its use in the prevention of X-linked disorders.
2. FLINT MARGOT GWYNETH (2012–2016) White Female (South African)
Gamete proteomic profile of male patients suffering from sexually transmitted infections.
3. VAN SCHALKWYK-SMIT M. *Rooibos and Melatonin: Putative modulation of nicotine-induced effects on vascular function*. PhD, 2016. 212 pp. Promoter: Prof. JG Strijdom, co-promoter: Dr SL Windvogel.
4. DLUDLA PHIWAYINKOSI V: *Compounds specific to Aspalathus linearis protect the diabetic heart against oxidative stress: a mechanistic study*. PhD 2016 179pp, Promoter Dr R Johnson, co-promoters Prof. B Huisamen & Prof. MF Essop.
5. JACK BABALWA U: *An investigation into the anti-obesity properties of Cyclopia*. PhD 2016 255pp, Promoter Dr C Pheiffer, co-promoters Prof. B Huisamen & Dr C Malherbe.

Masters completed

1. BOTHA A: *Optimization of experimental conditions and analysis tools for the study of phosphodiesterase-5 in a model of cultured adult rat cardiomyocytes*. MSc Medical Physiology, 2016. 106 pp. Supervisor: Lopes J.
2. EVERSON FP. *Investigating the Cardiovascular Effects of Antiretroviral Drugs In a Lean and High Fat/Sucrose Diet Rat Model of Obesity: An in vivo and ex vivo Approach*. MSc Medical Physiology, 2016. 160 pp. Supervisor: GENIS A. Co-supervisor: STRIJDOM JG.
3. RAUBENHEIMER K. *The impact of oocyte meiotic spindle and automated zona pellucida score and sperm chromatin packaging on fertilization and pregnancy for assisted reproduction techniques*. MSc Medical Physiology, 2016. 110 pp. Supervisor: DU PLESSIS SS.
4. SMITH A. *The role of Phosphodiesterase 4 in Insulin and Phytocannabinoids-induced cardioprotection and B-adrenergic cardiac damage*. MSc Medical Physiology, 2016. 81 pp. Supervisor: LOPES J. Co-supervisor: WEBSTER I.

Teaching and Training (under, postgraduate and elective students)

a) Molecular Biology and Human Genetics

Training courses attended by staff and students:

Participants	Course Name	Venue
Prof. S Bardien Prof. H Kuivaniemi Ms G Borrageiro Ms A Neethling Dr W Haylett Ms M Stemmet Ms B Sebate Mr O Oluwole	Writing Workshop	Stellenbosch University

Bioinformatics Honours: Andreas Möller, Gerald van Eeden

Bioinformatics Masters: Al-Girvan Tobias, Darryn Zimire

Bioinformatics Doctoral: Elizna Maasdorp

Bioinformatics Post-Doctoral: Stuart Meier (agreement reached, registration in process)

Co-mentoring of a large number of students at Stellenbosch, UWC, UCT and CPUT. Providing bioinformatics and statistical expertise and guidance to students on ongoing projects, as well as assisting with design of new or proposed studies. These activities are important to ensuring quality research that will have a higher probability of being published in quality journals.

Teaching in formal courses for the division honours student curriculum. Two modules: Biostatistics and Bioinformatics.

Teaching in an informal setting in the division with weekly sessions to cover topics relevant to bioinformatics and statistics. These topics are chosen to equip students with the knowledge and skills to perform simple analyses for their projects.

Tutoring in the use of the R Statistical Programming Language and Environment. Weekly tutoring for students and staff.

Clinical Genetics and Counselling

Teaching:

Postgraduate – one registrar in medical genetics, one honours student in medical genetics, one PhD in genetics, one genetic counselling intern, sundry other teaching
Undergraduate teaching – lecture block to second-year medical students, clinical teaching to student interns, sundry other

b) Medical Physiology

- Undergraduate teaching: MBChB first-, second- and third-year students; Allied Health second-year students (BSc Physiotherapy, Occupational Therapy, Dietetics students).
- Postgraduate teaching: BScHons (MedSci) and MMed students.
- Postgraduate research training: MSc and PhD students.
- Several members of staff act as external examiners and moderators to other universities (both national and international universities) Prof. Stefan du Plessis – UNAM, UWC, SU, Prof Hans Strijdom – WITS, UCT, UKZN; Prof. Barbara Huisamen – SU, UWC and Dr Shantal Windvogel – UWC, CPUT; Prof. A Lochner UCT, US; Dr D van Vuuren – UCT and Department of Physiological Sciences, SU.
- Dr D van Vuuren is a member of the MBChB Programme Committee.
- Prof. Strijdom and Dr van Vuuren acts together as phase chair for the theory phase (Phase II) of the MBChB curriculum.
- Drs Erna Marais, John Lopes and Derick van Vuuren as well as Prof. Hans Strijdom act as internal examiners for MBChB IV and MBChB V elective portfolios.
- Prof. Hans Strijdom serves on the MBChB Guidelines and Selection Committee as well as the Committee for Postgraduate Training.

Special achievements and other highlights

a) Molecular Biology and Human Genetics

- Prof. G Tromp – Contribution to Professional Societies and Sciences: Member of the South African Society for Bioinformatics (SASBi) Council.
- Prof. G Tromp is a member of the Scientific Advisory Board for the H3Africa Bioinformatics Network (H3ABioNet). This is an NIH-Wellcome Trust funded network to provide bioinformatic support for H3Africa research projects and to develop bioinformatic capacity in Africa.
- Dr N Allie is a member of the Animal Ethics Committee for the Faculty of Medicine and Health Sciences and also a member of the Diversity Task Team of the Division Molecular Biology and Human Genetics.
- Prof. H Kuivaniemi is an Academic Editor of PLoS ONE (international journal).
- Members of the division have served as reviewers of manuscripts for the following journals: Journal of Molecular Medicine and Therapy, Science Reports, American Journal of Physiology

b) Medical Physiology

- Prof. Stefan du Plessis received the prize for best article published in the Asian Journal of Andrology
- Prof. Stefan du Plessis serves on the executive council of the PSSA.
- Prof. Stefan du Plessis serves as a member of the FMHS Research C Committee.
- Prof. Hans Strijdom is serving on the executive council of SASCAR.
- NRF funding for rated researchers was received by Proff. Diacon, Du Plessis, Huisamen and Lochner.

CLINICAL PSYCHOLOGY

Head of Department
Dr Debbie Alexander

Summary of activities

The Clinical Psychology Department provides psychology services to in- and outpatients in the Adult/Neuro Psychiatry (J-LG), Child and Family Psychiatry (F-LG) and Medical Psychology (A-LG) units. The Medical Psychology Unit works in collaboration with Liaison Psychiatry and medical departments in the hospital. Staff members from the Psychology Department also render services at community clinics. Clinical Psychology services include clinical, psychometric and neuropsychological assessments, diagnosis and treatment as well as referral of patients to appropriate services and agencies. The units offer individual, group, couples and family therapy.



Dr Debbie Alexander

In addition to clinical service delivery, the Clinical Psychologists also fulfil supervisory, teaching and research functions. They are also involved in other psychology-related activities in the health, education and sport sectors.

Resources

Posts (Full-time)	Number	Filled
Principal Psychologist	1	1
Senior Clinical Psychologist	3	3
Clinical Psychologist (5/8)	2	2
Intern Clinical Psychologist	3	3
Intern Clinical Psychologist – Unpaid	1	1
Administrative Assistant Funded by DOHE funding	1	1
Administrative Intern	1	1
Posts (sessional – how many hours worked per week)		
Senior Clinical Psychologist (External funding) 10:00 – 16:00	6 hours	

Output:

Clinical Psychology Services – Statistics			
	Outpatients	Inpatients	Other
Patients	1 053	720	
Consultations	1 996	1 040	
Hours	2 331	1 405	
Other hours			7 612
Psychometric Evaluations			
	Outpatients	Inpatients	
Patients	55	41	
Hours	200	68	

Comment on output:

The three Clinical Psychology service units offer specialist services which are labour-intensive and time consuming. The Psychology output in respect of patient numbers has natural constraints placed upon it by the nature of the service. Each patient consultation takes 1 – 1½ hours and often requires repeat sessions over a longer period, depending on the patient's needs and circumstances. Over and above direct index patient contact, there may be contact with the family and other collateral sources to ensure a holistic approach to patient care. Psychometric and neuropsychological assessments can take from 3 – 12 hours to process and write up. These services are crucial to informing appropriate treatment and rehabilitation plans, suitable placement and referral of patients and the psycho-education of families and the community. There are insufficient Psychologists to deal with the large demand despite attempts to make use of alternatives such as group therapy. Last year (2016) was a very challenging year as the staff complement was reduced due to the ill health of three staff members; the resignation of the externally funded Clinical Psychologist; the reduction in working hours of the Administrative Assistant and the added supervisory responsibility of the unpaid Clinical Psychology Intern. Despite limited resources, patient waiting lists and the average waiting periods at J-Lower Ground and F-Lower Ground were effectively managed. Tanja Smuts continued to facilitate DBT groups for adolescent girls in FLG. The group process involves skills training in emotion regulation, mindfulness, interpersonal effectiveness and distress tolerance. Group participants are screened for suitability to the group prior to the start of the sessions. Joanne Eksteen initiated group psychotherapy interventions for inpatients at D-Ground to further support existing intervention strategies. The groups reach several patients at a time and facilitate a process of altruism, catharsis, interpersonal learning and the development of healthy socialisation techniques. Further planning was facilitated with nursing staff and relevant role players to expand the inpatient ward programme to create a more therapeutic environment for inpatients. This programme includes structured daily routines and activities that facilitate reflection processes, cognitive stimulation and healthy socialisation.

Senior staff are also required to fulfill a variety of administrative and academic tasks, which impact on their time availability for direct patient contact.

Part 2 Faculty of Health Sciences

Infrastructure development – upgrading, new equipment, etc. (highlights)

Physical Resources: The physical environment remains a challenge, with sporadic leaks in roof pipes and toilets in J-Lower Ground and F-Lower Ground respectively, creating an occupational health and safety hazard for patients and staff. Positive developments included the upgrade of security at J-Lower Ground with the installation of a security gate with intercom and CCTV control as well as the completed renovation of the FLG Outpatient Unit. The Clinical Psychology Department still does not have its own departmental space in the hospital. Psychometric and neuropsychology tests are dispersed amongst the different units, which makes stringent control of the test material difficult. Psychologists are spread throughout the different units, with the HOD accommodated at the university because there is reportedly no space in the hospital. The allocated space is inadequate for our needs and in some units there is no proper flooring, ceilings, sanitation, etc. Purchasing and updating test batteries for the neuropsychological and psychometric assessment of adults and children has become a challenge because of the introduction of cumbersome procurement processes and reported lack of funding. Presently the Psychology Department does not have sufficient test protocols to perform essential psychometric services.

Information Technology: As previously indicated, our Department has had hardware and internet/email access for some but not at all the offices at Child, Adult and Medical Psychology. The appointment of two 5/8 Clinical Psychologists in the place of Psychology Interns created an additional need for hardware and internet/email access. Responses from the IT Department to requests remains slow and staffing and budgetary constraints are cited as challenges.

Clinicom System: Alignment of the captured information on the Clinicom system with the current manual system is still not ideal; hence our Department's continued reliance on a manual system of data collection.

Human Resources: Although the appointment of two 5/8 Clinical Psychologists in the place of two Intern Psychologists, and an Administration Intern at ALG has had a positive impact on service delivery, the commitment of the WCDOH to the first 1 000 Days initiative led to an increase in Maternal Infant Mental Health (MIMH) referrals in the Child and Adolescent Unit. This is an additional service and at present managed by the 5/8 Psychologist to the detriment of the child and adolescent patient referrals of the unit. The necessity of a full-time MIMH clinical psychologist was escalated to management.

Community outreach programmes/community services and interaction.

Clinical Psychology Interns were allocated to community clinics in the Bellville, Parow, Kraaifontein, Delft and Elsies River areas where they each worked 1 afternoon (3 hours) a week.

Other projects in which staff members were involved both internally and externally are:

1. Liaison with all WCED Metro's in the province regarding patients' school performance, patient management on discharge and general psychiatric care in the school community.
2. Services were provided to the following committees:
Internal:
University of Stellenbosch Medical and Health Sciences Faculty Board
Postgraduate Committee (Department Psychiatry)
MBChB Psychiatry Department Training Committee
MMed Psychotherapy Committee
Clinical Psychology Supervisors Committee
Psychiatry Department Management Committee
Psychiatry Department Lecturers Committee
PhD Evaluation Committee
External:
SASCOC Medical Commission – Psychology Portfolio
Triathlon South Africa Executive Board (President)
International Triathlon Union Executive Board
African Triathlon Union Executive Board

Partnerships

University of the Western Cape – Teaching Neuropsychology to the Clinical Psychology Master's Students – D. Alexander

National:

Collaboration with UCT in the Co-hosting of Prof. Juan Carlos Arango on a return visit to SA – presenting workshops: Cognitive rehabilitation in individuals with Brain Injury and Brain Injury Family Intervention 2016) – Leigh Schrieff-Elson (UCT), and Riaan Olivier and Debbie Alexander (SU)

International:

Dr Alexander continued the research partnership with the Department of Internal Medicine, Stellenbosch University (Brink PB, Goosen R) and the SIDS Center – IRCCS Istituto Auxologico Italiano, Milan, Italy (Schwartz PJ, Schwartz LZ, Stramba-Badiale M) investigating "Psychological and cognitive consequences potentially associated with beta-blocker therapy in children and teenagers at risk for sudden cardiac death – The case of the Long QT Syndrome".

Participation in a KMC (PIO-ZA) research project that began in 2013 to provide mentalisation-based therapy to mothers of premature infants is ongoing. Tanja Smuts and Colin Mitchell

attended monthly meetings to plan and prepare for “Parenting from the inside out” mentalisation groups which are run with mothers and premature babies at risk in the hospital. Tanja Smuts and Colin Mitchell co-facilitated pilot groups.

Achievements w.r.t research activities and research outputs:

Complete details of conference outputs/academic presentations:

Oral Presentation – Concussion in youth rugby: A prospective investigation of enduring neurocognitive and academic effects on players versus non-contact sports controls. Conference: International Brain Injury Association’s 11th World Congress on Brain Injury – The Hague, Netherlands. (D. Alexander)

Journal Articles:

Feasibility Study of Prolonged Exposure Treatment for Post-traumatic Stress Disorder with Adolescents in A Third World, Task Shifting, Community-Based Environment, Comparative Trial with Supportive Counselling. Authors: Jaco Rossouw^{1*}, Soraya Seedat¹, Elna Yadin², Debra Alexander¹, Irene Mbanga¹, Tracy Jacobs¹, Wendy Rossouw^{1,1} University of Stellenbosch, Stellenbosch, Western Cape, South Africa. ²Center for the Treatment and Study of Anxiety, University of Pennsylvania, Philadelphia, PA, USA (Peer reviewed – published).

Prolonged Exposure Treatment and Supportive Counselling for Post-traumatic Stress Disorder in Adolescents; a Third World, Task Shifting, Community-Based Sample, including experiences of stakeholders: Study Protocol for a comparative randomized controlled trial. BMC Psychiatry. (Submission). Rossouw J, Yadin E, Alexander D and Seedat S.

Other Achievements:

Research:

D. Alexander awarded a DRD travel grant for Oral Presentation – Concussion in youth rugby: A prospective investigation of enduring neurocognitive and academic effects on players versus non-contact sports controls. Conference: International Brain Injury Association’s 11th World Congress on Brain Injury – The Hague, Netherlands.

Supervision of thesis:

Title: Effectiveness of Prolonged Exposure for adolescents with Post-traumatic Stress Disorder (PTSD), as administered by counsellors’ versus a comparative trial of Supportive Counselling. (PhD – Co-supervisor: D. Alexander)

Title: Overdose Associated with Mental Illness, Analysis of Tygerberg Hospital Patients over a Two-year Period. (MBChB – Supervisor: D. Alexander)

Title: An evaluation of a mindfulness-based psychotherapy intervention for co-occurring substance use and mental disorders. (PhD – Supervisor: D. Alexander)

Title: The effect of group drumming on executive functioning in children with HIV-associated Neurocognitive Disorders. (PhD – Supervisor: D. Alexander)

Examination of Undergraduate Thesis:

Assessment of MBChB VI Research Project: Overdose Associated with Mental Illness, Analysis of Tygerberg Hospital Patients over a Two-year Period. (Dr Alexander).

Teaching and Training (under, postgraduate and elective students)

In addition to the Department of Psychology and Department of Psychiatry Academic Programmes, the teaching of psychology to the following undergraduate and postgraduate students is undertaken by our Department: MBChB I – Interdisciplinary Phase, II, III, IV, V & VI; PAT AGB; BSc Dietetics III; M (Physiotherapy); MMed (Psychiatry) Psychology 178 Part 1 and 2 and M Nursing.

The Senior Clinical Psychologists are also responsible for the training and supervision of Intern Clinical Psychologists, Psychiatry Registrars and sub-specialists in Psychiatry.

Special achievements and other highlights

Prepared and submitted the application for the MPhil in Mindfulness Degree in the Department of Psychiatry in collaboration with the Division of Family Medicine – D. Alexander (Programme Coordinator).

Dr Alexander elected to the following positions for the period 2016 to 2020:

- South African Sport Confederation and Olympic Committee (SASCOC) Executive Board Member
 - International Triathlon Union Executive Board Member
 - African Triathlon Union – 1st Vice President
 - Represented the International Triathlon Union on the Competition Jury at the Rio Olympic Games
-

Head of Department
Prof M Moosa



Prof M Moosa

DIVISION OF CARDIOLOGY

Prof. A.F. Doubell MBChB, BSc Hons, FCP (SA),
MMed, PhD

SUMMARY:

The Division of Cardiology is an integral component of Tygerberg Hospital and the Faculty of Health Sciences, Stellenbosch University. The clinical activities of the Unit centres around the 25-bed intensive care unit, the cardiac catheterisation laboratory, the echocardiography laboratory and the outpatient clinic (4 clinics per week: 3 general cardiology clinics and 1 focused cardiology clinic: Lipid disorders – first and third Monday of the month; GUCH [Grownup Congenital Heart Disease – second Monday of the month; Advanced heart failure – last Monday of the month). The service rendered and the teaching platform provided is very dependent on the ECG, Holter ECG, stress ECG, pacemaker, echocardiography and catheterisation service.

Critical nursing staff shortages continue to hamper our service as it has done for a number of years. The nursing shortage in the cardiac catheterisation laboratory is being threatened further by staff considering resignation due to unsustainable workload. The unfilled control technologist post and the unfunded chief technologist post continue to impacting negatively on the motivation and aspirations of the technologists. One of the three training posts for cardiologists was kept vacant for the whole of the year due to the austerity measures, impacting negatively on our mandate of training cardiologists and on our ability to meet the increasing demand for cardiology services. The emergency areas in the hospital continue to function without on-site echocardiography facilities. The lack of an echocardiography machine in the medical emergency ward (F1) in particular is detrimental to optimal service delivery. This hampers service delivery and patient care and has a marked impact on the wear and tear of the mobile echocardiography machines. Providing stationary on-site machines in the emergency areas will be more cost-effective. The 15-year-old cardiac catheterisation laboratory on the East side of the cardiology theatre was replaced during this year providing stability for our invasive cardiac service, at least until 2020 when the West side catheterisation laboratory will most likely need to be replaced.

Despite the challenges we face, we can once again report:

- Cardiology has maintained its service excellence (recognition must go to the staff's dedication and willingness to sacrifice)
- Good student teaching remains a hallmark of the Unit
- The Unit has managed to maintain a good academic output with 15 articles published in peer reviewed journals (subsidised by the Department of Education). Members of the Division were active participants at many national and international congresses (see academic output), and hosted an excellent echocardiography course (SUNEcho), including a pre-congress dedicated 3D echocardiography workshop
- The Unit has remained an important role-player amongst academic cardiology centres in the country, with Prof. Doubell being on the executive committee of the South Africa Heart Association and also the editor of SAHeart, official Journal of the

South Africa Heart Association

- In the previous year, the outreach programme was expanded to include not only Paarl Hospital, but also Worcester Hospital and Karl Bremer Hospital. The expanded programme is now well established
- The Echo in Africa project to screen for subclinical rheumatic heart disease is continuing and we have now screened more than 3 000 children. This programme, a collaborative project with the British Echocardiography Society, is part of a larger initiative undertaken by SUNHEART. This centre of the Division of Cardiology has the objective of improving access to advanced cardiac care for all patients
- SUNHEART has succeeded in creating capacity by funding the current training of an additional cardiologist as a supernumerary and an electrophysiology fellow in a joint venture with Groote Schuur Hospital

Staff

Professors

Prof. A.F. Doubell

Specialist Cardiologists

Dr H. Weich

Dr P. Herbst Dr Pecoraro

Dr Kyriakakis (research post funded by bursaries)

Cardiologists in training

Dr A. van Rensburg (training completed on 31 December 2016)

Dr B. Griffiths (training cycle started 1 February 2015)

Dr L. Kabwe (supernumerary – training cycle started 3 September 2015)

Dr H.W. Snyman (supernumerary – training cycle started 1 October 2015)

Dr R. du Toit (supernumerary – training cycle started 1 January 2017)

Dr L. Joubert (training cycle started 1 February 2017)

Electrophysiologist in training

Dr J. Moses (training initiated on 1 July 2017)

Medical Officers

Dr H.P. Cyster

Research Staff – University of Stellenbosch appointments

Prof. L. Burgess

Technical Staff

Control Technologist 1 - Hamzah Kathree – Joined us on 1 December 2013 but resigned (twice!) during 2016. Following his initial resignation, he was reappointed but finally resigned on 15 October 2016.

Technologists 5 - Lusanda Matyeni, Tiffy Wiggil and Menzi Maphumulo resigned during 2016 to take up positions in the private sector. The current staff are Inayaan Mahomed, Sharlini Subramoney and Marius Myburg. An outreach technology post was established during the year but is currently unfilled as are the control post and one technology post.

Technical Assistants 5 - Sandra Baron resigned during the year after more than 21 years in our service. The current staff are M. Africa, C Faroe, H. Charles, E. Kainda. One post currently unfilled.

Technology students 4 - Marius Myburgh and Maryke Verwey completed their BTech degrees in December 2016. Josh Marx and Kumeshin Moodley joined us in January 2016.

Administrative Staff

Secretary

Ylana Waller

Typist

Erika Burger

Registrars

Rotated for periods of 6 months

Dr Ahmad A-Ali Abdelsalem (Libia)

Dr Chris Greyling

Dr Karim Hassan Dr Elize Louw

Dr Sandy Mpho Mosenye (Botswana)

Dr Denzil Schietekat

Dr Ali Abohajir (Libia)

Dr Adel Aboshakwa (Libia) Dr Reinhardt Dreyer

Dr Aziza Masoet Dr Zesi Ngubane Dr Nishen Sadhai

Senior Registrars from UCT rotating for Echocardiography training

Colleagues from UCT periodically rotate for periods of 6 weeks

Emergency medicine registrars

Rotated for periods of 3 months Dr Grant Thomas

Dr Martin de Man

Dr Charlotte Jagga (Roos) Dr Ken Diango

Number of beds

Coronary intensive care unit: 8

Cardiac high care: 17

D4 (elective admissions): 5

Number of patient-care chairs in the cathlab (radial suite)

A radial suite was put into service in November 2014. The radial suite allows us to provide a same-day coronary angiography service. The service is structured around 6 monitored dialysis-type chairs.

Factors impacting negatively on services in the unit

1. Staff shortages

Technologists

The control technologist post and two technologist posts are currently not filled putting enormous pressure on the technologists on staff.

There is an urgent need to have the capacity to promote one of our technologists to a chief technologist post. Although the post exists, it is currently unfunded. This has to be addressed as a priority.

Nursing staff

The acute nursing shortage in the coronary care unit continues to result in cases of suboptimal medical care, which is of grave concern. The urgent need to address the staff shortage in the cathlab has already been highlighted in the introduction to this document.

2. Lack of Equipment

Echocardiography machines

There is a growing need to provide echocardiography service at the point of contact in the emergency areas of the hospital, particularly in the CCU. This service is currently provided by transporting very expensive equipment from the echocardiography unit to the emergency area. The provision of echocardiography facilities for F1 and the obstetric high care unit are the next priorities. Thereafter the other intensive care units should be planned for.

Patient Statistics

a) Inpatients

A&E admissions	
Unit	928
Ward	1 372
D4 elective admissions	316
Radial lounge admissions	265
Total	2 881
Patients seen in the emergency room	963
Resuscitations	32
Streptokinase administered	258
Deaths	48

b) Inpatient consultations 4 092

Written interdepartmental consultations	1 425
Direct and/or telephonic consultation of doctor on call	2 667

c) Outpatients

Cardiac

Clinic

New patient consultations	562
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Follow-up patient consultations	3 052
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Lipid Clinic

New patient consultations	17
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Follow-up patient consultations	124
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GUCH Clinic

New patient consultations	32
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Follow-up patient consultations	123
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Cardiomyopathy Clinic

New and follow-up patient consultations	60
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<u>Adult cardiology total</u>	3 970
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<u>Paarl outreach clinic</u>	65
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<u>Worcester outreach clinic</u>	132
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<u>Karl Bremer outreach clinic</u>	117
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<u>Paediatric cardiology clinic</u>	1 073
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d) Electrocardiography

Standard ECG	13 708
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Exercise ECG	785
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Holter ECG recordings	212
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Total	14 705
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e) Echocardiograms	
TTE (adult)	5 877
TTE (paediatric)	201
TEE	178
TEE (under sedation – included above)	131
Dobutamien stress echo	31
Exercise stress echo	10
Total	6 297
f) Cardiac catheterisation	1 520
Left and coronary	
Femoral (incl. conv. from rad.):	210
Radial:	1 288
Aortograms	4
Pulmonary arteriogram	18
Right heart studies	45
Total	1 565
g) Coronary interventions	
PCI (number of patients)	735
PTCA balloons	881
PTCA balloons (drug eluting)	11
Bare metal stents	38
Drug eluting stents	606
Rotablation	5
Coronary aspirations (incl. above)	63
FFR (incl. above)	59
Intravascular ultrasound (IVUS) (incl. above) 55 Optical coherence tomography (OCT)	7
h) Intra-aortic balloon pump (IABP)	17
i) Percutaneous Mitral Balloon Valvuloplasty	15
j) Drivers cardiac interventions	27
<u>ASD closure</u>	3
<u>VSD closure</u>	2
<u>PFO closure</u>	1
<u>PDA closure</u>	2
<u>Atrial appendage closure</u>	2
<u>Aortic valvuloplasty</u>	3
<u>Pulmonary valvuloplasty</u>	3
<u>Tricuspid valve-in-valve replacement</u>	1
<u>Mitral valve-in-valve</u>	0
<u>Trans Ao Valve impl. (TAVI)</u>	8
<u>Coarctation stent</u>	0
<u>Myocardial biopsy</u>	2
<u>IVC stent</u>	0
<u>Renal denervation</u>	0
<u>AV fistula coiled</u>	0
k) Valve screening (fluoroscopy)	62
l) Pericardial aspirations	43
Pericardioscopy	6

m) Pacemaker Implantation	
New	122
Replacement	33
Lead replacement	2
Lead extraction	0
Epicardial lead	1
Total	158
VVIR	100
VDD	0
DDDR	41
CRT	6
ICD	7
Loop recorder	1
n) Temporary pacing	220
A6	59
Cathlab	161
o) Pacemaker follow-up	994
p) Swan Ganz catheters	0
q) Arterial lines	13
r) Ventilation	42

Academic Activities

The Unit is actively involved in the departmental teaching programme.

Undergraduate

- The Cardiology module was presented to the second-year students. The clinical content of the module is under chairmanship of Prof. Doubell. The module continues to receive high praise from participants. Student Interns (late rotation) rotate through Cardiology for a 7-day period during which intensive bedside teaching is presented. The middle rotation students attend an ECG seminar weekly (two visits per student during their two-week rotation in internal medicine).
- Training of technologists (4 posts) accommodates the curricula of both the Central University of the Free State and the Durban Institute of Technology.

Postgraduate

- A structured teaching programme was presented for registrars rotating through Cardiology for 6 months at a time.
- The registrar training programme is the only programme in the country that includes structured and supervised echocardiography training.
- One senior registrar completed her cardiology training – Dr Annari van Rensburg. Dr Van Rensburg achieved a distinction in the Cert Cardiology examination, the only candidate in the country to do so.

Continued medical education

- The expanded outreach service now includes Paarl Hospital, Karl Bremer Hospital and Worcester Hospital. During the outreach visits the visiting cardiologist starts the day with a lecture and then provides bedside teaching for the duration of the outreach.
- The Division annually hosts the SUNecho course in echocardiography, the premier echocardiography training course in the country. The 2016 course included a pre-course workshop in 3D echocardiography.

Outstanding achievements in 2016

- Prof. Doubell was awarded **Honorary Membership of the South African Heart Association**. He continues to serve on the **Executive Committee of the South African Heart Association** and is the current **Editor of SA Heart**, the official Journal of the South African Heart Association
- Dr Annari van Rensburg passed the **Cert Cardiology examination with distinction**, achieving the highest mark in the country by some margin

Research output

a. Journal articles - Subsidised

1. Chin A, Vesi B, Namane M, Weich HSVH, Scott Millar R. An approach to the patient with a suspected tachycardia in the emergency department. *S Afr Med J*. 2016; 106(3):246-250.
2. Coetzee A, Kyriakakis CG, Greyling CJ, Ascott-Evans BH. Cardiac tamponade due to hypothyroidism: a case cluster report. *Journal of Endocrinology, Metabolism and Diabetes of South Africa (JEMDSA)* 2016; 21(2):16- 19.
3. Doubell AF. Cardiology training in South Africa - on the brink? *SA Heart* 2016; 13(2):87-89.
4. Doubell AF. The Heart Team, TAVI and natural selection. *SA Heart* 2016; 13(4): 286-288.
5. Du Toit R, Reuter HCL, Du Plessis L, Van Rensburg A, Herbst P and Doubell AF. Lupus myocarditis in a predominantly mixed racial population: Analysis of clinical and echocardiographic features. *Lupus*. 2016 May 25. pii: 0961203316651741. [Epub ahead of print]
6. Kyriakakis CG, Mayosi BM, De Vries E, Isaacs S A, Doubell AF. An approach to the patient with suspected pericardial disease. *S Afr Med J*. 2016; 106(2):151-155.
7. Kyriakakis CG. Tuberculous pericarditis: challenges and controversies in the modern era. *SA Heart* 2016; 13(2):104-111.
8. Pecoraro AJK. Delivering cardiac care: The next frontier. *SA Heart* 2016; 13(3):148-149.
9. Van Rensburg A, Kyriakakis CG, Pecoraro AJK, Herbst PG. When opportunity knocks. *SA Heart* 2016; 13(2):122-124.
10. Van Rensburg A, Pecoraro AJK, Kyriakakis CG, Herbst PG, Doubell AF. Tri-leaflet mitral valves - when lightning strikes thrice. *SA Heart* 2016; 13(1):36-37.
11. Weich HSVH, Janson JT, Pecoraro AJK, Van Wyk J, Rocher AFS, Dempers JJ, Doubell AF. First case of transcatheter native mitral and aortic valve replacement. *EuroIntervention* 2016; 12(1):DOI: 10,4244/EIJV1219A1.
12. Sliwa K, Zühlke L, Kleinloog R, Doubell A, Ebrahim I, Essop M, Kettles D, Jankelow D, Khan S, Klug E, Lecour S, Marais D, Mpe M, Ntsekhe M, Osrin L, Smit F, Snyders A, Theron JP, Thornton A, Chin A, Van der Merwe N, Dau E, Sarkin A. Cardiology–cardiothoracic subspeciality training in South Africa: a position paper of the South Africa Heart Association. *Cardiovascular Journal of Africa* 2016; 27 (2): 157 -162
13. Van der Bijl P, Herbst P, Doubell A. Redefining Effusive-Constrictive Pericarditis with echocardiography. *J Cardiovasc Ultrasound* 2016; 24(4):317-323
14. Dougherty S, Khorsandi M, Herbst P. Rheumatic heart disease screening: Current concepts and challenges. *Annals of Pediatric Cardiology* 2017; 10(1):39-49.
15. Du Toit R, Herbst PG, Van Rensburg A, Du Plessis LM, Reuter H, Doubell AF. Clinical features and outcome of lupus myocarditis in the Western Cape, South Africa. *Lupus*. 2017; 26(1):38-47.

b. Proceedings National and International

1. Riette du Toit, Phillip Herbst, Annari van Rensburg, Lisa du Plessis, Helmuth Reuter and Anton Doubell. Speckle tracking echocardiography in acute lupus myocarditis: Comparison to conventional echocardiography. 26th Annual Conference of the World Society of Cardiothoracic Surgery and 17th Annual Congress of the South African Heart Association. *SA Heart* 2016; 13(3): 180
2. Annari van Rensburg, Philip Herbst and Anton Doubell. Mitral valve disease in the

setting of a bicuspid aortic valve: Will looking back influence the future? 26th Annual Conference of the World Society of Cardiothoracic Surgery and 17th Annual Congress of the South African Heart Association. *SA Heart* 2016; 13(3): 239-240

3. Charles Kyriakakis, Hellmuth Weich, Anton Doubell. Percutaneous pericardioscopy in a population with a high prevalence of tuberculous pericarditis – Improving the diagnostic yield and advancing the time to diagnosis. 26th Annual Conference of the World Society of Cardiothoracic Surgery and 17th Annual Congress of the South African Heart Association. *SA Heart* 2016; 13(3): 200-201
4. Charles Kyriakakis, Jacques Janson, Ntobeko Ntusi, Annari van Rensburg, Hellmuth Weich, Pieter Rossouw, Jane Moses and Anton Doubell. Unroofed coronary sinus defects (CSD): The added value of multimodality imaging. 26th Annual Conference of the World Society of Cardiothoracic Surgery and 17th Annual Congress of the South African Heart Association. *SA Heart* 2016; 13(3): 201
5. Annari van Rensburg, Philip Herbst and Anton Doubell. Mitral valve disease in the setting of a bicuspid aortic valve: Is there a link? ESC Congress, Rome 2016. *European Heart Journal* 2016 In press.

c. Presentations at the Annual Academic Day of the Faculty of Health Sciences, Stellenbosch University

1. Annari van Rensburg, Anton Doubell, Philip Herbst. Mitral valve abnormalities in patients with bicuspid aortic valves – Is there a link? 2016
2. Annari van Rensburg, Anton Frans Doubell, Charles George Kyriakakis, Hellmuth Stephan von Heyderhoff Weich, Jacques Janson, Jane Moses, Ntobeko Ntusi. Unroofed coronary sinus defects (CSD) – The added value of multimodality imaging. 2016
3. Riette du Toit, Philip Herbst, Annari van Rensburg, Lisa du Plessis, Hellmuth Reuter, Anton Doubell. Speckle tracking echocardiography in acute lupus myocarditis: Comparison to conventional echocardiography. 2016
4. Charles George Kyriakakis, Anton Frans Doubell, Hellmuth Stephan von Heyderhoff Weich. Percutaneous pericardioscopy in a population with a high prevalence of tuberculous pericarditis – Improving the diagnostic yield and advancing the time to diagnosis. 2016
5. Bradley Griffiths, Anton Doubell, Eduard Langenegger, Philip Herbst. Echocardiographic assessment of left ventricular function in pre-eclampsia complicated by pulmonary oedema – Early findings from the LV Impact study. 2016

d. Other Presentations at National and International Congresses (abstracts not published).

1. Herbst PG, Pecoraro A, Kyriakakis C and Doubell A. Presented a comprehensive echocardiography course, SUNEcho, Stellenbosch University, Faculty of Medicine and Health Sciences. May 2016
2. Griffiths BP. SA Heart Branch academic meeting: Case presentation - POBA for the management of LAD CTO - Crystal Towers, Cape Town June 2016
3. Griffiths BP. AfricaPCR: Case presentation - Coronary perforation - Johannesburg March 2016
4. Griffiths BP. AfricaPCR: Case presentation - Catheter twist - March 2016 Johannesburg
5. Griffiths BP. SASCI Fellows meeting - Case presentation - stroke during PCI – Magaliesburg August 2016
6. Pecoraro A. Approach to prosthetic MV evaluation. 26th Annual Conference of the World Society of Cardiothoracic Surgery and 17th Annual Congress of the South African Heart Association. Cape Town September 2016
7. Pecoraro A. The use of echocardiography in the ICU. 26th Annual Conference of the World Society of Cardiothoracic Surgery and 17th Annual Congress of the South African Heart Association. Cape Town September 2016
8. Pecoraro A. African perspective on valvular heart disease. 26th Annual Conference of the World Society of Cardiothoracic Surgery and 17th Annual Congress of the South African Heart Association. Cape Town September 2016
9. Pecoraro A. Monthly CPD presentation as part of the outreach service (24 talks, 8 each for Karl Bremer, Paarl and Worcester hospitals).

10. Pecoraro A. Management of hypertension. Stellenbosch University Physicians Refresher Course 2016.
11. Herbst PG. Echocardiographic screening for subclinical rheumatic heart disease: State-of-the-art. 26th Annual Conference of the World Society of Cardiothoracic Surgery and 17th Annual Congress of the South African Heart Association. Cape Town September 2016
12. Herbst PG. Pericardial constriction in a nutshell. 26th Annual Conference of the World Society of Cardiothoracic Surgery and 17th Annual Congress of the South African Heart Association: Pre-Congress echocardiography workshop. Cape Town September 2016
13. Herbst PG. Diastolic function made easy – an approach to assessing LV filling pressures. 26th Annual Conference of the World Society of Cardiothoracic Surgery and 17th Annual Congress of the South African Heart Association: Pre-Congress echocardiography workshop. Cape Town September 2016
14. Coetzee A, Kyriakakis CG, Greyling C, Ascott-Evans BH. Cardiac tamponade due to hypothyroidism: A cluster of three cases. Society of Endocrinology, Metabolism and Diabetes of South Africa Congress. April 2016
15. Kyriakakis CG, Weich HS, Doubell AF. Percutaneous pericardioscopy in a population with a high prevalence of tuberculous pericarditis – improving the diagnostic yield and advancing the time to diagnosis. South African Medical Research Council – Early Career Scientist Meeting. Cape Town October 2016.
16. Kyriakakis CG: Iatrogenic left main stem thrombosis. AfricaPCR congress, Johannesburg March 2016
17. Kyriakakis CG: Arteria lusoria: proceed or stop? AfricaPCR Congress, Johannesburg March 2016.
18. Kyriakakis CG, Mohamed A: Learning pericardiocentesis. AfricaPCR Congress, Johannesburg March 2016.
19. Kyriakakis CG, Ntsekhe M: Learning pericardiocentesis. EuroPCR Congress, Paris May 2016.
20. Kyriakakis CG: Intracoronary imaging – imaging for the future, Interventional Society for Cathlab Allied Professionals session. 26th World Society of Cardiothoracic Surgeons and 17th Annual Congress of the South African Heart Association. Cape Town September 2016.
21. Kyriakakis CG: The management of pericardial effusions. 26th World Society of Cardiothoracic Surgeons and 17th Annual Congress of the South African Heart Association. Cape Town September 2016.
22. Kyriakakis CG: Echocardiography in Constrictive Pericarditis. Divisional Academic Meeting, Division of Cardiology, University of Cape Town and Groote Schuur Hospital, October 2016.
23. Kyriakakis CG: The utility of intravascular ultrasound in left main coronary artery disease. Crossroads Interventional Cardiology Meeting. Johannesburg November 2016.
24. Weich H. Case presentation: First case of trans-catheter double valve replacement. TCT meeting, Washington, USA 2016
25. Weich H. TAVI in a patient with extreme scoliosis, with a twist. TCT meeting, Washington, USA 2016
26. Weich H. Can we expand the indications of TAVI to low risk patients? TCT meeting, Washington, USA 2016
27. Weich H. The implications of the TOTAL and TASTE trials on everyday practice. AfricaPCR Congress, Johannesburg March 2016
28. Weich H. An approach to multi-vessel disease interventions. AfricaPCR Congress, Johannesburg March 2016
29. Weich H. Implications of the New ESC guidelines on Intervention for South Africa. 26th World Society of Cardiothoracic Surgeons and 17th Annual Congress of the South African Heart Association. September 2016.
30. Weich H. Update on SHARE-TAVI registry data. 26th World Society of Cardiothoracic Surgeons and 17th Annual Congress of the South African Heart Association. Cape Town September 2016.
31. Weich H. Current state of TAVI in South Africa. 26th World Society of Cardiothoracic Surgeons and 17th Annual Congress of the South African Heart Association. Cape Town September 2016.

32. Doubell AF. Assessment of mitral stenosis. 26th World Society of Cardiothoracic Surgeons and 17th Annual Congress of the South African Heart Association. Cape Town September 2016.
33. Doubell AF. Imaging in cardiology: The African perspective. 26th World Society of Cardiothoracic Surgeons and 17th Annual Congress of the South African Heart Association. Cape Town September 2016.

e. Degrees obtained

1. Cert Cardiology – Dr Annari van Rensburg (awaiting confirmation of MPhil result).

f. Other ongoing research

Pericardial disease

- The role of pericardioscopic percutaneous pericardial biopsies in the management of tuberculous effusions (PhD study of Dr Charles Kyriakakis)
- The diagnosis and natural history of effusive-constrictive pericarditis

Valve disease

- Predicting the outcome of balloon mitral valvuloplasty
- Percutaneous valve replacement
- Novel echocardiographic assessment to determine the severity of mitral stenosis
- Developing new echocardiographic criteria for the diagnosis of rheumatic valvular heart disease
- Assessing the mitral valve in patients with bicuspid aortic valve

New technology

- Developing a blood culture device to improve the yield of positive blood cultures in infective endocarditis

Cardiac involvement in SLE

- Dr Riette du Toit is undertaking a PhD study on myocardial involvement in patients with Systemic Lupus Erythematosus (SLE)

Contract research

- The unit has an active drug-trial unit and continues to be a leader in this field in the Faculty

National and International co-operation and partnerships

1. An echocardiography training platform has been established to assist with the training of Cape Town University cardiology trainees
2. Entered into a collaboration with the University of the Free State to pursue the development of heart valves for percutaneous implantation
3. Echo in Africa: this collaborative project with the British Echocardiography Society is part of a larger initiative undertaken by SUNHEART. During the past 3 years, Echo in Africa screened 3413 underprivileged schoolchildren to detect subclinical heart disease, in particular rheumatic heart disease. SUNHEART is a centre of the Division of Cardiology that has the objective of improving access to advanced cardiac care for all patients

Division Of Clinical Haematology

Dr F.C. Bassa

Summary of Activities

We have an extremely busy unit, with referrals from various hospitals and clinics throughout the Metro East, outlying hospitals as well as from the private sector. We are one of only two referral centres in the Western Cape for management of haematological disorders, the other being a unit at Groote Schuur Hospital. We are managing increasing numbers of referrals of haematological

problems in HIV positive patients, many of whom are critically ill with complex problems. We have many patients who are on private medical aids and managing them is labour intensive, as we have to submit treatment plans and negotiate therapy with the medical aids. We run outpatient clinics every weekday and see between 20-40 patients a day.

Due to the nature of the problems our patients face, we admit patients on a daily basis, many of them being haematological emergencies. Our inpatient load is considerable and we have an average of 25-30 inpatients at any one time, many of whom are critically ill. The immune compromised and ill patients are admitted to the special care unit in D8.

In addition, we are involved with undergraduate and postgraduate teaching and training and research as alluded to below.

Resources

Posts (Full-time)	Number	Filled
Specialists	2	2
Senior Registrar	1	1
Medical officer	1	1
Posts (sessional – how many hours worked per week)		
NIL		

Output

New patients referred to Clinic:	435
Follow up patients seen:	7 108
Chemotherapy administered:	1 414

Comment on output

We continue to battle with a huge workload with many critically ill patients that require intensive care.

Part 2

Faculty of Health Sciences

Infrastructure development – upgrading, new equipment, etc. (highlights)

NIL

Community outreach programmes/community services and interaction.

We are unable to perform outreach due to our heavy workload coupled with a shortage of senior staff who would be able to perform the outreach.

Partnerships

National:

Dr Bassa is a member of several national advisory boards

Advisory committees

- Novartis Iron Chelation Advisory Board
- Bayer Advisory Board: Rivaroxaban
- Key Oncologics Advisory Board: Multiple Myeloma

Drs Sissolak and Bassa are members of the South African Haemophilia Foundation Medical Advisory Committee

Private Sector:

We are involved with clinical trials with various pharmaceutical companies. Currently, three ongoing trials:

- A Randomised, Open Label, Phase 3 Trial of A+AVD Versus ABVD as Frontline Therapy in Patients With Advanced Classical Hodgkin Lymphoma
- A Phase III study of Lenalidomide and low-dose Dexamethasone with or without Pembrolizumab (MK3475) in newly diagnosed and treatment naive Multiple Myeloma
- A randomised controlled double blinded phase 111 trial to compare the efficacy, safety and pharmacokinetics of GP2013 plus COP vs Mabthera plus COP followed by GP2013 or

Mabthera maintenance therapy in patients with previously untreated advanced follicular lymphoma

International

- **AMC clinical trial group**

Approval of Tygerberg Hospital as a trial site in 2015

Focus – HIV-related malignancies

- Collaboration with African Cancer Institute (ACI)
 - Development of a cancer registry
 - Key investigator: Aids Malignancy Trials consortium grant that was awarded to the institute

Achievements w.r.t research activities and research outputs:

Number of publications from the department/division:

Sissolak G, Seftel M, Uldrick TS, Esterhuizen TM, Kotze D. Burkitt Lymphoma and B-cell lymphoma unclassifiable with features intermediate between diffuse large B-cell lymphoma and Burkitt lymphoma in patients with HIV: Outcomes in a South African public hospital. Journal of Global Oncology 2016: Aug 31 DOI: 10.1200/JGO.2015.002378

PhD research:

Dr F. Bassa: Management of lymphoma in a centre with high HIV and TB prevalence – accrual ongoing

MPhil:

Dr G. George: A retrospective review of Hodgkin lymphoma at TBH with reference to the impact of HIV – preparing an application to ethics

MMed supervision 2016

- **Dr Z. Ngubane**. Retrospective analysis of treatment outcomes in patients with MM treated at Tygerberg Hospital – Still ongoing
- **Dr C. Engelbrecht**. The use of iv polyvalent human normal immunoglobulin (Polygam) with reference to cost-effectiveness and clinical outcomes at TBH. Project submitted to postgraduate committee for revision end of 2016
- **Dr Z. Solomon**. A retrospective study of the clinical features of patients with Plasmablastic Lymphoma at Tygerberg Hospital – completed and promoted subject to minor corrections being addressed

Research collaboration with the Tygerberg Lymphoma Study Group:

- Impact of HIV on the incidence and pattern of lymphoma cases at Tygerberg Academic Hospital: a five-year retrospective study
- A five-year prospective study to improve the understanding of the lymphoma incidence, pattern and prognosis in patients at Tygerberg Hospital, Western Cape
- Investigating the use of flow cytometry for the screening and diagnosis of tuberculosis: A rapid blood-based TB test to distinguish between latent and active TB infection
- Feasibility of Euroflow panels in the diagnosis of CLL

Undergraduate research/supervision

- Dr Bassa Co-investigator: Prevalence and causes of warfarin toxicity at Tygerberg Hospital. Study completed and being prepared for publication

Textbooks and contributions to textbooks

NIL

Teaching and Training (under, postgraduate and elective students)

- Dr Bassa: Module chair for the late rotation: Internal medicine
- Teaching of undergraduates: Haematology Module: 4th-years
- Teaching of students 4th/5th-years who rotate through the haematology clinic
- Training of postgraduate registrars from Internal medicine and Haemato-pathology
- Training of subspecialist registrars in Clinical Haematology
- We are currently training a supernumerary subspecialist registrar from Zimbabwe
- We also hosted a supernumerary doctor from Cameroon who wanted exposure to certain haematological problems. She spent 6 months with us

Division Of Clinical Pharmacology

Prof. Helmuth Reuter

Summary of activities

The service functions of the Division of Clinical Pharmacology include clinical pharmacology consultations, Therapeutic Drug Monitoring (TDM, 24 drugs) by the Clinical Pharmacology Laboratory and appropriate dose recommendations, and the operation of the nationwide Tygerberg Poison Information Centre as part of the Western Cape Poison Information Helpline. A total number of 25 107 samples (drug assays and drugs of abuse) were analysed in the Clinical Pharmacology Laboratory in 2016, of which 48% were for Tygerberg Hospital as the main customer. The remainder of laboratory analyses were mostly for the NHLS, clinics and outreach services.

The Tygerberg Poison Information Centre as part of the Poison Information Helpline of the Western Cape provided 10 210 telephonic consultations; 56% of the cases were related to non-drug chemicals, 35% to drug overdoses, 10 % to biological exposures and 11% were non-patient related calls. Of these calls, 31% came from the Western Cape.

Members of the Division actively participated in the Tygerberg Pharmaceutical and Therapeutics Committee, the Provincial Pharmacy and Therapeutics Committee, Medicines Control Council (MCC) activities, the Tertiary and Quaternary Level Essential Medicine List Expert Review Committee of the National Department of Health, as well as the Health Research Ethics Committee of the Faculty of Medicine and Health Sciences.

Teaching

Under- and postgraduate programmes for medical and physiotherapy students were offered by the Division of Clinical Pharmacology.

Three BSc Honours in Pharmacology students, two students in the Postgraduate Diploma in Pharmaceutical Medicine and 25 students in the Postgraduate Diploma in Medicines Development graduated in the Academic Year 2016. All three BSc Honours students and five of the PG Diploma in Medicines Development passed with distinction. In addition, 3 CPUT students who performed their practical training in the Division graduated in 2016. Ten pharmacist interns received two weeks training in the Poison Information Centre from February to June 2016. The Poison Information Centre hosted a one-day toxicology workshop for the UCT MPhil Emergency Medicine (EM) students and the Western Cape EM registrars (1 August 2016).

Research

Research activities performed in the Division focussed on interactions between traditional medicines and conventional drugs (drug metabolism and transporters), pharmacokinetics of drugs in special patient populations (including children), pulmonary surfactant, drug discovery, HIV-associated neurocognitive impairment and biological fuels cells.

Altogether, 3 postdoctoral research fellows, 4 PhD students, 4 MSc students, and 3 student interns were actively engaged in these research projects.

Both registrars in the Division were recognised for their contribution to research by winning the Young Scientist Award 1st place (Dr Ahmed Abulfathi) and 2nd place (Dr Memela Makiwane) respectively at the All Africa Congress on Pharmacology and Pharmacy. Two undergraduate MBChB VI students (Annemarie Jacobs and Nina Steyn) were invited for oral presentations of their research projects at the same conference. Dr Eric Decloedt received a Young Investigator Scholarship to present his work at the Conference on Retroviruses and Opportunistic Infections 2016 in Boston, Massachusetts, USA.

Resources

Posts (Full-time)	Number	Filled
Professor (Head)	1	1
Senior specialist / Researcher / Lecturer	3	1
Principal pharmacist / Scientist / Researcher	3	3
Medical Officer (5/8)	1	1
Registrar	1	2 (including 1 supernumerary)
Technologist	6	6

Administrative assistant	1	1
Technical assistant	1	1
Posts (sessional – how many hours worked per week)		
Information pharmacists (Poison Information Centre)	3 (sessional)	3

Output

The service output of the Tygerberg Poison Information Centre and the Clinical Pharmacology laboratory was as follows:

Consultations provided by the Tygerberg Poison Information Centre (24x7 service): 10 210
 Clinical Pharmacology laboratory services: 25 107 analysed samples (drugs and drugs of abuse)

Comment on output

The Tygerberg Poison Information Centre provides a national service as shown in the high number of calls (69%) received from outside the Western Cape, although funding comes solely from provincial sources.

The Clinical Pharmacology Laboratory offers fast turnaround times of test results (TDM drug levels) on a 7 days a week basis. Although there was a change in service times during 2016, this did not result in any compromise in service delivery. As a novel component of the TDM service, the consultant clinical pharmacologists and the two registrars offer clinical advice in difficult cases.

The Clinical Pharmacologist 24-hour on call service has been well received and supports rational prescribing in the hospital.

Part 2

Faculty of Health Sciences

Infrastructure development – upgrading, new equipment, etc. (highlights)

The renovations of the Division were completed and allowed a new configuration of the laboratories to enhance collaboration between the analytical laboratory, the drug development and therapeutic drug monitoring facilities. The lecture room and meeting rooms have been refurbished and contribute to the professional and friendly learning and teaching environment.

Community outreach programmes/community services and interaction.

Poison Chart was translated into SA's 11 official languages and placed onto the website. Members of the Division have participated in newspaper and radio interviews, especially in the field of clinical toxicology.

Partnerships

International:

Tygerberg Poison Information Centre became a Network Participant for the WHO Chemical Risk Assessment group. The WHO Chemical Risk Assessment Network is a voluntary collaborative initiative whose overall goal is to improve chemical risk assessment globally through facilitating sustainable interaction between institutions on chemical risk assessment issues and activities. The Network has been established to enhance global efforts to assess risks to human health from exposure to chemicals.

Achievements w.r.t research activities and research outputs:

Number of publications from the department/division

1. Marks C, van Hoving N, Edwards N, Kanema C, Kapindula D, Menge, Nyadedzor C, Roberts C, Tagwireyi D, Tempowski J. A promising poison information centre model for Africa. African Journal of Emergency Medicine 2016, 6: 64-69

2. Opladen T, Lindner M, Das AM, Marquardt T, Khan A, Emre SH, Burton BK, Barshop BA, Böhm T, Meyburg J, Zangerl K, Mayorandam S, Bugard P, Dürr UHN, Rosenkranz B, Rennecke J, Derbinski J, Yudkoff M, Hoffmann GF. In vivo monitoring of urea cycle activity with ¹³C-acetate as tracer of ureagenesis. *Molecular Genetics and Metabolism* 2016, 117: 19-26.
3. Thomford NE, Awortwe C, Dzobo K, Adu F, Chopera D, Wonkam A, Skelton M, Blackhurst D, Dandara C. Inhibitor of CYP2B6 by Medicinal Plant Extracts: Implications for use of Efavirenz and Nevirapine-Based Highly Active Anti-Retroviral Therapy (HAART) in Resource-Limited Settings. *Molecules* 2016, 211
4. Kasten-Hilka T, Abulfathi A, Rosenkranz B, Bennett B, Schwenkglenks M, Sinanovic E. Health-related quality of life and its association with medication adherence in active pulmonary tuberculosis – a systematic review of global literature with focus on South Africa. *Health and Quality of Life Outcomes* 2016, 14: 42 doi: 10.1186/s12955-016-0442-6 (2016).
5. Van Zyl GU, Decloedt EH. Is HIV-1C risk factor for protease inhibitor failure? *The Lancet* 2016.
6. Kastien-Hilka T, Rosenkranz B, Bennett B, Sinanovic E, Schwenkglenks M. How to Evaluate Health-Related Quality of Life and Its Association with Medication Adherence in Pulmonary Tuberculosis – Designing a Prospective Observational Study in South Africa. *Front Pharmacol* 2016 7: 125 doi: 10.3389/fphar.2016.00125 (2016).
7. Visser Kift E, Freeman N, Cook C, Myer L. Retinopathy of prematurity screening criteria and workload implications at Tygerberg Children's Hospital, South Africa: A cross-sectional study. *SAMJ* 2016 106(6): 602 – 606.
8. Abulfathi AA, Greyling T, Makiwane M, Esser M, Decloedt E. Angio-oedema associated with colistin. *SAMJ* 2016 106(10): 990-991.
9. Patel O, Muller C, Joubert E, Louw J, Rosenkranz B, Awortwe C. Inhibitory Interactions of *Aspalathus linearis* (Rooibos) Extracts and Compounds, Aspalathin and Z-2-(β-D-Glucopyranosyloxy)-3-phenylpropenoic Acid, on Cytochromes Metabolizing Hypoglycemic and Hypolipidemic Drugs. *Molecules* 2016 21 1515; doi:10.3390/molecules21111515.
10. Marks CJ, Van Hoving DJ. A 3-year survey of acute poisoning exposures in infants reported in telephone calls made to the Tygerberg Poison Information Centre, South Africa. *S Afr J Child Health* 2016; 10 (1): 43-46
11. Harmse L, Reuter H. An overview of the biological disease modifying drugs available for arthritic conditions in South Africa. *South African Family Practice* 2016; 58(6):18-22
12. Decloedt EH, Freeman C, Howells F, Casson-Crook M, Lesosky M, Koutsilieri E, Lovestone S, Maartens G., Joska JA. Moderate to severe HIV-associated neurocognitive impairment: A randomized placebo-controlled trial of lithium. *Medicine* 2016 95(46): e5401
13. Decloedt EH, Müller GJ. Haemotoxic snakebite in rural KwaZulu-Natal, South Africa. *S Afr Med J* 2016 106(8): DOI:10.7196/SAMJ.2016.v106i8.11119

Teaching and Training (under, postgraduate and elective students)

Undergraduate programmes for MBChB and physiotherapy students were offered by the Division of Clinical Pharmacology.

In 2016, 3 BSc Honours in Pharmacology students graduated (3 cum laude), 2 Postgraduate Diploma in Pharmaceutical Medicine and 27 Postgraduate Diploma in Medicines Development students graduated (5 cum laude).

Division Of Dermatology

Dr W.I. Visser

Summary of activities

The missions of the Division, namely effective administration, basic research, excellent service delivery, under- and postgraduate teaching and outreach were achieved satisfactorily.

Resources

Posts (Full-time)	Number	Filled
Head of Division	1	1
Consultant	1	1
Registrars	4	4
Supernumerary Registrars	3	3
Posts (sessional – how many hours worked per week)		
Specialist	4 hours per week	1

Output

Outpatient visits	9 421
Admissions	260
UV therapy	80
Patch tests	50
Theatre procedures	1 300
Biopsies	1 500

Comment on output

- The Division of Dermatology delivers a comprehensive and efficient clinical service at specialist level
- Both in- and outpatients are referred from general practitioners, specialists (dermatology and other), community health centres and from other departments
- Consultation with other departments takes place virtually on a daily basis. Contact with the Department of Medicine, the Department of Paediatrics and Child Health, the Division of Rheumatology and the Division of Infectious Diseases form the bulk of these consultations
- Daily performance of skin biopsies, curettage and cautery, and surgical excision of benign and malignant skin neoplasms. Only local anaesthetic is administered and surgery requiring flaps is not performed
- Providing teledermatology consultations to Dermatologists and other doctors
- The commonest conditions admitted are the following:
 - Patients with erythroderma
 - Patients with widespread plaque psoriasis. These patients are admitted for treatment consisting of topical steroids, ultraviolet light and systemic immunosuppressants
 - Patients with autoimmune blistering disorders (bullous pemphigoid, pemphigus, dermatitis herpetiformis)
 - Patients with severe cutaneous adverse drug reactions, including Stevens-Johnson syndrome and toxic epidermal necrolysis
 - Patients with complicated skin cancer
 - Patients with leg ulcers
 - Patients with complicated retroviral disease affecting the skin
- A quarter of patients seen at OPD are under the age of 12 years. A dedicated paediatric dermatology service is provided, in a specific child friendly area, in the dermatology clinic
- A weekly interdisciplinary skin cancer meeting and Kaposi sarcoma clinic as well as a combined Rheumatology clinic are attended
- We continue our close relationship with Anatomical Pathology with weekly CPC's and biweekly consultations to maximise clinicopathological correlation. A Pigmented Skin Lesion group convenes monthly

Part 2 Faculty of Health Sciences

Infrastructure development – upgrading, new equipment, etc. (highlights)

- A brand-new Excimer laser/light was acquired this year. This state-of-the-art equipment has revolutionised the way we treat patients with vitiligo, alopecia areata, lichen planus and psoriasis
- A whole body photographic studio for mole mapping is utilised to its full potential with the development of a weekly dedicated pigmented lesion clinic. This has dramatically improved management of patients

Community outreach programmes/community services and interaction. Please focus on initiatives in 2016, especially w.r.t. MDG and projects in Africa

- Monthly outreach clinic at Worcester Hospital
- Quarterly outreach clinic at Brewelskloof Hospital
- Primary Healthcare support to Khayelitsha Hospital
- Regular presentations to private practitioners and specialists, namely oncologists, physicians, paediatricians
- Educational talks to members of the public
- Radio interviews – 4 per year
- Advice to public in popular magazines
- Three annual training workshops for nurses and doctors
- Two 3 day dermatology workshops for GPs and nurses were presented
- Dr B Tod presents a HIV and the skin course at the University of Fort Hare, East London Campus as part of an Advanced HIV certificate for nurses
- Six lectures to the South-to-South Partnership for Comprehensive Paediatric HIV Care and Treatment Programme
- Public awareness campaigns at the Cape Town Marathon and beach clinics
- Outreach to the Athlone School for the Blind – Albinism awareness programme and prevention of sun damage

Partnerships

National:

- Our division organised the largest combined South African Dermatology congress up to date. Over 300 delegates attended the congress and 50 exhibition stands represented the pharmaceutical trade
- Monthly interdepartmental meetings with Dermatology at UCT
- Close relationship with Divisions of Dermatology at other South African universities
- Dr W.I. Visser, Prof. H.F. Jordaan and Dr Kannenberg plays an active role in the College of Dermatology – Convener and moderator for examinations
- Dr W.I. Visser is the vice president of the Dermatological Society of South Africa (DSSA)
- Prof. H.F. Jordaan is on the EXCO of the DSSA
- Dr Kannenberg is a member of the African Women's Dermatology Society and the Epidermolysis Bullosa Society

Private:

- Weekly journal club meetings with private dermatologists
- Monthly Problem Clinic with private dermatologists
- Cosmetic and surgical dermatology workshops for private dermatologists
- Dr W.I. Visser – advisory board for Eucerin and Meda, Immunology/Oncology advisory board for Bristol-Myers Squibb and Novartis

International:

- Prof. Geoffrey Gershenwald (MD Anderson Cancer Centre, USA) was invited to lecture on melanoma treatment and prevention
- Prof. Anne Bowcock (Imperial College London) are collaborating regarding melanoma research

- The Division has numerous international contacts and experts in specific fields are electronically consulted regularly

Achievements w.r.t research activities and research outputs:

- Dr W. Visser and Dr Altaaf Parker was awarded the L'Oreal African Hair and Skin Research Grant
- Number of publications from the department/division: 5
- International lectures: 3

Teaching and Training (under, postgraduate and elective students)

- Dr Altaaf Parker was awarded the College of Dermatology medal for the best student Part 2
- Dr Johann de Wet was awarded the College of Dermatology medal for the best student Part 1
- Three hundred undergraduate students were accommodated in groups of 20 throughout the year in OPD as part of their clinical/practical rotation. A 2-week lecture block, 40 lectures, was well attended by students. In 2016 we continued the lecture block in the form of podcast and contact sessions, and it is still a huge success. The focus of the division is to enhance web-based learning and practical teaching methods. A surgical skills workshop form part of student teaching. Student feedback for both the clinical and theoretical rotations was outstanding
- Currently there are seven registrars in training. The Division prides itself in a well-structured and comprehensive postgraduate teaching programme. Registrars work under direct consultant supervision. Newer teaching modules in cosmetic dermatology and dermatological surgery are continued. Students can also attend Mohs surgery sessions in a private practise
- Continuing our Short Course in Cosmetic Dermatology twice a year
- Continuing our Short Course in Surgical Dermatology
- Two new Short Courses was introduced – Sclerotherapy and Lasers and Light treatments
- There are many European elective students visiting our division - 10 students in 2016, mostly from Europe
- Registrars from Oral Pathology, Family Medicine and Pharmacology are visiting our clinic on a rotational basis

Special achievements and other highlights

- Dr W.I. Visser attended the European Dermatology Congress in Vienna and the Urticaria symposium in Berlin
- Dr W.I. Visser was an invited speaker at the 10th International Child TB Training Course at Goudini
- Dr S. Kannenberg attended a Dermatology Summer Academy in Munich, the Vitiligo Symposium in Frankfurt and visited the Charite Hospital in Berlin
- Dr Johann de Wet and Dr Jacques van Wyk presented at the Annual SA Dermatology Congress in Cape Town
- Prof. H.F. Jordaan conducted a dermatopathology session at the Annual Congress

Endocrinology

Dr M. Conradie

Summary of activities

a) Tertiary service delivery and excellence of patient care.

1. Establishment of multidisciplinary clinical teams to optimise and ensure integrated care of patients at tertiary level of care
 - Pituitary MDG
 - Gestational diabetes MDG

- Neuro-Endocrine Tumor MDG
2. Consolidation and development of teaching, training and outreach programmes for clinicians.
 3. Clinical research
 4. Basic science (Endocrinology) – Stephen Hough Research Laboratory; Head: Prof. W. Ferris (WF)

Resources

Posts (Full-time)	Number	Filled
Specialist	2	1 (2 for 9 months)
MO (x2), Sen Reg (x1), Med tech (x1)	4	4
Administrative clerk	1	1
Posts (sessional – how many hours worked per week)		
1 x Consultant (x 4 hours)	1 x MO (x 8 hours)	12 hours/week

Outputs

Admissions	452
Referrals	2 293
DXA's	890
Outpatients – New	345
Outpatients – Follow-ups	2 592

Comment on output

- Stats provided should be fairly accurate, as we reviewed original sources for this report. This output only refers to clinical patient care

PART 2

Faculty of Health Sciences

Infrastructure development – upgrading, new equipment, etc. (highlights)

None, except for minor infrastructure upgrades in Unit. In planning stage of establishing a diabetes educational centre in Endocrine Division, Ward A10, as well as upgrading an existing doctor's workstation in Ward A10 to be used as an intravenous infusion centre (in discussion with hospital management – Dr Mistry).

Community outreach programmes/community services and interaction. Please focus on initiatives in 2016, especially w.r.t. MDG and projects in Africa

- o Magda Conradie and Ankia Coetzee appointed Western Cape Co-Investigators on National Hip Fracture study in public and private sector (non-commercial) to ensure development of local hip fracture scoring system. Study went active on 6 March 2017 (HREC N15/09/085; Western Cape Health Research WC_2016RF48_242)
- o Magda Conradie and Ankia Coetzee appointed Western Cape Co-Investigators on National Postpartum Gestational Diabetes follow-up Study (non-commercial) to be conducted at tertiary facilities and at primary care clinics in community (An integrated health system intervention aimed at reducing type 2 diabetes risk in women after gestational diabetes in South Africa (IINDIAGO), a randomised controlled trial)
- o Magda Conradie and Ankia Coetzee act as consultants to the Department of Obstetrics high risk team to assist with optimal management of pregnant women with diabetes mellitus and to develop and plan clinical research to optimise patient care
- o Magda Conradie acted as clinical consultant to basic sciences group (Prof. Katharina Ronacher and Prof. G. Waltzl) exploring the lung microbiome and its potential contribution to the increased infection risk observed in patients with diabetes mellitus in the Western Cape
- o BAE: Teaching - CMEs in greater Cape Town and National Diabetes Forum in Gauteng
- o Magda Conradie acted as SEMDSA representative for the International Diabetes Foundation Diabetes Initiatives in Africa
- o Ankia Coetzee acting as SEMDSA representative for the International Diabetes Foundation Diabetes Initiatives in Africa

Magda Conradie and Ankia Coetzee: **Collaborations**

- o Koos Jordaan, Department of Orthopaedics, Tygerberg Hospital (TBH)
- o Bilkish Cassim, Department of Medicine, University of KwaZulu-Natal (KZN)
- o Mac Lukhele, Department of Orthopedics, University of Witwatersrand
- o Asgar Kalla, Department of Rheumatology, University of Cape Town (UCT)
- o Prof. Dinky Levitt, Department of Medicine, University of Cape Town (UCT)
- o Prof. David Hall, Department of Obstetrics, University of Stellenbosch (US)
- o Prof. K. Ronacher and Prof. G. Waltzl, Department of Medical Physiology, University of Stellenbosch (US)

W. Ferris, Mari van de Vyver and Hanel Sadie: Collaborations

- o Prof. Nigel Crowther, NHLS labs, University of Witwatersrand, Johannesburg
- o Prof. CU Niesler – School of Life Sciences, University of KwaZulu-Natal. Collaborator and co-supervisor of new PhD student (Mr Y.M. Azar)
- o Prof. K.H. Myburgh – Department of Physiological Sciences, Stellenbosch University. Collaborator and co-supervisor of new PhD student (B. Jani)
- o Prof. E.W. Derman – Institute for Sport and Exercise Medicine, FHMS, Stellenbosch University. Collaborator/scientific adviser on multi-disciplinary community-based project
- o Dr C.J.F. Muller and Dr J. Louw, Biomedical Research and Innovation Platform, SA Medical Research Council, Parow, South Africa
- o Prof. B. Huisamen, Division of Medical Physiology, Department of Biomedical Sciences, Stellenbosch University

Partnerships

National:

- o SEMDSA councillors – Magda Conradie, Ankia Coetzee and Mari van de Vyver
- o Updated SEMDSA guidelines for Management of Type 2 Diabetes Mellitus in RSA (attended by National DoH)

International:

- o W. Ferris – International research Collaboration: Dr Wendy Macfarlane and Prof. Adrian Bone, Diabetes Research Group, Brighton University, UK

Achievements w.r.t research activities and research outputs

- (a) Number of publications from the department/division (10 – Clinical: 6; Basic Sciences: 4)

Clinical

- o Baatjes KJ, Apffelstaedt JP, Kotze MJ, Conradie M. Postmenopausal breast cancer, aromatase inhibitors, and bone health: what the surgeon should know. *World Journal of Surgery* 2016; 40: 2149-2156.
- o Marais C, Van Wyk L, Conradie M, Hall D. Screening for gestational diabetes: examining a breakfast meal test. *South African Journal of Clinical Nutrition* 2016; 29(3): 118-121.
- o Coetzee A, Kyriakkis CG, Greyling CJ, Ascott-Evans BH. Cardiac tamponade due to hypothyroidism: a case cluster report. *Journal of Endocrinology, Metabolism and Diabetes of South Africa (JEMDSA)* 2016; 21(2): 16-19.
- o Hough FS, Pieroz DD, Cooper C, Ferrari SL. Mechanisms and evaluation of bone fragility in type 1 diabetes mellitus. *European Journal of Endocrinology* 2016; 174(4): R127 - R138.
- o Pretorius JSE, Davis R, Doruyter AGG, Ascott-Evans BH. Latest diagnostic approaches to determine the cause of ACTH-dependent Cushing's syndrome, in the South African setting. *Journal of Endocrinology, Metabolism and Diabetes of South Africa (JEMDSA)* 2016; 21(3): 47-50.
- o Pretorius JSE, Ascott-Evans BH. Testosterone in DM - friend or foe? *South African Journal of Diabetes* 2016; 5: 23-27.

Basic sciences

- o Jacobs FA, Sadie-Van Gijzen H, van de Vyver M, Ferris WF. Vanadate Impedes Adipogenesis in Mesenchymal Stem Cells Derived from Different Depots within Bone. *Front Endocrinol (Lausanne)*. 2016; 7:108.

- o Vieira WA, Sadie-Van Gijsen H, Ferris WF. Free fatty acid G-protein coupled receptor signalling in M1 skewed white adipose tissue macrophages. *Cell Mol Life Sci.* 2016 Oct;73(19):3665-76
- o Van de Vyver M, Niesler C, Myburgh KH, Ferris WF. Delayed wound healing and dysregulation of IL6/STAT3 signalling in MSCs derived from pre-diabetic obese mice. *Mol Cell Endocrinol.* 2016 May 5;426:1-10.
- o Van de Vyver M, Engelbrecht L, Smith C, Myburgh KH. Neutrophil and monocyte responses to downhill running: Intracellular contents of MPO, IL-6, IL-10, pstat3, and SOCS3. *Scand J Med Sci Sports.* 2016 Jun; 26(6):638-47.

(b) Textbooks and contributions to textbooks:

- o SAMF update 2016/2017: (Ascott-Evans, Conradie, Coetzee)
- o (c) Presentations at National / International Conferences (10 – Clinical: 4; Basic Sciences: 6)
- o Clinical
- o Coetzee A, Ascott-Evans BH. Cardiac Tamponade due to Hypothyroidism: a Cluster of Cases. 51st SEMDSA Congress, Cape Town, 2016
- o Pretorius E, Ascott-Evans BH. State-of-the-art Work Up Of Pituitary Cushing's Disease In SA. 51st SEMDSA Congress, Cape Town, 2016
- o Rademan L, Pretorius E, Conradie M. Primary Hypophysitis: A Case Series. 51st SEMDSA Congress, Cape Town, 2016
- o Hellig J, Ascott-Evans BH, Barnard K. Audit Of Standard Of Care Measures And Complications In A Tertiary Type I Diabetic (dm1) Clinic: A Different Perspective. 51st SEMDSA Congress, Cape Town, 2016
- o Basic sciences
- o FA Jacobs, H Sadie, M van de Vyver, WF Ferris. Vanadate reduces adipocytic differentiation of mesenchymal stem cells derived from different regions within the rat femur. Bone Marrow Adiposity Congress, The Kunsthal, Rotterdam, Netherlands 25-26 Aug. 2016
- o H Sadie-Van Gijsen, C Muller, J Louw, W Ferris. Coffee or tea: could your daily "cuppa" be beneficial for weight-loss? 51st SEMDSA Congress, Cape Town, 2016
- o Van de Vyver M, Niesler C, Myburgh KH, Ferris WF. Obesity-associated type 2 diabetes can have detrimental effects on the ability of mesenchymal stem cells (MSCs) to aid tissue regeneration. 51st SEMDSA Congress, Cape Town, 2016
- o Jacobs, Dr H Sadie-van Gijsen, Dr M van de Vyver, W Ferris (2016) Glucocorticoids Reduce The Cell Viability Of Mscs Derived From The Proximal Femur But Not From Bone Marrow Of Rats. 51st SEMDSA Congress, Cape Town, 2016
- o Van de Vyver M (presenting author), Niesler C, Myburgh KH, Ferris WF. The implications of low level inflammatory conditions on the ability of mesenchymal stem cells to aid tissue regeneration. Indian Ocean Rim Muscle Colloquium (IORMC) 24-26 January 2016
- o KW Lanz (poster presentation), KH Myburgh, M van de Vyver. Impact of bone marrow derived mesenchymal stem cell conditioned media on the migration of C2C12 myoblasts: Influence of obesity. Physiological Society of Southern Africa (PSSA) conference, 28 -31 August 2016, Cape Town

(d) Funding and Awards
Clinical

Magda Conradie

- o Eli Lilly ADA Diabetes Travel Grant ADA – 5-9 June 2015, Boston, Massachusetts

Elmo Pretorius

- o Sanofi-Aventis Travel Fellowship ADA – 5-9 June 2015, Boston, Massachusetts
- o Joclyn Hellig
- o The Novo Nordisk Diabetes Travel Grant – to visit overseas Endocrine Unit of own choice for period of 6 weeks

Basic Sciences

William Ferris

- o SEMDSA award for best publication in endocrinology (2015/2016)

- o NRF Grant for 2016
- Mari van de Vyver:
- o Best oral presentation: 51th Congress of the Society for Endocrinology, Metabolism and Diabetes of South Africa (SEMDSA), 15-17 April 2016, Cape Town, South Africa
 - o SEMDSA Scientist travel award: To attend international conference in 2017
 - o Mentee in the Early Research Career (ERC) development programme: Division for research development, Stellenbosch University (2017-2019). Mentor: Prof. K.H. Myburgh
 - o South African Sugar Association (SASA). Nutrition Research Grant. Amount awarded: R45 000 per annum (2015-2016) and Harry Crossley Foundation. Amount awarded: R17 231 (2015); R26 992 (2016); Research Project: Impaired diabetic wound healing: The influence of obesity-associated systemic inflammation on the mobilization and migration of bone marrow-derived mesenchymal stem cells (bmMSCs)
 - o Harry Crossley Foundation. Amount awarded: R25 805 (2016); Research Project: Stem cell impairment associated with type 2 diabetes mellitus: Investigating the effect of obesity-associated inflammation on mesenchymal stem cell behaviour in three different cohorts of patients

(e) Invited speakers

Clinical

Magda Conradie

- o Title: Management of True Gestational Diabetes: Academic Day Department of Obstetrics and Gynaecology 2016
- o Ankia Coetzee
- o Title: Steroid Induced Osteoporosis: Division of Pulmonology 2017
- o Elmo Pretorius
- o Title: Glycemic Management of the hospitalised patient: Academic day Department of Obstetrics and Gynaecology 2016
- o Basic Sciences
- o Mari van de Vyver
- o Title: Stem cell impairment in chronic inflammatory conditions and its implications for autologous cell therapy. Workshop on Stem cell science and Applications, AAS/ STIAS 27 June – 1 July 2016
- o Van de Vyver M, H Kuivaniemi. Human subjects and Animal Research. Writing a successful NIH Research Grant: A round table discussion. 28 September 2016. Hosted by Research Development and Support, FMHS. (Invited to present a section on animal ethics – NIH compliance. Reason for invitation – I was identified as the only researcher in the faculty that has ever submitted an NIH application for an animal study)

(f) Congress Organising and Executive Committee contributions

Clinical

Magda Conradie

- o Executive committee – Society for Endocrinology, Metabolism and Diabetes of South Africa (SEMDSA). Portfolio: Liaison for IDF initiatives in Africa 2016
- o Ankia Coetzee
- o Executive committee – Society for Endocrinology, Metabolism and Diabetes of South Africa (SEMDSA). Portfolio: Liaison for IDF initiatives in Africa 2106/2017
- o Basic Sciences

William Ferris

- o Local organising committee and Programme organising Committee for the International Congress on Endocrinology 2018 (ICE2018)
- o Local organising committee SEMDSA congress 2016
- o Mari van de Vyver
- o Executive committee – Society for Endocrinology, metabolism and Diabetes of South Africa (SEMDSA). Portfolio: Basic science representative
- o Organising committee – International Society for the Advancement of Cytometry: Flow cytometry workshop: Indo-US Cytometry to be held at Stellenbosch University in April 2017

- Scientific committee – 2nd International Conference on Tissue Engineering and Regenerative Medicine to be hosted by Vaal University of Technology, 26-30 July 2017

Teaching and Training (under-, postgraduate and elective students)

Clinical

(a) Undergraduate and Elective students

Magda Conradie

- Module Chair Endocrine Module 271 MBChB 2
- Endocrine representative Clinical Pharmacology Module MBChB 5
- Internal Elective Portfolio Examiner (12 students MBChB 4 and 5)
- External Elective Examiner / Overseer (1 student MBChB 5)
- Early Clinical Rotation MBChB practical group clinical teaching (10 sessions)
- Clinical Teaching MBChB 4 outpatient diabetes setting

Ankia Coetzee

- External Elective Examiner / Overseer (1 student MBChB 5)
- Early Clinical Rotation MBChB practical group clinical teaching (10 sessions)
- Clinical Teaching MBChB 4 in outpatient diabetes setting

(b) Postgraduate students

Magda Conradie

- Clinical teaching of General Medicine rotating registrars (8)
- Clinical Teaching of Fellows in Endocrinology (2)
- Clinical teaching of Registrars and Fellows in Special Care Unit, Department of Obstetrics (x 6 registrars, one fellow 2016)
- Co-Promotor of 1 PhD student (Karin Baadjes)
- Supervisor: 2 MPhil students (Ankia Coetzee, Joclyn Hellig)

Brynne Ascott-Evans

- Supervisor of 1 MPhil student (Elmo Pretorius)
- Clinical teaching of General Medicine rotating registrars In Endocrinology (8 annually)
- Clinical teaching of General Medicine rotating registrars (Grand Rounds)
- Clinical Teaching of Fellows in Endocrinology (2)

Ankia Coetzee

- Clinical teaching of General Medicine rotating registrars in Endocrinology (8 annually)
- Clinical teaching of General Medicine rotating registrars (Grand Rounds)
- Clinical Teaching of Fellows in Endocrinology (2)
- Clinical teaching of Registrars and Fellows in Special Care Unit, Department of Obstetrics (x 6 registrars, one fellow 2016)
- Initiation of Practical Diabetes Educational Programme (Diabetes 101) directed at junior doctors, medical officers and registrars (x 1 completed course 2016)

(c) Postgraduate Examiner

Magda Conradie

- MMed dissertation examination: Dr Lloyd Joubert (June 2016)

(d) Manuscript reviews

Magda Conradie

- JEMDSA x 2
- Archives of Osteoporosis x 1

Basic Sciences

(a) Students graduated

William Ferris

- Cara-Lesley Bartlett (Student number: 16725956): PhD entitled 'The association between tissue non-specific alkaline phosphatase expression and differentiation of mesenchymal stromal cells' in The Division of Endocrinology, Department of Medicine. (Supervisor W. Ferris, N. Crowther)

Mari van de Vyver

- K. Lanz (Supervisor: Prof. K.H. Myburgh, co-supervisor: Dr M. van de Vyver) – BSc Hons in Physiological Sciences. Graduation date: December 2016
- N. Passerin (Supervisor: Prof. K.H. Myburgh, co-supervisor: Dr M. van de Vyver) – MSc in Physiological Sciences. Graduate with distinction date: March 2017

(b) Current Students (listed under supervisor)

William Ferris

- F.A. Jacobs (PhD student, Supervisor W. Ferris, Co-supervisor H. Sadsie-Van Gijsen). Expected graduation December 2017
- Mari van de Vyver
- A. Seboko (Supervisor: Dr M. van de Vyver, Co-supervisor: Prof. W. Ferris) – MSc in Medical Physiology. Expected graduation date: December 2017
- B. Jani (Supervisor: Dr M. van de Vyver, Co-supervisor: Prof. K.H. Myburgh) – PhD in Physiological sciences. Expected graduation date: March 2020
- Y.M. Azar (Supervisor: Dr M. van de Vyver, Co-supervisor: Prof. C.U. Niesler) – PhD in Internal Medicine. Expected graduation date: March 2020

(c) Postgraduate examiner

William Ferris

- PHD (3) and MSc (2)

(d) Manuscript and Grant reviews

William Ferris

- Various journals – 10 papers for time period
- Act as Grant reviewer for the MRC and NRF

Special achievements and other highlights

William Ferris: Human Research Ethics Committee 1 (HREC1), postgraduate research committee

Gastroenterology and Hepatology

Prof. C.J. van Rensburg

Summary of activities

i) Service Delivery:

- a. Consultation of patients referred with gastrointestinal and liver disease
- b. Diagnostic and therapeutic endoscopic service
- c. Capsule endoscopy procedures
- d. Non-invasive measurement of liver fibrosis with Fibroscan apparatus
- e. Liver biopsies under ultrasound guidance
- f. Fluoroscopy service
- g. Abdominal ultrasound
- h. Oesophageal and anorectal manometry and oesophageal pH and impedance studies
- i. Outreach programmes – media (radio and press) interviews and surveillance programmes
- j. Conscious Sedation Courses
- k. Expansion of interventional endoscopic procedures especially with regard to ERCP and benign and malignant upper gastrointestinal strictures

ii) Teaching and training:

- a. Undergraduate and postgraduate students in Gastrointestinal and Liver Disease and Diploma in Sedation and Pain Management – conscious sedation (both local and international students).

- b. Speaker at the Gastro update for Healthcare providers organised by StellMed.
- c. The annual congress of the Hepato-Pancreato-Biliary Association was held in Stellenbosch from 21 – 23 October 2016. Dr Stefan Hofmeyr was the chairman of the local organising committee and Prof. C.J. van Rensburg chaired a session on Cholangiopathy.
- d. The Gastroenterology Foundation of South Africa presented a Liver Interest Group. A meeting was held at the Vineyard Hotel, Cape Town, on 3 December 2016. Several aspects of liver diseases were discussed.
- e. Paediatric Interest Group Meeting of the Gastroenterology Foundation of South Africa was held at the Vineyard Hotel in Cape Town on 27 August 2016. Dr Etienne Nel was one of the local speakers. Topic: "Congenital causes of diarrhoea and the importance of genetic diagnosis in these children".
- f. Participate in local and national under- and postgraduate examinations for degree and certification purposes with the HPCSA and the CMSA.
- g. Student from Abbots College did "work shadowing" during June 2016 in order to gain a realistic perspective on the chosen occupation.

iii) **Research and Publications:**

- a. Collaborative projects with the Division of Colorectal, The International Centre for Genetic Engineering and Biotechnology, UCT and the Division of Infectious Diseases.
- b. Supervise research projects by post-graduate students for Master's degrees (Stellenbosch University) and certification purposes (CMSA).
- c. Research on "The role of transient elastography (Fibroscan®) in NAFLD patients at risk of liver fibrosis". Dr P.J. Badenhorst and Prof. C.J. van Rensburg. This was presented at the SAGES congress and awarded with third prize for clinical presentations.
- d. The annual Gastroenterology Congress was held in Pretoria from 5 – 8 August 2016. Various members of the Unit, including nursing staff, attended this congress. Sr Ashlene Hill received a reward for the best presentation. Title: Benign oesophageal strictures. Best Poster exhibition Medical at the SAGES Congress.
- e. Tongai Maponga, Division of Medical Virology, and Prof. C.J. van Rensburg acted as co-worker. Prevalence of liver fibrosis using Fibroscan in HIV/HBV co-infected and HBV mono-infected patients attending a clinic in the Western Cape, South Africa. The research was submitted for a PhD.
- f. Introduction of assessing outcomes for palliative oesophageal cancer stenting.
- g. Edited the March 2016 Gastro Review – the official publication of the South African Gastroenterology Society.

iv) **Committee obligations:**

- a. Departmental: Management Committee, Continued Professional Development, Human Resources and Postgraduate
- b. National: HOD and SAGES
- c. Joint Management Committee, Tygerberg Hospital with regard to the TBH Redevelopment Project.
- d. National: SAGINS – Area Representative RPN S. Mostert.

Resources

Posts (Full-time)	Number	Filled
Head of Clinical Division	1	1
Senior Consultant	1	1
Senior Registrar	1	1
Supernumerary Fellow	0	0
Rotating Registrars	2	2
Posts (sessional – how many hours worked per week)		
Specialist	1	4 hours per week
Medical Officer	1	8 hours per week

Output

Outpatient Visits

New patients	1 536
Follow-up patients	6 299
Total	7 835

Theatre procedures

Gastrosopies	3 976
Colonoscopies	1 691
Flexible sigmoidoscopies	226
Interventional ERCP's	432
Capsule endoscopies	7
Endoscopic dilations	75
Oesophageal Manometry studies	104
pH studies	30
Stent placements (oesophagus, duodenum and colon)	160
Polypectomy (upper and lower GIT)	113
Double balloon enteroscopy	4

Inpatient referrals and telephonic consultations: 1 400

Inpatients: 2 beds with 80% occupancy

Comment on output

Compared with 2015, the total number of patient visits increased. There was an increase in certain procedures, i.e. stent placements. This reflects the change in patient demography and an increase in the number of palliative procedures performed for inoperable esophagus, pancreatic and colon cancer. There also was a significant increase in the number of inpatient and telephonic consultations. The improved endoscopic services at the secondary hospitals greatly relieved the patient burden on the clinic.

There was also a significant increase in patients with liver disease seen at the Hepatology Clinic on Wednesdays – many with drug-induced liver injury (DILI).

An additional ERCP list was incorporated to alleviate the need for ERCP procedures. A surgeon with hepato-biliary subspecialty registration, is currently performing this list.

PART 2

Faculty of Health Sciences

Infrastructure development – upgrading, new equipment, etc. (highlights)

- i) Four new endoscopes were bought on the 2015-2016 budget to replace condemned equipment in addition to 4 new endoscopic storage and drying cabinets. The latter greatly facilitates the reprocessing of endoscopic equipment.
- ii) We have resumed the service of capsule endoscopy and double balloon enteroscopy for evaluation of small bowel disease. This significantly improved the diagnostic yield to find a cause in occult gastrointestinal bleeding thereby improved morbidity and cost-effective patient care.
- iii) Highly skilled and motivated nursing personnel that contributed to efficient service delivery and improved patient care.
- iv) The availability of biologics, pegylated interferon and ursodeoxycholic acid facilitated improved patient care and health-related quality of life in individual cases selected on merit.

Community outreach programmes/community services and interaction.

- i) Participated in community radio talk shows (RSG)
- ii) Wrote articles for popular magazines (Huisgenoot)
- iii) Informative lectures to the community in retirement villages

Partnerships

National:

1. Research: Division of Colorectal, The International Centre for Genetic Engineering and Biotechnology, UCT and the Division of Infectious Diseases. The African Cancer Institute.
2. Research: Division of Medical Virology, Stellenbosch University.
Title: Rapid test-based screening for Hepatitis B virus infection in a cohort of workers attending occupational health clinics in the Western Cape, South Africa (OCSA) Study).

International:

1. OXSAHep' (Oxford-South Africa Hepatitis) Study; Defining host and viral factors that are associated with hepatitis B virus (HBV) control and clearance in Caucasian and African adults.
2. Non-AIDS Defining Cancer (NADC) Liver/GI Task Force

Achievements w.r.t research activities and research outputs:

Number of publications from the department/division 4

Journals Accredited by the Department of Education: 1

Textbooks and contributions to textbooks: 0

Other peer-reviewed journals: 3

Abstract presented

1. SAGES 2016, Pretoria: Dr J. Badenhorst – Comparison of transient elastography with APRI and BARD scores in predicting fibrosis in NAFLD; awarded 3rd prize for scientific presentation

Teaching and Training (under-, postgraduate and elective students)

- i) Tutorials and post-intake ward rounds – under- and postgraduate students and elective students (\pm 6 per year)
- ii) Practical learning experiences in the Outpatient Department, Endoscopy theatre and mobility laboratory of the division of Gastroenterology
- iii) MB ChB II Digestive Diseases module 271 lectures
- iv) Supervision of research projects postgraduate students (MMed, CMSA Certificate in Gastroenterology and MPhil)
- v) Serve on committee for under- and postgraduate teaching (locally) and Heads of Departments Committee (nationally)
- vi) Examiners under- and postgraduate students (Stellenbosch University and CMSA)
- vii) Registrars attended IBD Multidisciplinary Meeting in Cape Town in May 2016
- viii) External examiner for MPhil and PhD candidates
- ix) Dr Jacques Badenhorst passed the Certificate Gastroenterology (SA) Phys.
- x) Gut Club Meeting: 11 February 2016. Prof. C.J. van Rensburg.

Special achievements and other highlights

- i) Past-president: South African Gastroenterology Society (SAGES) (Prof. C.J. van Rensburg)
- ii) Editor: Gastro Review – official journal of SAGES (Prof. C.J. van Rensburg)
- iii) Member of the Editorial board of *World Journal of Gastroenterology* (Prof. C.J. van Rensburg), the *World Journal of Gastrointestinal Pharmacology and Therapeutics* (Prof. C.J. van Rensburg) and World Gastroenterology Organization e-news Journal.

General Internal Medicine

Dr N. Schrueder

Summary of activities

- Provision of General Specialist Services in Internal Medicine.
- Teaching and Training in Internal Medicine of Stellenbosch University Undergraduate and Postgraduate students
- Outreach and Support to the East Metro Health District

Resources

Specialist	7	7
Registrars	14	14
Medical Officers	6	6
Interns	13	13
Posts (sessional – how many hours worked per week)		
Sessional Specialist	6	6

The Division has seen a reduction in medical staff and sessions due to the austerity savings plan of the Department of Health.

This has created a few challenges with regard to leave and illness cover.

Output

Admissions: F1 Emergency Unit	10 500
Medical wards	8 134
Total for General Medicine	18 634
MOPD visits	544

Comment on output

The pressure on the medical emergency ward F1 seeing has eased for the first time in five years. There has been a reduction in numbers and overcrowding as well as a reduction adverse incidents. This has been largely attributed to increased outreach and support to the district hospitals as well as the registrar placement project at Khayelitsha Hospital. Most of the efforts over the year have been to stabilise the operational environment of F1 with streamlining of systems and patient flow management. The hospital commissioned an overflow ward J ground to assist with patient flow (see below). The medical Outpatient Department screening system for new appointments has positively impacted on the clinic. The overall clinic numbers have reduced over the last year. Despite the smaller patient numbers, the clinic waiting times have not increased.

PART 2

Faculty of Health Sciences

Infrastructure development – upgrading, new equipment, etc. (highlights)

The C1DW Emergency Admissions Unit building project commenced with construction in April 2016. The work is expected to be complete at the end of April 2017. The new area will significantly improve flow as well as patient and provider experience.

The C1DW project has seen a significant injection of equipment expenditure with new equipment to the value of R6 million being procured.

Ward J ground was commissioned in 2016 as additional space for F1 decongestion and better admissions flow. This has been successful in improving efficiency and flow of patients to the wards.

Community outreach programmes/community services and interaction.

The outreach and support to the East Metro district continued to increase in 2016. General Medicine has increased the outreach to HH to three afternoons a week.

Eerste River Hospital continued to receive two afternoons a week from General Medicine.

The initiative between Khayelitsha Hospital and TBH Department of Medicine has been an overwhelming success. There has been a strengthening of working relationships and service delivery to patients from the Khayelitsha sub-district. The model has seen an operational cost saving of almost R10 million at Khayelitsha Hospital. There has been improved access to specialist care for Khayelitsha patients. The model has been commended and recommended for similar implementation in other disciplines.

Achievements w.r.t research activities and research outputs:

Number of publications from the department/division

Textbooks and contributions to textbooks

Teaching and Training (under, postgraduate and elective students)

The total number of undergraduate students rotating through General Medicine has increased year on year. This continues to challenge the Division at the main hospital. However, the teaching of students at the peripheral hospitals has increased and is supported by General Internal Medicine consultants. Specifically Khayelitsha Hospital has been a successful addition to the training platform for Medicine and is proving to be very popular with students.

The teaching programme has evolved with registrar-led presentations on a weekly basis covering a set range of topics covering a core curriculum. Dedicated clinical bedside teaching also happens on a weekly basis with rotating consultants. The Division continues to contribute to the Departmental Academic meeting as per roster.

Infectious Diseases

Dr J.J Taljaard

Summary of activities

Outpatient service:

The Tygerberg Hospital Infectious Diseases Clinic (IDC) has prepared and initiated more than 6 000 patients on ART since January 2004.

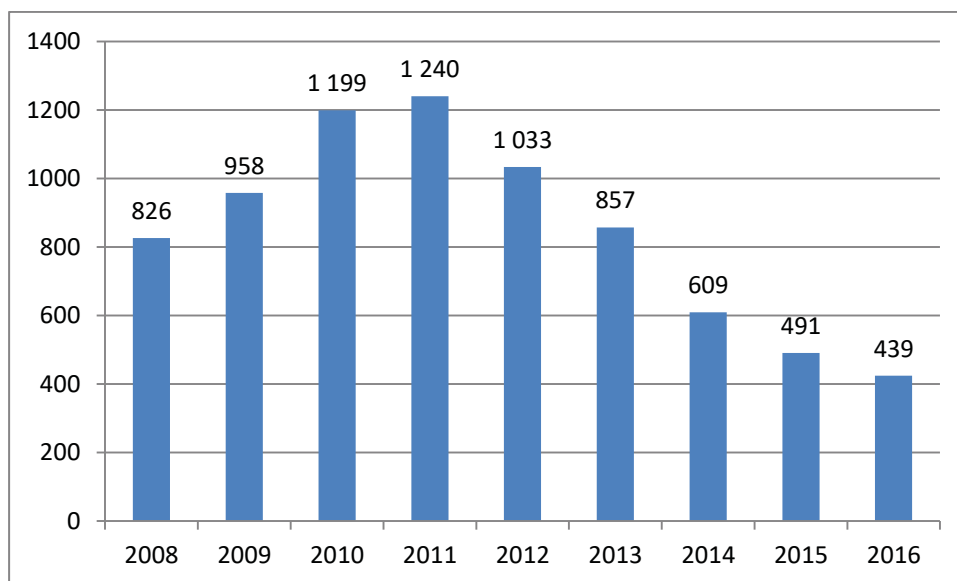
During the last three years, most of these patients have been down-referred to antiretroviral therapy clinics in the immediate drainage area. TBH IDC had a total of 424 adult and 412 paediatric ART patients in the clinic at the end February 2017.

The Infectious Diseases Clinic currently functions mainly as a level 2/3 Referral and Assessment Unit (RAU). Specific patients referred to the RAU include viral hepatitis/HIV co-infected patients, HIV patients with renal disease, Kaposi's sarcoma patients, second-line ARV failure patients, all HIV patients with difficult to manage or diagnose conditions or complications, primary immunodeficiency patients and patients with other infections that need tertiary care services, e.g. non-TB mycobacterial infections, invasive fungal infections, typhoid fever and non-falciparum malaria.

The electronic database facilitating patient care and follow-up contributes significantly toward faster consultations, better communication with clinics and ability to audit output. The provincial database, eKapa, rolled out to TBH during 2015, enabled connectivity with other ART sites and improves continuation of care between clinics.

The Clinic Manager, Vivienne O'Brien, retired at the end of 2016. She had a very successful career of 30 years at Tygerberg Hospital, and will be sorely missed. Her post was funded via the .26 budget and there are no immediate plans to refill the post due to the financial crisis.

Number of patients remaining on ART at TBH IDC (2008 – 2016)



Antibiotic Stewardship:

The Tygerberg Antibiotic Stewardship Committee continued with its work. The antibiotic restriction policy developed to streamline access to broad spectrum antibiotics and the new antibiotic prescription chart resulted in decreased use of broad spectrum antibiotics across the hospital departments. The Division conducted the second Global Point Prevalence Study on Antibiotic Use in the hospital in collaboration with the Department of Paediatrics. Results were presented at the European Conference on Clinical Microbiology and Infectious Diseases.

Antibiotic stewardship (AS) rounds in surgical and medical ICUs and the internal medicine wards in collaboration with Medical Microbiology take place on a weekly basis. AS rounds to Khayelitsha Hospital and Paarl Hospital continued throughout 2016. Additional AS rounds was started at Karl Bremer Hospital during 2016, and in the Neurosurgical ICU at Tygerberg Hospital.

Inpatient service:

Infectious diseases inpatient services are delivered on a consultative basis. Registrars will see the patients as soon as possible after referral and all cases will be discussed on the daily consultant round. The average number of consultations per week is 15, and most consultations originate from general medicine, haematology, obstetrics high care and medical high care.

Outreach and Support service

Monthly clinical outreach visits to TC Newman and Paarl Hospital continued.

Weekly outreach activities to Eerste River Hospital also continued.

Outreach to primary care HIV clinics (Bishop Lavis and Ravensmead) by Drs Zahiera Ismail and Susan Hugo commenced in July 2016. This service supports nursing personnel starting ART at these clinics.

F3 High Risk Isolation Unit

The isolation facilities was not utilised for patient management during 2016. It was used extensively for IPC training.

Teaching:

Dr Arifa Parker successfully completed her subspecialisation training in October, and Dr Du Toit van der Merwe started in January 2016. He attended the NICD special pathogen course at NICD Johannesburg in July.

Dr Taljaard was secundus for the Infectious Diseases and Immunology theoretical module for 4th years.

All the members of the division, Drs Parker, Prozesky, Hugo, Van Schalkwyk, Ismail and Van der Merwe, were involved with undergraduate teaching.

All the members of the Division were involved in CME activities during 2016, including STD management courses for nurses and HIV management courses for doctors, nurses and pharmacists.

Elective medical students from the Belgium, Norway, Sweden, Canada, Germany and USA are exposed to HIV care and assist with research projects; this has been an enriching experience for staff and students alike.

Monthly clinical meeting with HAST sub-district doctors continued.

The University of Fort Hare collaboration continued in 2016. The group of 40 registered nurses were the 9th group of students to complete the 1-year course in advanced management of HIV infected patients. As usual the course included highly successful practical mentorship visits to Tygerberg Hospital during September and October. This course aims to prepare and empower nurses to initiate antiretroviral therapy in the communities they serve, and is aligned to the National initiative, NIM-ART.

Dr Per Hedman (retired Swedish ID specialist) continued his highly successful lecture series on clinical parasitology and other infectious diseases in February and March 2017. He sadly and unsuspectedly passed away in April.

Research activities:

Self-initiated clinical research continues on a small scale including MMed projects, case studies and retrospective observational studies.

leDEA database project. **HW Prozesky** (PI)

The Family Clinical Research Unit (FAMCRU) has successfully implemented several Aids Clinical Trials Group (ACTG) trials in the past year. During 2016, about 20 study patients have completed participation in A5288: MULTI-OCTAVE, Management Using the Latest Technologies in Resource-Limited Settings to Optimize Combination Therapy After Viral Failure, and nearly half of these have managed to resuppress their HIV viral load during participation. The GSK ING117175 – INSPIRING study compares standard Fixed Dose Combination ART regimen to an alternative regimen including the new ARV drug Dolutegravir in TB co-infected patients, and has recruited during the year. Another ACTG study has opened in November 2016: A5332: Randomized Trial to Prevent Vascular Events in HIV, a study that researches the question if statin therapy is beneficial to prevent arteriosclerotic cardiovascular disease in HIV patients compared to a placebo. We have enrolled nearly 50 patients in this long-term follow-up study of 7 years. A high grade Kaposi Sarcoma study (A5263) has opened for enrolment as well. By starting a joint venture with the SUN Immunology Research group, we have opened a TB treatment shortening study (A5349) comparing standard 6-month TB treatment to shorter 4-month TB treatment including Rifapentin and Moxifloxacin, that has been enrolling successfully since November 2016. Additional HIV and TB biobank studies are being set up. Our Unit is especially interested in the field of Prevention of Mother to Child Transmission (PMTCT) of HIV and TB, and remains involved in the IMPAACT P1026s study that does sequential pharmacokinetic blood sampling of ARVs and TB medications in second and third trimester pregnant and postpartum women and their infants.

Resources

Posts (Full-time)	Number	Filled
Sub-specialist	2	2
Medical officer (TBH)	1	1
Medical officer (.26 funding)	2	2
Senior registrar	1	1
Datacapturer (.26 funding)	2	2
Posts (sessional – how many hours worked per week)		
Specialist	6	6

Output

Total numbers of patients seen at the clinic and patients remaining on ART in the clinic has decreased. This reflects the increased management of HIV patients at primary and secondary

services, as well as the increased outreach activities from our clinic to the primary and secondary services.

(Important to note that due to the resignation of our clinic manager and senior clerk during 2016, the accuracy of statistics for 2016 is questioned and therefore no specific numbers are reflected apart from total number of patients on ART).

Part 2

Faculty of Health Sciences

Infrastructure development – upgrading, new equipment, etc. (highlights)

The new procedure room with negative pressure ventilation became fully operational during 2016.

Community outreach programmes/community services and interaction.

None

Partnerships

National:

- University of Fort Hare, School of Nursing – Diploma in HIV Management for Nurses
- SAASP – South African Antibiotic Stewardship Programme – Division of FIDSSA

International:

- Dr Prozesky: Principle investigator (TBH site) for leDEA-SA – International Epidemiological databases evaluating AIDS - Southern Africa
- Drs Taljaard and Van Schalkwyk: Adult HIV clinical trials unit, FAMCRU – ACTG funded studies
- Dr Taljaard: University of Utrecht (Netherlands) – Viral Hepatitis – Prof. Andy Hoepelman
- Drs Taljaard and Prozesky: Fonds Wetenschappelijk Onderzoek – Vlaanderen – “Optimizing diagnostics of Emmonsia and other deep fungal infections” – Proff. Chris Kenyon and Bob Colebunders
- Drs Taljaard and Prozesky: Clinical description of deep fungal infections in the Western Cape. Dr Ilan Schwartz (Winnipeg, Canada) and Proff. Chris Kenyon and Bob Colebunders (Belgium)

Achievements w.r.t research activities and research outputs

Number of publications from the division of Infectious Diseases:

1. CFN Koegelenberg, T van der Made, **JJ Taljaard**, EM Irusen. The impact of HIV infection on the presentation of lung cancer in South Africa S Afr Med J 2016; 106(7): 666-668. DOI:10.7196/SAMJ.2016v106i7.10737
2. Zachor H, Machekano R, Estrella MM, Veldkamp PJ, **Zelner MD**, Uthman OA, **Taljaard JJ**, Moosa MR, Nachega JB. Incidence of stage 3 chronic kidney disease and progression on tenofovir-based regimens. AIDS. 2016 May 15; 30(8): 1221-8. doi: 10.1097/QAD.0000000000001041.
3. Koegelenberg CF, Bulaya T, Balkema CA, **Taljaard JJ**, Irusen EM. Validation of a severity-of-illness score in HIV-positive patients requiring intensive care unit admission for mechanical ventilation. QJM. 2016 Apr 13. pii: hcw061.
4. Simon D, **Greyling KE**, Irusen EM, Rigby J, **Taljaard JJ**, Koegelenberg CFN. Pneumocystis jiroveci and cytomegalovirus co-infection in an immunocompromised patient. S Afr Respir J 2016; 22(1):20-21. DOI: 10.7196/SARJ.2016.v22i1.40
5. Grimsrud A, Schomaker M, Fox M, Orrel C, **Prozesky HW**, Stinson K, Tanser F, Myer L for the International Epidemiologic Databases to Evaluate AIDS Southern Africa Collaboration (leDEA-SA). CD4 count at antiretroviral therapy initiation and the risk of loss to follow-up: Results from a multicentre cohort study. J Epidemiol Community Health. 2016 Jun; 70(6):549-55. doi: 10.1136/jech-2015-206629. Epub 2015 Dec 23.
6. Bohlius J, Maxwell N, Spoerri A, Wainwright R, Sawry S, Poole J, Eley B, **Prozesky HW**, Rabie H, Garone D, Technau KG, Maskew M, Davies MA, Davidson A, Stefan DC, Egger MJ for the International Epidemiologic Databases to Evaluate AIDS Southern Africa Collaboration (leDEA-SA). Incidence of AIDS-defining and other cancers in HIV-infected children in South Africa: record linkage study. Pediatr Infect Dis J. 2016 Jun; 35(6):e164-70. DOI: 10.1097/INF.0000000000001117 (Epub 19 Feb 2016).

7. The Pediatric AIDS-defining Cancer Project Working Group for leDEA Southern Africa, TApHOD and COHERE in EuroCoord. Kaposi Sarcoma Risk in HIV-Infected Children and Adolescents on Combination Antiretroviral Therapy from sub-Saharan Africa, Europe and Asia. *Clin Infect Dis*. 2016 Nov 1; 63(9):1245-1253. Epub 2016 Aug 30. DOI:10.1093/cid/ciw519.
8. Johnson LF, Keiser O, Fox M, Tanser F, Cornell M, **Prozesky HW**, Davies M-A for the International Epidemiologic Databases to Evaluate AIDS Southern Africa (leDEA-SA) collaboration. Life expectancy trends in adults on antiretroviral treatment in South Africa. *AIDS* 2016;30:2545–2550. DOI:10.1097/QAD.0000000000001197.
9. Brennan AT, Fox MP, Davies M-A, Stinson K, Wood R, **Prozesky HW**, Tanser F, Fatti G, Bärnighausen T, Wandeler G, Boulle A, Sikazwe I, Zanolini A and Bor J. Has phasing out stavudine in accordance with changes in WHO guidelines led to a decrease in single-drug substitutions in first-line ART in sub-Saharan Africa? *AIDS*. 2017 Jan 2; 31(1):147-157. PMID: 27776039 DOI:10.1097/QAD.0000000000001307.
10. Charles MK, Lindegren ML, Wester CW, Blevins M, Sterling TR, Dung NT, Dusingize JC, Avit-Edi D, Durier N, Castelnuovo B, Nakigozi G, Cortes CP, Ballif M, Fenner L; International epidemiology Databases to Evaluate AIDS (leDEA) Collaboration. Implementation of Tuberculosis Intensive Case Finding, Isoniazid Preventive Therapy, and Infection Control ("Three I's") and HIV-Tuberculosis Service Integration in Lower Income Countries. *PLoS One*. 2016 Apr 13 ;11(4):e0153243. doi: 10.1371/journal.pone.0153243. eCollection 2016 Apr 13.
11. Wandeler G, Musukuma K, Zürcher S, Vinikoor MJ, Llenas-García J, Aly MM, Mulenga L, Chi BH, Ehmer J, Hobbins MA, Bolton-Moore C, Hoffmann CJ, Egger M; leDEA-Southern Africa. Hepatitis B Infection, Viral Load and Resistance in HIV-Infected Patients in Mozambique and Zambia. *PLoS One*. 2016 Mar 31; 11(3):e0152043. doi: 10.1371/journal.pone.0152043. eCollection 2016 Mar 31.

Congress presentations and/or posters

1. Heather Finlayson, Anne Versporten, Andrew Whitelaw, Herman Goossens, **Jantjie Taljaard**. The Global Point Prevalence Survey of Antimicrobial Consumption and Resistance (Global-PPS): Results of antimicrobial prescribing in a South African Tertiary Hospital. Poster presentation at ECCMID 2016.
2. Brennan AT, Davies M-A, Bor J, Stinson K, Wood R, **Prozesky HW**, Tanser F, Fatti G, Wandeler G, Boulle A, Sikazwe I, Zanolini A, Wool-Kaloustian K, Yiannoutsos C and Fox MP for the leDEA Collaboration. Trends and predictors of single-drug substitution with tenofovir use in ART in Zambia, South Africa, Kenya and Uganda. Poster. 20th International Workshop on HIV Observational Databases (IWHOD). Budapest, Hungary. 7 – 9 April 2016.
3. Bohlius J, **Prozesky HW** et al. CD4 cell trajectories in HIV-infected adults on cART with and without Kaposi Sarcoma: a multiregional comparison based on nested case control studies. Poster. 20th International Workshop on HIV Observational Databases (IWHOD). Budapest, Hungary. 7 – 9 April 2016.
4. Fenner L, Ballif M, Stinson K, Fox M, **Prozesky HW**, Zwahlen M, Egger M; for the International epidemiologic Database to Evaluate AIDS in Southern Africa (leDEA-SA). HIV viral loads as an independent risk factor for tuberculosis in South Africa. Poster. 20th International Workshop on HIV Observational Databases (IWHOD). Budapest, Hungary. 7 – 9 April 2016.
5. Cornell M, Wood R, Tanser F, Fox M, **Prozesky HW**, Johnson L, Boulle A. Ten-year mortality in South African ART programmes. Poster A-792-0207-10222. 21st International AIDS Conference. Durban, South Africa. 17-22 July 2016.
6. Fenner L, Ballif M, Stinson K, Fox M, **Prozesky HW**, Zwahlen M, Egger M; for the International epidemiologic Database to Evaluate AIDS in Southern Africa (leDEA-SA). HIV viral loads as an independent risk factor for tuberculosis in South Africa. TB 2016 Conference: Science + Solidarity. Oral Presentation and Poster A-816-0001-00063. Durban, South Africa. 16 July 2016.
7. Bohlius J, Sengayi M, Spörri A, Rohner E, Vinikoor M, **Prozesky HW**, Boulle A, Egger M, Giddy J, Maskew M, Bütikofer L, Schmidlin K, Zwahlen M for the International epidemiologic Database to Evaluate AIDS in Southern Africa (leDEA-SA). Record linkage for cancer ascertainment in HIV cohorts in Sub-Saharan Africa. Oral Presentation #165. International Population Data Linkage Conference (IPDLN2016). Swansea, United Kingdom. 24-26 August 2016.
8. Jiamsakul A, Kariminia A, Cesar C, Cortes C, Davies M-A, Eley B, Gill J, Machado D, Moore R, **Prozesky HW**, Zaniewski E, Law M. HIV viral load suppression in adults and children receiving antiretroviral therapy – results from the leDEA collaboration. Australasian HIV & AIDS Conference (ASHM). Adelaide, Australia. 16-18 November 2016.

9. Cornell M, Wood R, Tanser F, Fox M, **Prozesky HW**, Johnson L, Boulle A. Gender disparities in enrolment, long-term mortality and virologic suppression in adults initiating ART in South Africa, 2004-2015. Poster. 21st International Workshop on HIV and Hepatitis Observational Databases (IWHOD). Lisbon, Portugal. 30 March-1 April 2017.
10. Davies M-A, Tsondai P, Tiffin N, Eley B, Rabie H, Euvrard J, Orrell C, **Prozesky HW**, Wood R, Cogill D, Sohn A, Boulle A. Where do HIV-infected adolescents go after transfer? - Tracking transition/transfer of HIV-infected adolescents using linkage of cohort data to a health information system platform. Poster. 21st International Workshop on HIV and Hepatitis Observational Databases (IWHOD). Lisbon, Portugal. 30 March-1 April 2017.
11. Tiffin N, Heekes A, Orrell C, **Prozesky HW**, Eley B, Davies M-A, Cornell M and Boulle A for the leDEA-SA Collaboration. Validating facility-based leDEA cohorts against equivalent cohorts derived through a health information exchange. Poster. 21st International Workshop on HIV and Hepatitis Observational Databases (IWHOD). Lisbon, Portugal. 30 March-1 April 2017.

Research activities

Global Antibiotic Point Prevalence study:

- We conducted a yearly PP survey of antibiotic use in all adult wards in TBH. Data presented at ECCMID congress in Amsterdam. **JJ Taljaard**

Clinical studies:

- MMed T Bulaya: Developing a severity of illness score for HIV- positive patients requiring admission to an intensive care unit for mechanical ventilation. **JJ Taljaard** study leader
- MMed L Kearny: Clostridium *difficile* associated diarrhea in a South African Tertiary context: What's our role in the rumble? A retrospective descriptive study. Study leaders: Phillip Botha, **Jantjie Taljaard**, Andrew Whitelaw
- MPhil **PdT van der Merwe**: Colistin use and subsequent patient outcomes at Tygerberg Hospital between 2011 and 2016 – a retrospective study. **JJ Taljaard** study leader
- Evaluation of new tuberculosis diagnostics and the compartment-specific microbiome in patients with suspected TB: a descriptive study. Collaboration with Prof. G. Theron. **JJ Taljaard**
- Admission of patients on treatment for drug-resistant tuberculosis to Khayelitsha Hospital: a retrospective observational study of the crude incidence, admission diagnoses and length of stay. **R Brauns, JJ Taljaard**
- Establishing a multidisciplinary Acquired Immune Deficiency Syndrome (AIDS)-associated Kaposi Sarcoma service at Tygerberg Academic Hospital: Patient characteristics, management and outcomes. **Ismail Z**, Burger H, Visser W, **Taljaard JJ**
- The LAM REFLEX study: Evaluation of the yield and utility of the Determine TB lipoarabinomannan lateral flow assay (Alere) for the detection of tuberculosis in HIV-positive inpatients in hospitals in South Africa: a two-stage descriptive study. Collaboration with Prof. G. Theron. **JJ Taljaard**
- Evaluating the effectiveness of an Antimicrobial Stewardship Programme in combating the inappropriate use of antibiotics in children: A prospective study in Swaziland. Zinhle Matsebula, Bernd Rosenkranz, Eric Decloedt, **Jantjie Taljaard**, Helmuth Reuter
- Progressive disseminated AIDS-related mycoses endemic to Western Cape, South Africa, and clinical mimics: a prospective, multicentre cohort study of adults with advanced HIV and recent-onset, generalised skin lesions. In collaboration with Dr Ilan Schwartz, **HW Prozesky** and **JJ Taljaard**
- Human Genetics of TB resistance in HIV-infected persons. Collaboration with Prof. EH van Helden. **JJ Taljaard** and **HW Prozesky**

leDEA database project:

- This project continues. The HIV clinic at TBH contributes monthly data to the project resulting in numerous articles during 2016. **HW Prozesky**

FAMCRU studies:

- IMPAACT protocol P1026s: Pharmacokinetic Properties of Antiretroviral and Related Drugs During Pregnancy and Postpartum. **M van Schalkwyk** (Sub investigator)
- A5288/MULTI-OCTAVE: Management Using the Latest Technologies in Resource-Limited Settings to Optimize Combination Therapy After Viral Failure. **M van Schalkwyk** (PI)
- A5263/AMCO66: A Randomized Comparison of Three Regimens of Chemotherapy with Compatible Antiretroviral Therapy for Treatment of Advanced AIDS-KS in Resource-Limited Settings. Sub-investigators
- 5278s/AMCO74: Pharmacology Substudies of A5263 and A5264. **M van Schalkwyk** (PI)

- A5332: Randomized Trial to Prevent Vascular Events in HIV – REPRIEVE. **M van Schalkwyk** (PI)
- A5349: Rifapentine-containing treatment shortening regimens for pulmonary tuberculosis: A randomized, open-label, controlled phase 3 clinical trial. Sub-investigators
- A5243: Plan for Obtaining Human Biological Samples at Non-US Clinical Research Sites for Currently Unspecified Genetic Analyses. **M van Schalkwyk** (PI)
- A5302: BioBank for Surrogate Marker Research for TB (B-SMART). Sub-investigators
- Determine Gestation at Which Pregnant Women Initiate PMTCT Prophylaxis or HAART in Tygerberg Sub-district and Whether Virological Suppression Is Achieved at Delivery. **M van Schalkwyk** (PI)
- A Phase IIIb, randomized, open-label study of the safety and efficacy of dolutegravir or efavirenz each administered with two NRTIs in HIV-1-infected antiretroviral therapy-naïve adults starting treatment for rifampicin-sensitive tuberculosis. **JJ Taljaard** (PI)
- BMS study AI438-O47: A Multi-Arm Phase 3 Clinical Trial to Investigate the Efficacy and Safety of BMS-663068 in Heavily Treatment Experienced (HTE) Human Immunodeficiency Virus-1 (HIV-1) Infected Subjects Infected with Multi-drug Resistant (MDR) HIV-1. **M van Schalkwyk** (PI)
- Diagnosing and enrolling adult and adolescent patients with acute HIV into immediate antiretroviral therapy. **M van Schalkwyk** (PI)
- Human Genetics of TB Resistance in HIV-infected persons. Sub-investigators
- Proteus Study TB-SA 00: Wirelessly Observed Therapy using Digital Health Feedback System (DHFS) in Comparison to Directly Observed Therapy for Tuberculosis Treatment Adherence Monitoring in South Africa. Sub-investigators

Teaching and Training (undergraduate, postgraduate and elective students)

Undergraduate:

- Most divisional members were involved in the 4th-years theoretical module on Infectious Diseases. Dr Taljaard was secundus for the Infectious Diseases module.

Postgraduate:

- MMed T Bulaya: Developing a severity of illness score for HIV positive patients requiring admission to an intensive care unit for mechanical ventilation. **JJ Taljaard** study leader
- MPhil **PdT van der Merwe**: Colistin use and subsequent patient outcomes at Tygerberg Hospital between 2011 and 2016 – a retrospective study. **JJ Taljaard** study leader
- Diploma in HIV Management for Nurses – University of Fort Hare
- Rotating general medicine registrars (3-month ID rotation)
- ID sub-specialist training – Drs Arifa Parker and Du Toit van der Merwe
- Outreach activities to Paarl Hospital, Eerste River Hospital, Khayelitsha Hospital and Karl Bremer Hospital

Elective students:

- Fourteen elective undergraduate students rotated through the division most for a period of 4-6 weeks at a time

Centre For Medical Ethics And Law, Department Of Medicine

Prof. K. Moodley

Summary of activities

Teaching:

Undergraduate (MBChB 1, 2, 5)

Research:

Projects, Publications, Supervision

Consultancy Services:

Tygerberg Clinical Ethics Committee

Private practitioners

Resources

Posts (Full-time)	Number	Filled
HOD	1	1
Posts (sessional – how many hours worked per week)		
Administrative assistant	40	1
Research assistant	40	1
ARESA programme Coordinator	40	1
Project manager	25	1
Researcher	40	1

Output

Prof. Moodley supervised three PG Diploma students. Three students graduated in March 2016. One student re-registered for 2016 and graduated in December 2016.

NIH (ARESA) grant of R12 million secured from 2011 to 2016. For 2016: R1 137 682,63

NIH (HIV Cure) grant of R 5,5 million secured from 2013 to 2018. For 2016: R1 245 276,68

NIH (ELSI) grant of R3,8 million secured from 2015-2018. For 2016: R975 021,77

GCP training and online GCP Refresher program: 36 + 85 researchers trained

Online CPD program: 7 people completed training in 2016

Third stream income raised: **R3 679 701. (GCP + ERECCA + CPD + Bioethics Seminar + ARESA short courses + Grants)**

Comment on output

The Centre for Medical Ethics and Law is partially funded. Considerable effort is required to raise additional funds to sustain the Centre with skeleton staff. The output is generated by 1 full-time partially funded academic post and 3 partially funded administrative posts.

Part 2

Faculty of Health Sciences

Infrastructure development – upgrading, new equipment, etc. (highlights)

For 2016 – new equipment purchased: 1 laptop, 2 desktop computers

Community outreach programmes/community services and interaction.

Ethics Hotmail and Ethics Hotline – queries on ethical issues from general practitioners and other healthcare providers are answered either via e-mail or telephonically by the Centre. The number of queries received increased substantially over the past year. Details available on request, within the limits of confidentiality.

4th Annual Bioethics Seminar – 23 April 2016

Topics and speakers:

Dr Mike Urban - Genomics and ethics in medical practice: the role of clinicians in exome testing

Prof. Willie Pienaar – “Tweeting medical advice”: how appropriate is social media for health-related communication?

Prof. Keymanthri Moodley – Ethics in practice: challenging and perplexing scenarios

Attended by 101 delegates.

ARESA Seminar 20 May 2016:

Attended by 106 delegates. Trainees that were trained in our Capacity Development Programme and delegates who attended the Seminar in 2016 were from the following countries:

- South Africa
- Zimbabwe
- USA
- Australia
- Ireland

Partnerships

National:

Partnerships with the University of Pretoria and University of KwaZulu-Natal

1. Principal investigator – Biological sample use in research - data analysis was completed and results were published. NRF funded R40 000.

Private: not applicable

International:

1. NIH R25 grant – to develop a Postgraduate Diploma in Health Research Ethics. Value of grant over 5 years = \$1,2 million (R12 million) awarded.
2. NIH RO1 grant: Ethical and social implications of HIV cure research – R24 million – to be shared amongst 3 sites: China, South Africa and USA.
3. NIH grant: NIH U01 grant on Community Engagement for H3Africa Biobanking Research: The Tygerberg Model. Value of R2,4 million.

Achievements w.r.t research activities and research outputs:

Prof. K. Moodley

1. **Moodley K**, Rossouw T, Staunton C, Colvin CJ. Synergies, tensions and challenges in HIV prevention, treatment and cure research: exploratory conversations with HIV experts in South Africa. **BMC Medical Ethics 2016**; 17:26
2. Staunton C, **Moodley K**. Data mining and biological sample exportation from South Africa: A new wave of bioexploitation under the guise of clinical care? (Editorial) **SAMJ 2016**; 106, (2):136-138
3. **Moodley K**, Singh S. "It's all about trust": reflections of researchers on the complexity and controversy surrounding biobanking in South Africa. **BMC Medical Ethics 2016**; 17:57
4. Deeks SG, Lewin SR, Ross AL, **Moodley K** et al. International AIDS Society global scientific strategy: towards an HIV Cure 2016. **Nature Medicine 2016**; 22(8) 1-11
5. Ganya W, Kling S and **Moodley, K**. Autonomy of the child in the South African context: is a 12 year old of sufficient maturity to consent to medical treatment? **BMC Medical Ethics 2016**; 17:66
6. Chingarande G and **Moodley, K**. A comparative narrative of the compensation policies for research related injury in Brazil, Russia, India, China and South Africa: A systematic review. **BMC Medical Ethics 2016** (accepted for publication)
7. K Moodley, C Staunton, M de Roubaix, M Cotton "HIV Cure Research in South Africa: A preliminary exploration of stakeholder perspectives" (2016) 28(4) *AIDS Care* 524

Prof. Kling

1. **Kling S**. Clinical integrity, patient autonomy and the patient's best interest. *Current Allergy and Clinical Immunology* 2016; 29(3):176-178.
2. **Kling S**. Ethical issues in primary care. *Current Allergy and Clinical Immunology* 2016; 29(1):38-40.
3. **Kling S**. Food Allergy: A human rights issue?. *Current Allergy and Clinical Immunology* 2016; 29(2):106-108.
4. **Kling S**. Consent, confidentiality and allergy in the Emergency Department. *Current Allergy and Clinical Immunology* 2016; 29(4):248 -251.

Dr Ciara Staunton

1. **C Staunton** "Harmonisation of biobank regulations in Africa: Lessons to be learned from Europe" (2016) 13(4) *Contemporary Issues in Law* 267-286
2. **C Staunton**, K Moodley, "Community engagement for biobanking research: perspectives from Africa" (2016) 20(2) *Asia Pacific Biotech News* 24
3. J Nie, A Gilbertson, M de Roubaix, **C Staunton**, A van Niekerk, J Tucker, S Rennie, "Healing without Waging War: Beyond Military Metaphors in Medicine and HIV Cure Research" (2016) 16(10) *American Journal of Bioethics* 3

ARESA Trainee Publications

1. Malan T, **Moodley K**. Phase 3 Oncology Clinical Trials in South Africa: Experimentation or therapeutic misconception? **J of Empirical Research Ethics**, 2016; 11(1) 47-56
2. Amugane BK, Verster GC. Knowledge and attitude of postgraduate students in Kenya on ethics in mental health research. **SAJBL**; 2016: 9:2
3. Wium A, Gerber B. Ototoxicity management: An investigation into doctor's knowledge and practices, and the roles of audiologists in a tertiary hospital. **SA Journal of Communication Disorders**;2016, 63 (1)
4. Greef M, Rennie S, Phronesis: Beyond the Research Ethics Committee- A Crucial Decision- Making Skill for Health Researchers During Community Research. **Journal of Empirical Research on Human Research Ethics**.2016; 11 (2) 170-179

Newsletter

One ARESA Newsletters Vol. 6 (No 1) was circulated to all Research Ethics Committees in SA in December 2016. The newsletter is also circulated internationally via the NIH list serve.

Teaching and Training (undergraduate, postgraduate and elective students)

MBCHB 5

Ethics Module

The undergraduate teaching programme in medical ethics and law was offered to 250 fifth-year medical students in March 2016 for the 14th time since its inception. Tutors: Keymanthri Moodley, Willie Pienaar and Sharon Kling. Two additional lecturers were invited to assist with tutorials and marking – Dr Chris Verster and Dr Mariam Navsa. Dr Wandile Ganya, who completed his final year in 2014, presented the African Philosophy lecture.

Flexible assessment was introduced in 2015 for the first time. Peer assessment was useful for student accountability to each other, but the marks allocated were relatively high. Students completed a SUNlearn exam. The final ethics marks (50% MCQ Exam; 40% Group Assignment; 10% Peer Assessment) ranged from 52% to 82%, with an average of 69%. Anneke Weidemann received the Ethics Prize sponsored by Mediclinic during the Oath taking ceremony in December 2016 (she achieved the highest mark for the module in 2015).

MBCHB 1

Medical Ethics Lectures – Theme 3 in Health in Context Module

Six lectures were presented to 396 first-year Health Science students on Ethics, Law and Human Rights in March 2016. A range of topics was discussed and included:

1. Why is ethics important in healthcare?
2. Introduction to health law
3. Introduction to Health and Human Rights
4. The Health Professions Council of South Africa (HPCSA)
5. Scientific Integrity
6. Ethical Dilemmas in healthcare

The team was led by Prof. Moodley.

Three hundred and ninety-six students wrote a SUNLearn test, with 20 Ethics MCQs. Results: 57% to 100% with an average of 86%.

MBChB 2

Medical Ethics Lectures – Introduction to Clinical Medicine

Five lectures were presented to **274** second-year medical students in October 2016:

1. Ethics and professionalism in the hospital
2. Resolving ethical dilemmas
3. Philosophy and Medicine
4. Introduction to moral principles and theories
5. Ethical dilemmas – case studies

B) Postgraduate teaching

ARESAs Postgraduate Programme:

Of the 2015 Intake for the Postgraduate Diploma in Health Research Ethics, three students graduated in March 2016. One student had re-registered and graduated in December 2016.

Supervision:

Supervisor:

PhD – Applied Ethics – University of Stellenbosch

Dissertation: Models of Clinical Ethics Consultancy services in South Africa: A critical appraisal
Prof. Sharon Kling, Department of Paediatrics, Stellenbosch University

Supervisor:

MPhil – Applied Ethics – University of Stellenbosch

Dissertation: A philosophical perspective of the ethical issues affecting the Zimbabwean healthcare system.

Dr Farayi Moyana, Dental Surgeon, Harare, Zimbabwe

Supervisor:

MPhil – Applied Ethics – University of Stellenbosch

Dissertation: Sufficient maturity in terms of consenting to medical treatment
Christian Pieters, Lawyer, South Africa

Supervisor:

Postgraduate Diploma in Health Research Ethics – University of Stellenbosch

Research Assignment: A comparative narrative of the compensation policies for research-related injury in Brazil, Russia, India, China and South Africa (BRICS)

George Chingarande, Lecturer, Zimbabwe

Supervisor:

Postgraduate Diploma in Health Research Ethics – University of Stellenbosch

Research Assignment: A SOAR analysis as an innovative strategic framework for research ethics committees

Dr Retha Visagie, Research Management Directorate, South Africa

Supervisor:

Postgraduate Diploma in Health Research Ethics – University of Stellenbosch

Research Assignment: Evaluation of comprehension of an educational video about HIV cure research among patients and caregivers from a HIV clinic in the Western Cape, South Africa, and participants enrolled in an HIV acute infection study in KwaZulu-Natal, South Africa

Dr Gonasagrie Nair, Site Project Director, South Africa

Supervisor:

Postgraduate Diploma in Health Research Ethics – University of Stellenbosch

Research Assignment: Use of Residual Bio-specimens in Research: Guidance for Zimbabwe
Melody Phiri-Shana, Research Officer, Medical Research Council of Zimbabwe

Supervisor:

Postgraduate Diploma in Health Research Ethics – University of Stellenbosch

Research Assignment: Dissemination of both primary and incidental findings in research-based genomic studies: ethical implications and future directions

Associate Prof. Gordon Wayne Towers, Senior Lecturer, North-West University (Potchefstroom Campus)

Postgraduate Internal Examiner

1. **PhD – Philosophy:** “Ethical concerns in the debate about paediatric vaccinations, with special reference to MMR (Mumps, Measles and Rubella)” – for Johan Christiaan Bester, University of Stellenbosch (2016)

Special achievements and other highlights

International Appointments:

- International AIDS Society (IAS) HIV Cure International Scientific Working Group, the IAS Towards an HIV Cure Initiative
- Strategic Advisory Group of Experts (SAGE) Working Group on Ebola Vaccines and Vaccinations by the World Health Organization (WHO)

National Appointments:

- Member of the Academy of Science of South Africa (ASSAF)
- Member of the Consensus Working Group on Ethical, Legal and Social Issues related to Human Genetics and Genomics in South Africa

5th Annual ARESA Research Ethics Seminar 2016

One hundred and six delegates from various South African RECs attended our annual seminar and we were pleased to welcome back ARESA Alumni. A wide range of stimulating talks were delivered by South African speakers (Prof. Anton van Niekerk, Dr Gill Black and Prof. Keymanthri Moodley). International speakers hailed from the USA (Prof. Stuart Rennie), Zimbabwe (George Chingarande), Australia (Prof. Michael Selgelid) and Ireland (Dr Ciara Staunton).

Dr Anna-Marie Wium, Prof. Anne Pope and Prof. Stuart Rennie contributed to lively panel discussions along with some of the other speakers.

Third Income Stream 2016:

1. **Good Clinical Practice (GCP) Training Courses** – only the basic course was presented. These courses in responsible research and technical issues related to research are deemed compulsory by the Medicines Control Council (MCC) for all investigators involved in clinical trial research.

Attendance courses:

Two courses were offered, and **36** investigators, site coordinators and research ethics committee members were trained.

Income generated: **R136 400**

2. **ERECCA program**

Number of delegates completed: **85**

Income generated: **R85 000**

3. **Online Ethics CPD Program:**

Number of delegates completed in 2016: **7**

Income generated: **R6464,77**

4. **Fourth Annual Bioethics Seminar:**

Number of delegates registered: **107**

Income generated: **R11 000**

5. **Grants and donations**

- Fogarty International Centre, NIH R25 grant – to develop a Postgraduate Diploma in Health Research Ethics. Value of grant over 5 years = **\$1,2 million (R12 million)** awarded. For **2016**: R 1 137 682,63
- NIH R01 grant on ethical and social implications of HIV cure research – R24 million – to be shared amongst 3 sites: China, South Africa and USA. SA sub-contract: \$536 000 = R5 360 000. For **2016**: R1 245 276,68
- NIH U01 grant on Community Engagement for H3Africa Biobanking Research: The Tygerberg Model - ELSI \$19 250. For **2016**: R975 021,77
- NRF grant: R40 000
- Mediclinic Donation: R100 000 received in 2014, balance for **2016**: R42 858,24

Total Third Income Stream Generation Via Grants And Courses:

Gross Income = R3 679 701 (was R5 380 997 at the end of 2015).

NB: This funding covers all the expenses associated with presenting the courses, university fees for the 15 PG diploma trainees for 2015, flights, accommodation and subsistence for trainees, allowance 8%-12% to main campus and part payment of salaries of current employees.

Total Third Income Stream Generation Via Grants And Courses:

Source	Rand 2016	Rand 2015
GCP Training (attendance)	136 400	151 200
ERECCA	85 000	59 525
CPD Online	6 464	4 596
ARESA Short Courses	0	84 000
Bioethics Seminar	11 000	7 200
NIH R25 Grant (ARESAs no-cost extension)	1 137 682	3 318 249
NIH HIV Cure Grant	1 245 276	1 400 707
ELSI	975 021	267 824
NRF Funding	40 000	40 000
Mediclinic	42 858	47 695
Total Gross Income	R3 679 701	R5 380 997

Nephrology

Prof. M.R. Davids

Resources

Posts (Full-time)	Number	Filled
Nephrologists	3	2
Nephrology registrars	1	1
Medical registrars	3	3
Posts (sessional – how many hours worked per week)		
N/A		

Output

Admissions: Ward A7 – total 481 admissions

Patients on renal replacement therapy at year-end:

Haemodialysis – 68; peritoneal dialysis – 59; transplant pts – 172

Visits for the year:

Nephrology OPD – 2 050 (new 327, follow-up 1 723)

Peritoneal Dialysis Clinic – 1 172

Transplant Clinic – 2 603

Haemodialysis Units – 7 070

Procedures:

Haemodialysis: chronic 6 587, acute 748

Plasmapheresis: 172 (from 117)

Charcoal haemoperfusion: 3

Kidney biopsies: 185

Kidney Transplants:

New renal transplants – 20 (living donor transplants 10)

Cumulative total transplants – 984

Patients assessed for dialysis/transplant programme:

Total assessed 270: no final decision 16, accepted 53 (21%), not accepted 201

Comment on output

Increased demand for services continues. The outputs were only possible due to hard work by a committed team and assistance from supernumerary staff. Insufficient theatre access remains a major limitation and impacts negatively on our ability to perform transplants, and thereby open up new slots on dialysis for patients with ESRD. There is

also inadequate access to theatres for performing vascular access surgery and insertion/removal of peritoneal dialysis catheters.

Part 2 Faculty of Health Sciences

Infrastructure development – upgrading, new equipment, etc. (highlights)

N/A.

Community outreach programmes/community services and interaction.

Nephrology training of fellows from the developing world continues: Drs Elliot Tannor (Ghana) and Mathew Koech (Kenya) completed their training – sponsored by the International Society of Nephrology (ISN). Both passed the certificate exams with distinction.

PPIs with Paarl and Vredenburg Units of National Renal Care, and Hermanus Unit of Fresenius Medical Care continues successfully. Improves access to dialysis and improves QOL of patients involved.

Partnerships

National: Collaboration with CID and others on HIV and renal disease project – Prof. Moosa.

International: Prof. Davids leading the African Renal Registry Initiative. Establishing ties with the UK Renal Registry.

Achievements w.r.t research activities and research outputs:

Journal articles:

Moosa MR, Maree JD, Chirehwa MT, Benatar SR.

(2016) Use of the 'Accountability for reasonableness' approach to improve fairness in accessing dialysis in a middle-income country. PLoS ONE 2016, 11(10): e0164201.
doi:10.1371/journal.pone.0164201.

Nel JD, Ebstein S.

Metabolic bone disease in the post-transplant population. Medical Clinics of North America 2016, 100(3): 569-586

Moosa MR, Meyers AM, Gottlich E, Naicker S.

An effective approach to chronic kidney disease in South Africa. SAMJ 2016; 106(2): 156-159

Davids MR, Eastwood JB, Selwood NH, Arogundade FA, Ashuntantang G, Benghanem Gharbi M, Jarraya F, MacPhee IAM, McCulloch M, Plange-Rhule J, Swanepoel CR, Adu D.

A renal registry for Africa: first steps. Clinical Kidney Journal, 2016; 9(1):162-167. Published online 25 November 2015. DOI: 10.1093/ckj/sfv122.

Bezuidenhout K, Rensburg MA, Hudson CL, Essack Y, Davids MR.

The influence of storage time and temperature on the measurement of serum, plasma and urine osmolality. Annals of Clinical Biochemistry, 2016; 53(4) 452-458. Published online 13 October 2015. DOI: 10.1177/0004563215602028.

Sebastian S, Filmlalter C, Harvey J, Chothia M-Y.

Intradialytic hypertension during chronic haemodialysis and subclinical fluid overload assessed by bioimpedance spectroscopy. Clinical Kidney Journal, 2016, 1-8. DOI:10.1093/ckj/sfw052.

Chothia MY, Bates WD, Davids MR.

Bilateral renal cortical necrosis following abdominal surgery. African Journal of Nephrology, 2016; 19(1):14-16.

Completed Master's research projects:

Tannor EK – M Phil (Nephrology): Repeat renal biopsies in the management of lupus nephritis. Supervisor: **Prof MR Moosa**, co-supervisor Prof WD Bates.

Hassen M – MMed (Int Med): A case series of renal amyloidosis at Tygerberg Academic Hospital, Cape Town. Supervisor: **Prof MR Moosa**, co-supervisor Prof WD Bates.

Joubert LH – MMed (Int Med): Renal biopsy findings in diabetic patients at Tygerberg Hospital. Supervisor: **Prof MR Moosa**, co-supervisor Prof WD Bates.

Morrow AJ – MMed (Int Med): The impact of CMV antiviral prophylaxis on the number of cases of Kaposi Sarcoma and pattern of malignancies in kidney transplant recipients at Tygerberg Academic Hospital. Supervisor: **Prof MR Moosa**.

Special achievements and other highlights

- Secured private funding for a nephrology fellowship from Renal Care Holdings (R650 000 annually for two years)
- Hosted successful SA Renal Congress at the Century City Convention Centre

Neurology

Prof. J. Carr

Summary of activities

Highlight of the year was the official opening of the Stroke Unit: a six-bed ward sited in A8 East for the management of acute stroke. The ward has dedicated nursing staff and a team of physio and occupational therapists to assist. The driving force behind creating the unit was Dr Naem Brey.

We also participated in the first placement of Deep Brain Stimulation electrodes at Tygerberg Hospital; this in a patient with a chronic movement disorder that significantly affected his quality of life.

We also opened the Centre for Research in Neurodegenerative Disease, a collaborative centre at the University of Stellenbosch for the investigation of disorders such as motor neuron disease and Parkinson disease.



Resources

Posts (Full-time)	Number	Filled
3	3	3
Posts (sessional – how many hours worked per week)		
1		8
1		16

Output

Outpatient visits:	3 402
Admissions:	360
EEG:	1 114
EMG:	637
Sleep Studies:	23

Comment on output

Output unchanged compared to previous years.

Infrastructure development – upgrading, new equipment, etc. (highlights)

None

Community outreach programmes/community services and interaction. Please focus on initiatives in 2012, especially w.r.t. MDG and projects in Africa

1. Ongoing outreach to Worcester and Helderberg hospitals.
2. Ongoing use of video link with Mediclinic Constantiaberg for purpose of exchanging academic information and "virtual" attendance of neuroscience meeting held weekly at Mediclinic Constantiaberg.

Partnerships

International:

GEO-PD (Genetic Epidemiology of Parkinson's disease Consortium)
Movement Disorders Society: Task Force on Africa

Achievements w.r.t research activities and research outputs:

Number of publications from the department/division

- 1 Haylett W, Swart C, Van der Westhuizen F, et al. Altered Mitochondrial Respiration and Other Features of Mitochondrial Function in Parkin-Mutant Fibroblasts from Parkinson's disease Patients. *Parkinson's Dis.* 2016; 2016:1819209.
- 2 Carr J, Guella I, Szu-tu C, et al. Double homozygous mutations (R275W and M432V) in the ParkinGene associated with late-onset Parkinson's disease. *Mov Disord.* 2016;31(3):423-5.
- 3 Van der Merwe C, Carr J, Glanzmann B, Bardien S. Exonic rearrangements in the known Parkinson's disease-causing genes is a rare cause of the disease in South African patients. *Neurosci Lett.* 2016;619:168-171.
- 4 Suliman S, Anthonissen L, Carr J, et al. Posttraumatic Stress Disorder, Overweight, and Obesity: A Systematic Review and Meta-analysis. *Harv Rev Psychiatry.* 2016;24(4):271-93
- 5 Carr J. In memoriam Raul De la Fuente-Fernández 1959-2016. *Parkinsonism Relat Disord.* 2016; 31:1-2.
- 6 Henning F, Cunninghame CA, Martín MA, et al. Muscle fiber type proportion and size is not altered in mcardle disease. *Muscle Nerve.* 2016.
- 7 Mahne AC, Carr JA, Bardien S, Schutte CM. Clinical findings and genetic screening for copy number variation mutations in a cohort of South African patients with Parkinson's disease. *S Afr Med J.* 2016;106(6):623-5
- 8 Carr J. Neurological letter from Cape Town. *Pract Neurol* 2017;17:74–76.

Teaching and Training (under, postgraduate and elective students)

Professor Carr is chairperson of the Neuroscience block.

We continue to train 6 Neurology registrars, including 4 supernumerary registrars from Malawi, Sudan, Zimbabwe and South Africa.

Special achievements and other highlights

Dr F. Henning entered the third year of his PhD.

Dr P. Fredericks, who graduated in December 2015, was awarded a prize by the University of Stellenbosch for academic excellence with respect to her postgraduate degree.

Professor Carr is a Co-PI on the MRC Flagship project: Understanding the SHARED ROOTS of Neuropsychiatric Disorders and Modifiable Risk Factors for Cardiovascular Disease. Dr Henning and medical student Ludo van Hillegondsberg presented their work at the 27th Motor Neuron Disease symposium in Dublin.

Pulmonology

Prof. E.M. Irusen

Summary of activities

The Division continues to be a very busy unit with increasing demands for ICU and Pulmonology theatre services. This, together with the research output, has seen a larger number of national and international doctors showing interest in visiting the Unit to gain research and procedural experience.

Lung Function Laboratory and Technical Staff

- The year 2016/2017 was a busy year for the Lung Function Laboratory with higher volumes of investigations and setting up of ventilators
- Two students finished their diploma at the end of 2016 and will finish their degree at the end of 2017. Three new third-year students join the laboratory in January 2017. They are Hlomuka, Van Heerden and Zwiegers. At the moment they are in unpaid students posts. They will be interviewed in the near future for the three student posts
- The six qualified technologists were able to attend either the SATS or Critical Care Congress

A5 MEDICAL ICU

- A5 ICU admitted 439 patients (80% medical; 20% non-medical) in 2016 with the average length of stay being 4,2 days. (Mean Apache score: 19,2)
 - 96 (22%) patients did not survive ICU (Mean Apache score: 29)
 - 22 of these patients (50%) had scores ranging 30-52
 - 40% died within the first 24 hours of being admitted to the ICU
 - Unsurprisingly, pneumonia, sepsis and septic shock remain the leading causes of death
 - Research: 3 MMed projects and 1 study are currently underway

Resources

Posts (Full-time)	Number	Filled
Professor – Principal Specialist	1	1
Specialist	3	3
Registrars	5	5
Senior Registrars	2	2
Assistant Director Clin Tech	1	1
Chief Clinical Technologist	2	2
Clinical Technologist	3	3
Student Clinical Technologist	5	2 (3 to be interviewed)
Posts (sessional – how many hours worked per week)		
Specialist		

Output

Lung Function Lab – Total procedures

Primary evaluations	5 217
Paediatric lung function	795
Plethysmography	1 180
Helium dilution lung volumes	12
Diffusion capacity	855
Exercise Studies	288
Broncho-provocation tests	1
Capillary Blood Volume	3

Intensive Care – Total Procedures

	Adult	Paediatric	Total
Blood gasses	12 928	13 255	26 183
Haematocrits	12 928	13 256	26 184
Ventilator circuits	24	164	188
Ventilator calibrations	1 633	4 123	5 756
Arterial line placement/repair	1 881	2 606	4 487
Pulmonary artery catheter placement/repair	51		51
CVP placement/repair	886	145	1 031
Haemodynamic studies	73		73
MIP & MEP procedures	82		82
Assistance with ventilation	5 628	7 184	12 812
Blood Sample Collection	490	5	495
Electrolytes/metabolites (Na, K, Ca, Cl, Glu & Lac)	12 928	13 256	26 184
Monitors assembled	1 959	7 053	9 012

A5 Bronchoscopy Theatre Procedures

	Flexible Bronchoscopy	Rigid Bronchoscopy	Forceps Biopsy	Foreign body removal	Bronchial washings	BAL	TBNA - WANG	EBUS-TBNA	Tru-cut Biopsy	Abrams needle biopsy	TTNA	Thoracic ultrasound	ICD - TROCAR	Thoracoscopy	Gastroscopy	Sterile Talc Pleurodesis	Arrow drain insertion	New Pleurax drain (IPC) insertion	Tracheo-Bronchial stenting	ZEPHUR Endobronchial Valve insertion	Subglottic balloon dilatation (ENT)	General anaesthesia	Local anaesthesia	Total procedures per year
GRAND TOTAL PER YEAR	779	19	69	30	349	74	149	129	39	34	243	450	51	7	39	43	10	8	1	2	1	344	956	3826

Respiratory Outpatient Clinic Numbers		
Follow-up	New	Totals
1 658	815	2 493

Part 2

Infrastructure development

We have acquired 20 new ventilators, of which 5 ventilators are equipped to provide high flow.

Partnerships

National: Prof. E.M. Irusen

South African Thoracic Society: Council Member, Scholarship reviewer; Section editor – Breathing News, SA Respiratory Journal.

College of Medicine examiner

National examiner: Master's and PhD dissertations

CPD outreach: about 30 lectures per year on all aspects of Resp Disease

National: Prof. C. Koegelenberg:

SA Thoracic Society-treasurer

Chairman of the executive committee of the "Assembly on Interventional Pulmonology of the South African Thoracic Society" or IPSA

Assistant Editor of the journal SARJ

National: Dr B. Allwood

SA Thoracic Council Member

Colleges of Medicine Examiner for FCP Part II

International: Prof. E.M. Irusen

a) GOLD National Leader (GOLD-Global Initiative for Chronic Obstructive Lung Disease)

b) Collaborative Research in SADC: Prof. T. Robbins, University of Michigan: Non-communicable Respiratory Disease

Journal Reviewer: Clinical Drug Investigation, Clinical Infectious Diseases
Journal of IUATLD Respiration

International: Prof. C. Koegelenberg:

Assistant Editor of the journal Respiration and editorial board member of Respirology Case Report Journal

Reviewer for Thorax, ERJ, IJTL, Respirology, Respiration

Achievements w.r.t research activities and research outputs

Manuscripts published – 2016

1. Balkema CA, Irusen EM, Taljaard JJ, Zeier MD; Koegelenberg CFN. A prospective study on the outcome of Human Immunodeficiency Virus-infected patients requiring mechanical ventilation in a high burden setting. *QJM*. 2016;109(1):35-40*
2. Murthy C, Davis R, Koegelenberg CFN, Irusen EM, Pitcher R. The impact of implementing a computer prompted pulmonary embolism pre-test probability score on the efficient utilisation of Computed Tomography Pulmonary Angiography in a South African tertiary hospital. *S Afr Med J*. 2016;106(1):62-64*
3. Bernasconi M, Diacon AH. Koegelenberg CFN. Stair Climbing Test streamlines the evaluation of non-malignant lung resection candidates. *Respiration* 2016;91:87-88*
4. Vorster MJ, Koegelenberg CF. Breaking Down the Barriers in Complicated Pleural Sepsis. *Respiration*. 2016;91(2):99-100*
5. Koegelenberg CF, Allwood BW. Image-guidance of pleural biopsies: Are electromagnetic waves superior to sound waves? *Respiration* 2016;91(4):267-268*
6. Mfokazi A, Wright CA, Louw M, Von Groote-Bidlingmaier F, Schubert PT, Koegelenberg CFN, Diacon AH. Direct Comparison of Liquid-Based and Smear-Based Cytology With and Without Rapid On-Site Evaluation for Fine Needle Aspirates of Thoracic Tumors. *Diagn Cytopath* 2016;44(5):363-368*
7. Simon D, Greyling KE, Irusen EM, Rigby J, Taljaard JJ, Koegelenberg CFN. Pneumocystis jiroveci and cytomegalovirus co-infection in an immunocompromised patient. *S Afr Resp J* 2016;22(1):20-21
8. Koegelenberg CFN, Bulaya T, Balkema CA, Taljaard JJ, Irusen EM. Validation of a severity-of-illness score in HIV-positive patients requiring intensive care unit admission for mechanical ventilation. *QJM* 2016;109(6):434-435*
9. Abraham S, Vorster MJ, Shina Roy S, Koegelenberg CFN. An approach to the solitary pulmonary nodule. *S Afr Resp J* 2016;22(3):54-60
10. Wilken E, Fengels H, Swart F, Maree DW, Bruwer JW, Batubara EM, Irusen EM, Koegelenberg CFN. The effect of therapeutic pleural drainage on the short- and long-term sequelae of tuberculous pleural effusions. *S Afr Resp J* 2016;22(3):60-66
11. Sonnekus B, Koegelenberg CFN. Diagnostic yield of transbronchial needle aspiration for lymphoma. *S Afr Resp J* 2016;22(3):67-72
12. Sinha Roy S, Koegelenberg CFN, Irusen EM. Pulmonary puzzle: A rare case of dysphagia. *S Afr Resp J* 2016;22(3):73-75
13. Irusen EM. COPD sine COPD. *S Afr Resp J* 2016;22(3):76
14. Vorster M. Elevated blood eosinophil count and exacerbations of COPD. *S Afr Resp J* 2016;22(3):77
15. Esmail H, Lai RP, Lesosky M, Wilkinson KA, Graham CM, Coussens AK, Oni K, Warwick JM, Said-Hartley Q, Koegelenberg CF, Walzl G, Flynn JF, Young DB, Barry CE, O'Garra A, Wilkinson RJ. Characterization of progressive HIV-associated tuberculosis using 2-deoxy-2-[18F] fluoro-d-glucose positron emission and computed tomography. *Nat Med*. 2016; 22(10):1090-1093. doi: 10.1038/nm.4161*
16. Malherbe ST, Shenai S, Ronacher K, Loxton AG, Dolganov G, Kriel M, Van T, Chen RY, Warwick J, Via LE, Song T, Lee M, Schoolnik G, Tromp G, Alland D, Barry CE, Winter J, Walzl G, Lucas L, van der Spuy G, Stanley K, Theart L, Smith B, Burger N, Beltran CGG, Maasdorp, E, Ellmann A, Choi H, Joh J, Dodd LE, Allwood B, Koegelenberg C, Vorster M, Griffith-Richards S. Persisting positron emission tomography lesion activity and Mycobacterium tuberculosis mRNA after tuberculosis cure. *Nat Med*. 2016; 22(10):1094-1100. doi: 10.1038/nm.4177*
17. Simon D, Koegelenberg CF, Sinha Roy S, Allwood BW, Irusen EM. Can large hydatid cysts resolve with medical treatment alone? *Respiration*. 2016;92(6):428-431*

18. Koegelenberg CF, Ainslie GM, Dheda K, Allwood BW, Wong ML, Lalloo UG, Abdool-Gaffar MS, Khalfeiy H, Irusen EM. Recommendations for the management of idiopathic pulmonary fibrosis in South Africa: a position statement of the South African Thoracic Society. *J Thorac Dis* 2016;8(12):3711-3719. doi: 10.21037/jtd.2016.12.05

*PubMed Listed

Collaborations

1. Oxford: The Pleural Infection Longitudinal Outcome Study (PILOT) study
2. ACTG / Andreas Diacon / Division of Pharmacology - TB PK in ICU
3. Jean Nachega: HIV – Lung CA & COPD
4. AMC Investigators / Mark Cotton – HIV related malignancies, especially KS
5. UKZN: Epigenetic Silencing of GR in SCLC (PS/CK/EMI)
6. Grant Theron
7. Gerhard Walzl
8. UCT Lung Institute

Rheumatology

Dr M. Manie

Summary of activities

This Division continues to face the challenge of having to run one side of the Thursday firm in addition to our running the Division of Rheumatology. With respect to service delivery, we expanded the valued biologics programme. Initially only patients with ankylosing spondylitis were able to enter the programme, but subsequently patients with rheumatoid arthritis and other conditions such as Takayasu's disease were also included.

Resources

Posts (Full-time)	Number	Filled
Head of clinical unit	1	1
Senior specialist	1	1
Posts (sessional – how many hours worked per week)		
2	8 hours/week	

Output

Outpatient visits: 4 283 of which 445 were new patients

Admissions: 320

Comment on output

The outpatient and inpatient numbers have increased significantly over the last year. This is probably due to the increased number of referrals from doctors and hospitals in our drainage area resulting from burgeoning numbers of new housing developments.

Part 2

Faculty of Health Sciences

Community outreach programmes/community services and interaction.

Our Division continued the rheumatology outreach programme to Worcester Hospital, and supporting the secondary hospitals such as Karl Bremer, Paarl and Helderberg hospitals with rheumatology expertise.

We have also extended our outreach to Eerste River Hospital and will be including Khayelitsha District Hospital in the outreach programme in the new year.

Dr Manie was a panel member on a programme hosted by Cape TV discussing the challenges of managing lupus in our community in April 2016.

Partnerships

National: Our Division has an ongoing collaboration with Groote Schuur Hospital and other hospitals nationally in the "RAIN" research project, which is aimed at upskilling our specialised rheumatology sisters in assessing disease activity in patients with rheumatoid arthritis.

International: Dr Whitelaw and Dr Jessop (GSH) have continued their collaboration with the Cochrane Library to update the guidelines for the treatment of DLE.

Achievements w.r.t research activities and research outputs

Dr Manie had a publication in the SAMJ: "Meeting the challenges in the diagnosis of inflammatory myopathies".

Dr M Manie was study leader for two MMed students.

1. Dr C. de Clercq, Melanonychia in a HIV setting at Tygerberg Academic Hospital

2. Dr C. Nwanko on chloroquine maculopathy at Tygerberg Hospital

Dr Manie was study leader for the presentation by Dr Louw on:

"Childhood stress as a risk factor for developing lupus in adult life" – Departmental Research Day December 2016

Dr Du Toit had a publication on "Lupus" in May 2016: "Clinical features and outcome of lupus myocarditis in the Western Cape, South Africa."

Dr Du Toit presented her work on lupus myocarditis at the Faculty Year Day (August 2016) and our Department of Medicine Academic Year Day, December 2016.

Dr Du Toit was the recipient for a research grant from the SA Heart Foundation to continue her work on her PhD on the imaging of lupus myocarditis.

Teaching and Training (undergraduate, postgraduate and elective students)

The Division is actively involved in the undergraduate teaching of the musculoskeletal system with a group of 15 students rotating through the module every 5 weeks. The Division has one full-time career registrar and also accommodates a new rotating medical registrar every three months. We accommodate an average of three elective students per year.

We were pleased to host the national college exit exams during which our career registrar, Dr Bouwer, was successful.

Special achievements and other highlights

Our Division was proud to host the Rheumatology open day on 30 September 2016, which received great acclaim from patients, family, medical management and the local press!

Head of Department Professor Richard Pitcher

Summary of activities

A comprehensive, 24-hour tertiary-level diagnostic imaging service was maintained, with 172 483 radiological examinations performed. Just over one-third of examinations (59 753; 35%) were performed after hours, while 61 460 (36%) were specialised radiological investigations; paediatric imaging represented just less than one-fifth of the workload (30 199; 18%).



Professor Richard Pitcher

Regular clinical radiology multi-disciplinary meetings were maintained with colleagues in general surgery, paediatric surgery, orthopaedic surgery, neurosurgery, neurology, thoracic surgery, breast surgery, urology, nephrology, otorhinolaryngology, adult and paediatric pulmonology, nuclear medicine, neonatology, rheumatology and endocrinology. In addition, clinico-radiological hepatobiliary and neuro-endocrine meetings were introduced in the review period.

Resources

Posts (Full-time)	Number	Filled
Associate Professor/Chief Specialist	1	1
Supernumerary Associate Professor	1	1
Clinical Unit Head	0	0
Specialists	8	8
Registrars	20	20
Supernumerary Registrars	8	8
Assistant Director Radiography	1	1
Chief Radiographer: Supervisor	15	15
Diagnostic Radiographer: Grade 3	15	15
Diagnostic Radiographer Grade 2	8	8
Diagnostic Radiographer Grade 1	21	21
Chief Sonographer: Supervisor	1	1
Sonographer: Grade 1	2	2
Community Service Radiographer	4	4
PACS-RIS Co-ordinator	1	1
PACS-RIS Administrator	1	1
Registered Nurse	1	1
Staff Nurse	1	1
Enrolled Nurse	1	1
Medical transcriptionist	2	2
Clerical Assistant	2	2

Funding from the Department of Higher Education and Training (DoHET) was utilised to appoint Professor Leon Janse van Rensburg in a sessional capacity as Consultant in Head and Neck Imaging.

The number of official Health Professions Council of South Africa (HPCSA) Registrar training posts in Radiodiagnosis was increased by more than 30%, from 22 to 29.

Output

Examination	2011	2012	2013	2014	2015	2016
Chest X-ray:	60 488	62 546	63 464	59 951	58 542	53 587
General X-ray:	67 057	69 311	69 437	64 785	61 148	57 006
Ultrasound:	11 773	11 812	12 910	12 662	12 279	12 742
CT	18 144	20 70	222 956	24 073	24 636	25 548
MRI	2 960	3 208	4 005	3 461	4 052	4 317
Mammography	3 159	3 378	4 023	4 240	4 404	4 543
Fluoroscopy/Angiography	8 712	9 425	9 657	10 053	10 016	9 819
Cardiac Theatre	3 005	3 556	3 827	3 938	4 148	4 491
Total	175 298	183 938	190 279	183 180	179 364	172 483

Comment on output

In the past seven years (2010 – 2016), the number of special radiological exams has increased by 39%, from 44 124 to 61 460. Some modalities have shown a higher percentage increase: mammography 125% (2 016 to 4 543); MRI - 68% (2 566 to 4 317); CT - 51% (16 965 to 25 548), interventional procedures – 45% (1 377 to 1 996).

The increased clinical outputs were achieved with the same staff complement, which speaks to increasing year-on-year efficiency and hard work, attributable to experienced, efficient and dedicated staff, as well as a digital environment and equipment upgrades (mammography, MRI, angiography).

The recent slight decrease in plain-film examinations reflects rationalisation of the orthopaedic outpatient clinics and an improved digital imaging infrastructure in district hospitals in the Tygerberg Hospital drainage area, particularly Khayelitsha District Hospital and Karl Bremer Hospital.

Through collaboration with clinical colleagues in the respective disciplines, the Division made further progress towards introducing cardiac, prostate, breast and pelvic MR imaging. The neuro-interventional service was also expanded and radiofrequency ablation of venolymphatic malformations and focal liver lesions was introduced.

Part 2

Faculty of Health Sciences

Infrastructure development

The upgrade of the Alan Scher Radiology Auditorium was completed in December 2016, providing an optimal environment for divisional teaching and interdisciplinary clinico-radiological conferences for a maximum of 54 delegates.

The requisition of the new Shimadzu Sonialvision G4 Digital Fluoroscopy Unit was completed in the review period, with commissioning scheduled for March 2017.

Community outreach programmes/community services and interaction.

Service to the Colleges of Medicine of South Africa (CMSA)

Prof. Richard Pitcher is President of the College of Radiologists, CMSA Senator and member of the CMSA Finance and General Purposes Committee.

Dr Christelle Ackermann serves on the Council of the College of Radiologists and is Co-Convener of the Long Case Reporting component of the F C Rad Diag (SA) Part II examination.

Prof. Richard Pitcher was part of a CMSA/Radiological Society of South Africa delegation to observe the Spring Sitting of the Fellowship of the Royal College of Radiologists Part 2B Examination in Lincoln's Inn Fields London from 9-15 April 2016. A report of the observership was recently published in the South African Journal of Radiology.

Pitcher R, De Vries C, Lockhat Z. The FC Rad Diag(SA): Stretched, but still in step – Report on a Royal College observership. S Afr J Rad. 2016;21(1) doi: 10.4102/sajr.v21i1.1092

Prof. Richard Pitcher examined the F C Rad Diag (SA) Part II examinations in the 1st and 2nd semester. Dr Wilhelm Groenewald convened the 1st and 2nd Semester F C Rad Diag (SA) Part I Physics Examinations. Dr Asif Bagadia was an examiner for the F C Rad Diag (SA) Part I Anatomy Examination in both the 1st and 2nd semester.

Provincial imaging services

Prof. Pitcher served on the Radiology User Group of the Department of Health of the Western Cape Government, tasked with advising the Head of Health on the nature and distribution of provincial radiological services.

National educational initiatives

The Division presented the 5th Annual Radiology Refresher Course for Medical Officers and General Practitioners on Saturday 24th September 2016, entitled: "It's all about adult fractures." The course was attended by 198 delegates and is the only course of its kind in the country.

Partnerships

International:

Academic Visitors:

Professor Bijan Bijan, Professor of Radiology and Nuclear Medicine, University of California, Davis Medical Centre, Sacramento. Member of the Faculty of the RSSA Abdominal Imaging Congress. Guest lecture: "*Update on fetal MRI*". Tuesday 19 January 2016

Prof. Elizabeth Hecht, Associate Professor of Radiology, Columbia University Medical Center (CUMC) New York, New York and Director of Cross-Sectional Vascular Imaging. Guest lecture: "*MRI of the female perineum*". 25 January 2016

Prof. T. Gregory Walker, Assistant Professor of Radiology, Harvard Medical School, Massachusetts General Hospital, Division of Interventional Radiology, Boston, Massachusetts. 9 November 2016

Prof. Edward Lee, Chief, Division of Thoracic Imaging, Associate Professor of Radiology, Departments of Radiology and Medicine, Pulmonary Division, Boston Children's Hospital and Harvard Medical School, Boston, MA. Monday 7 November 2016

Prof. Robert Birkenblit, Associate Professor of Clinical Radiology, Department of Radiology (Body MR and CT Imaging), Albert Einstein College of Medicine, Montefiore Imaging Centre, New York

Prof. Jeff Creasy, Section Chief, Neuroradiology, Department of Radiology and Radiological Sciences, Vanderbilt University School of Medicine, Nashville, Tennessee. American Society of Neuroradiology (ASNR) Visiting Professor 2016 In collaboration with the RSSA. 10-12 August 2016

Africa collaborations

Dr Patrick Ngoya (Supernumerary Registrar), supervised by Professor Pitcher, completed his collaborative MMed research project with Wilbroad Muhogora, Director of the Tanzanian Atomic

Energy Commission. The project assessed the national radiological resources in Tanzania. Findings were published in the Pan African Medical Journal:

Ngoya P, Muhogora W, Pitcher RD. Defining the diagnostic divide: an analysis of registered radiological equipment resources in a low-income African country. Pan Afr Med J. 2016;25:99. doi:10.11604/pamj.2016.25.99.9736

A collaborative MMed research assignment involving a Supernumerary Registrar (Dr Tashinga Maboreke) and the Head of the Department of Radiology at the University of Zimbabwe, J. Banhwa, are near completion. The project involves an audit of registered diagnostic imaging equipment in Zimbabwe and is being supervised by Richard Pitcher.

Our Division appointed four new international Supernumerary Registrars: Drs Chitani Mbewe (Zambia), Choongo Mwinga (Zambia), Jane Shawa (Zambia) and Sirkka Siwombe (Namibia), who together with Drs Patrick Ngoya (Tanzania), Tashinga Maboreke (Zimbabwe) and Fatmatu Bah (Sierra Leone) bring the total number of international supernumerary registrars to seven.

Dr Jennifer Jackson-Cole, a third-year Radiology Registrar from Moi University in Kenya, completed a two-month Observership.

The Division also appointed a Supernumerary Registrar from the Northern Cape Province, Dr Kay-Mari Jansen.

RAD-AID International:

Prof. Richard Pitcher was an invited speaker at the RAD-AID International Conference at the Pan American Health Organization headquarters in Washington DC in November 2016.

Insights into Imaging Journal

Dr Christelle Ackermann serves on the Editorial Board of "Insights into Imaging", a publication of the European Society of Radiology.

The Journal of Global Radiology

Prof Richard Pitcher was appointed to the Editorial Board

National

Radiological Society of South Africa (RSSA)

Prof Pitcher is Secretary of the Committee of Academic Radiology (CAR), a standing Committee of the RSSA Council which includes the heads of all academic radiology departments in South Africa.

The Division has benefitted enormously by the extremely generous donation by the RSSA of staff licences for access to the StatDx and Radprimer digital teaching platforms.

South African Journal of Radiology (SAJR)

Dr Razaan Davis completed her very successful term as Editor-in-Chief of the SAJR. Professor Pitcher and Dr Ackermann serve on the journal's Editorial Board.

Private:

Imaging Benefit Company

For the past decade, our Division has enjoyed close ties with, and generous support from, private sector radiologists by way of the Imaging Benefit Company, a registered non-profit organisation established to further the education and training of radiologists in Southern Africa. We gratefully acknowledge the company's private funding of the supernumerary Ad Hominem

appointment of Associate Professor Jan Lotz, whose academic mentorship has afforded our Division immense support. Professor Lotz retired at the end of 2016, bringing to a close a remarkable association with Stellenbosch University and Tygerberg Hospital. As a Division, we extend heartfelt thanks to Professor Lotz for his inspired mentorship of generations of radiology registrars.

Achievements w.r.t research activities and research outputs

The Ph.D degree was conferred on Professor Pitcher at UCT's June 2016 graduation ceremony for a thesis entitled "The radiological progression of lung disease in HIV-infected children". The research was undertaken in collaboration with the Paediatric Infectious Diseases Unit at Red Cross Hospital and Tygerberg Hospital. The work highlighted the high prevalence of persistent, severe chest X-ray abnormalities in HIV-infected children with limited access to antiretroviral therapy (ART) and demonstrated the role of ART in both preventing and reversing these abnormalities.

Dr Joseph Kabongo (Registrar) received the 2016 Maurice Weinbren Award from the College of Radiologists of the CMSA for the best published manuscript by a junior South African radiologist in the preceding calendar year:

Kabongo J, Nel S, Pitcher RD. An analysis of licenced South African diagnostic imaging equipment. Pan Afr Med J. 2015; 22:57 doi:10.11604/pamj.2015.22.57.7016

Drs Christelle Ackermann and Anne-Marie du Plessis, Consultants, are both undertaking doctoral-level research.

Richard Pitcher attended and presented at the annual American Roentgen Ray Society Conference in Los Angeles, California, 17-22 April 2016.

The Division had 9 publications in accredited national and international peer-review journals and 10 oral or poster presentations at national or international congresses.

Teaching and Training (under, postgraduate and elective students)

Dr Michelle da Silva, Consultant and Head of Vascular and Interventional Radiology, passed the European Board of Interventional Radiology (EBIR) Examination of the Cardiovascular and Interventional Radiological Society of Europe (CIRSE). She is only the third South African to achieve this distinction and the first South African women to pass the Board Exam.

Elias Pretorius (Registrar) was awarded the Josse Kaye Medal of the Colleges of Medicine of South Africa for the best candidate in the FC Rad Diag (SA) examination in 2016.

Zak Vawda was selected to participate in the European Society of Radiology "Invest in the Youth" programme at the European Congress of Radiology in Vienna, Austria, 2-6 March 2016.

The Division collaborated with other Divisions within MICO to introduce the portfolio for undergraduate students in the middle clinical rotations.

The Division collectively prepared at least 100 new lectures as part of the year's postgraduate Modular Academic Programme.

Drs Zak Vawda, Elias Pretorius, Ben Barnard and Willie Cilliers were successful in the F C Rad Diag (SA) Part II examination.

MMed degrees were conferred on Dr Zak Vawda, Willie Cilliers and Steven Meyer.

Nuclear Medicine

Prof. A. Ellmann

Summary of activities

In the past year patient referrals to the Nuclear Medicine Division have increased further, both on the 10th floor (18% more patients) and in the PET Centre (33%). The studies performed in the PET

Centre have increased steadily since its inception in April 2012, with a growth of 110% since the first year of full operation (2013). Patients are still referred as in- and outpatients of Tygerberg Hospital from secondary hospitals, day hospitals and private practices. A few patients were also referred from other African countries. F-18 FDOPA studies to image patients with Parkinsonian syndromes were introduced for the first time. Although the steady growth in requests for Nuclear Medicine services is according to international trends, it does put severe stress on the staff complement, which has not increased over the years. The staff are to be commended for bending over backwards to accommodate all the referrals timeously, although this is not always possible. It is a pleasure working within such a wonderful team.

Lutetium-177 PSMA therapy for treatment of metastatic castrate resistant prostate carcinoma was introduced for the first time in 2016. The Lu-177 DOTATATE therapy programme for patients with neuroendocrine tumours grew steadily. In total, 22 therapy cycles were administered in 2016.

The importance of quality management is growing, with increasing demands on national and international level. NM received a favourable external audit report in 2013, but continuous corrective actions and improvements are required, which increases the workload of staff members at various levels. On request of the IAEA, an internal audit as a follow-up on the external audit was conducted in October 2016.

Nuclear Medicine's involvement in multidisciplinary teams has expanded further with monthly thyroid carcinoma and gynae-oncology meetings added in 2016. Such meetings, while being work-intensive, contribute significantly to the optimal and cost-effective utilisation of PET/CT and other Nuclear Medicine investigations. There is good collaboration with colleagues in other specialities at Tygerberg Hospital, at other state hospitals and clinics, in the private sector and internationally. The three international colleagues appointed as extraordinary professors have contributed significantly to the clinical, teaching and research activities in the division.

Resources

Posts (Full-time)	Number	Filled
Professor / Principal Specialist	1	1
Specialist	3	3 (one without commuted overtime)
Registrar (Number only)	2	2 (funded) + 7 (supernumerary)
Radiopharmacist	1	1
Radiographers		
Assistant Director	1	1
Chief	3	3
Grade 2	2	2
Grade 1	6	6
Community service	3	2
Nursing:		
Registered Nurse	2	2
Staff Nurse	1	1
Posts (sessional – how many hours worked per week)		
Specialist	1	1 (12 hours)
Locum Radiographers	1	25 hours

Output

Types of Studies

Cardiac: GSPECT	489
Cardiac: Myocardial Perfusion Scintigraphy	409
Cardiac: Ventricular Function	170
Cerebral Perfusion Studies and Receptor Imaging	6
Flow Studies	61
Gastrointestinal and Hepatobiliary studies	109
Haematologic studies	17

Infection Imaging	20
Lung Scintigraphy: Perfusion	180
Lung Scintigraphy: Ventilation	153
Lymph Imaging	397
Miscellaneous Scintigraphy	42
PET/CT studies all hospitals	2 026
Renal Scintigraphy	16
Renal: GFR Measurement	518
Renography	336
Renography: Transplant	31
Skeletal Scintigraphy	1 177
Skeletal SPECT	750
Thyroid Clinic First Visit	231
Thyroid Clinic Follow-up	852
Thyroid I-131 Therapy	230
Thyroid Scintigraphy	251
Thyroid Uptake	250
Thyroid: Whole Body Iodine Scintigraphy	36
Endocrine (other)	73
Single Photon Emission Tomography (SPECT) (miscellaneous)	637
Computed Tomography accompanying SPECT	1 486
Lu-177 therapy	22
TOTAL / TOTAAL	10 975

Comment on output

There was further growth in the requests for Nuclear Medicine procedures, with 6% more procedures performed. Patient numbers in conventional NM increased by 18%, with some procedures showing significant growth (e.g. gated blood pool scans 45% and glomerular filtration rate studies 38%). There was a decrease in the number of cerebral perfusion imaging studies, but this was balanced by a significant increase in the number of FDG PET/CT brain studies.

As expected, PET/CT referrals have increased even further (33%) compared to the previous year in spite of careful scrutiny to ensure that studies are vetted before booking. This, together with the growth in conventional NM, puts serious strain on resources, as they are complicated studies to perform and report. The clinical value of PET/CT was confirmed recently by a research study performed by one of the NM MMed students on patients with cervix carcinoma. This study confirmed that PET/CT affected the management of 40% of patients, with 19% requiring a change in the radiation field due to identification of para-aortic nodal involvement and 21% upstaged to Stage IVB.

The first Lu-177 PSMA therapy for metastatic castrate resistant prostate carcinoma was performed in February 2016.

The services offered by the Western Cape Academic PET/CT Centre have been expanded by the availability of F-18 FDOPA for imaging patients with movement disorders. It can also be used in a number of neuroendocrine tumours if conventional imaging methods fail to demonstrate disease.

Nuclear Medicine had only two funded consultant posts, apart from the Head of Division. With the increasing demand for NM studies, a registrar post was converted to a specialist post, and Dr Alex Doruyter was appointed in this post.

Part 2 Faculty of Health Sciences

Infrastructure development – upgrading, new equipment, etc. (highlights)

No large-ticket equipment items were purchased in 2016. Several small equipment items were purchased with an insurance refund on equipment damaged while in transit for repair purposes. Funding from the Faculty of Medicine and Health Sciences was provided for the purchase of several equipment items required for the radiopharmacy quality control laboratory being set up near the PET centre.

Community outreach programmes/community services and interaction

Nuclear Medicine continues its training programme for students from the rest of Africa. This is mostly for candidates supported by the International Atomic Energy Agency (IAEA) for official Nuclear Medicine training of physicians and other scientists, but also through governmental support (two registrars from Malawi). In 2016, seven physicians from Africa were enrolled for the MMed (NucMed) programme, while one candidate from Ghana enrolled as an affiliated student for 6 months radiopharmacy training.

Colleagues from Nuclear Medicine at GSH and RXH frequently request advice from the Tygerberg Nuclear Medicine team. Opinions are also sought from time to time by colleagues working in private practice in the Western Cape and elsewhere in the country.

Partnerships

National:

Nuclear Medicine consultants' involvement in the activities of the College of Nuclear Physicians (CNP) of the Colleges of Medicine of South Africa (CMSA) continued. Prof. J. Warwick served as president of the CNP, while Prof. A. Ellmann served on the CNP council. Prof. Warwick is also a member of the CMSA senate and the Finance and General Purposes Committee of the CMSA. Several members of the consultant team served as examiners, convenors or moderators for the FCNP examinations.

As past president, Prof. Warwick continues to serve on the council of the South African Society of Nuclear Medicine, while Dr A. Doruyter and T. Moalosi have been elected to the positions of nuclear physician and medical physics representatives respectively. Prof. S. Rubow serves on the Pharmaceutical and Analytical Committee of the Medicines Control Council.

Prof. Warwick remains a member of the Directors Advisory Committee for iThemba LABS. This board is responsible for providing strategic advice to the Director of iThemba LABS which is an important role player in both Nuclear Medicine and Radiation Oncology in South Africa.

Both Profs Rubow and Ellmann were involved in training of radiography students at the Cape Peninsula University of Technology. Prof. Rubow served as external examiner for a Masters' thesis for the University of the Western Cape. Prof. Warwick regularly acts as an external examiner for Masters and Doctoral theses for a number of other South African universities.

Tygerberg Hospital Nuclear Medicine continues to be primarily responsible for driving and coordinating the administrative aspects of generation of private revenue for the Western Cape Province from Nuclear Medicine studies at Tygerberg, Groote Schuur, and Red Cross hospitals. Proposals from the Division are an important driver of billing systems accepted for Nuclear Medicine at the level of the National Department of Health.

Scientific:

Several research projects are conducted in partnership with groups at the University of Cape Town, e.g. on Anxiety Disorders (Psychiatry) and PET/CT in tuberculosis. NM consultants are also involved in three research projects through the NTeMBI (Nuclear Technology in Medicine and Biosciences Initiative) project of Necea and Department of Science and Technology. Projects are focussed on developing tracers to evaluate cancers, infection imaging and brain

receptor imaging.

A researcher from Pretoria University and the Steve Biko Academic Hospital assisted the radiopharmacy team in setting up a labelling technique for a new PET radiopharmaceutical, which are being developed.

NM at Tygerberg Hospital provided expert services to Inkosi Albert Luthuli Hospital in Durban, optimising their programme on the Nuclear Medicine measurement of glomerular filtration rate. In the Radiopharmacy field, NM is collaborating with Sefako Makgatho Health Sciences University. A lecturer and a student from SMU spent several days at the Western Cape Academic PET/CT Centre to gain more insight in PET Radiopharmacy practice.

Private:

On request of one of the private NM practices in Cape Town, NM at Tygerberg Hospital provided expert services and training to perform the Nuclear Medicine measurement of glomerular filtration rate. Our expertise in the development of the software will be acknowledged in their reports. There is also active participation in the regular neuroendocrine tumour multidisciplinary meetings taking place in the private sector in the Western Cape.

International:

There is ongoing fruitful collaboration with international colleagues, who have also been appointed as extraordinary professors at Stellenbosch University. These colleagues are involved in teaching and research activities, but also advise on clinical activities when requested.

- Prof. P. Dupont, Catholic University Leuven, Belgium
- Prof. M. Mix, Medical University of Freiburg, Germany
- Prof. J. Pruim, University Medical Centre Groningen, Belgium

National PET project: Prof. A. Ellmann and Prof. M. Sathekge (UP) are the project coordinators for a national project SAF/6/019 supported by the IAEA titled *Strengthening clinical capacity in positron emission tomography (PET) in South Africa, including introduction of new radiopharmaceuticals in clinical practice*. This includes IAEA funding for human resource development, equipment acquisition, national workshops, expert advice and external auditing.

Prof. S.M. Rubow is the South African project coordinator for RAF/6/049 *Strengthening and Improving Radiopharmacy Services*, a project for African member states of the IAEA. She also planned and presented national training courses on *Safe Practice in Hospital Radiopharmacy* in Sudan and Kenya.

Prof. A. Ellmann is involved in several IAEA activities, amongst others:

- Audit activities under the IAEA's QUANUM (Quality Assurance in Nuclear Medicine) programme, amongst others attending a meeting in Vienna titled *Assessment of QUANUM missions*, to evaluate the success of the QUANUM programme
- National project coordinator for the AFRA project RAF/6/051, *Strengthening Education and Human Resources Development for Expansion and Sustainability of Nuclear Medicine Services in Africa*

Profs Warwick and Rubow were members of a South African Society of Nuclear Medicine team producing a webinar on *Use of Gallium-68 for production of radiotracers* for the European School of Nuclear Medicine.

Achievements w.r.t research activities and research outputs

Members of the NM team were co-authors of six publications in international peer reviewed journals.

Presentations at international congresses: Three papers were presented at the Annual Congress of the European Association of Nuclear Medicine, 15–19 October 2016, Barcelona, Spain, and one poster was presented at the 18th European Symposium on Radiopharmacy and Radiopharmaceuticals, Salzburg, Austria, 7-10 April 2016.

Presentations at national congresses: Nine papers and posters were presented at the 17th Biennial Congress of the South African Society of Nuclear Medicine (SASNM), 23-25 September 2016, in Pretoria. Three papers were presented at the Congress of the SA Association of Medical Physicists in Medicine and Biology, 6-10 September 2016, in Cape Town.

Teaching and Training (under, postgraduate and elective students)

Nuclear Medicine is involved in a number of lectures to MBChB students in the different blocks and in the Middle Clinical Rotation.

Dr Marguerite Morkel received the fellowship of the College of Nuclear Physicians of the Colleges of Medicine of South Africa in 2016 and the MMed (NucMed) cum laude in March 2017. Nelia Mambilima of Zambia received the MSc in Nuclear Medicine in March 2016, and Claudia Davids the MSc in Nuclear Medicine in March 2017. Dr X. Ndlovu (Zimbabwe) and T. Maftah (Tanzania) completed their studies and received the Fellowship of the College of Nuclear Physicians.

In 2016, nine registrars were enrolled for the MMed (NucMed), seven of which are supernumerary registrars from Ethiopia, Malawi (2), Tanzania (2), Uganda and Zimbabwe. Two completed their studies and returned home.

PhDs enrolled: Four students are enrolled for the PhD in Nuclear Medicine, namely Dr A. Doruyter, Dr J. Holness, J. le Roux, and Deidre Prince. A PhD proposal was submitted by Fany Ekoume from Cameroon.

Both Profs Rubow and Ellmann were involved in training of radiography students at the Cape Peninsula University of Technology. Prof. Rubow served as external examiner for a Masters thesis for the University of the Western Cape.

Special achievements and other highlights

Dr J. Holness (PhD scholar) was (jointly) awarded the Chris Jansen Memorial Medal for most promising young researcher in the field of Nuclear Medicine by the South African Society of Nuclear Medicine.

The Department of Science and Technology announced in October 2016 that a PET/CT research node for TB and other infection imaging will be established at Tygerberg Hospital as part of the South African Research Infrastructure Roadmap programme, to support research in South Africa. The PET/CT research centre will be established on the Tygerberg Hospital premises, but under the auspices of Stellenbosch University

Radiation Oncology

Prof. H.M. Simonds

Summary of activities

The Division continued to provide high quality care to cancer patients from the local and distant community. Radiotherapy workflow was improved with a move toward a paperless working environment and maximising the technical resources available in the division. Increasing use was made of third generation chemotherapy drugs due availability of cost-effective generics. Lack of access to targeted therapies remains a challenge in the resource-constrained environment.

Teaching and training activities were highly effective with a number of candidates being successful in the college exams and the Part II pass rate was 100%, compared to a national average of 60%. Trainees from Zambia, Namibia and Nigeria form part of the strong registrar group.

The Academic Year Day was a success with a numbers of members of the Division presenting their research

Resources/Staff

Posts (Full-time)	Filled
Professor	1
Head of Clinical Unit	1
Specialist	4
Registrar	5 + 5 supernumerary
Medical Officer	5
Radiographer	21 (full-time); 3 (5/8) 2 (community service)
Social Worker	3
Pharmacist	2 (full-time); 2 (rotate from main hospital)
Pharmacy Assistant	1
Nurses	Registered Nurses: 20 Staff Nurses: 8 Nursing Assistants: 18
Secretary	1
Typists	2
Clerks	9
Porters	10
Messengers	1

Equipment

Planning	
Wide bore CT	1
Planning system - XiO	3
Planning system - Monaco	1
Treatment units	
Low energy Linear Accelerator	1
High energy Linear Accelerator	2

Output

New patients	2 229
Outpatient visits	29 663
Speciality Clinics	8
Theatre procedures	801
Radiotherapy: New patients	1 736
Total RT visits	20 529
Total Portal images	11 298
Cone beam CT	49
VMAT	4
CT plan Conformal	853
PET/CT Plans	71
Chemotherapy: New patients	773
Chemotherapy administrations	7 316

Comment on output:

The number of new patients referred to the Unit remains stable. The complexity and technology of radiotherapy delivery continues to develop and there is a notable increase in quality assurance procedures in order to ensure safe delivery of treatment. The Division is fortunate to have such highly developed radiotherapy infrastructure, however the lack of available radiographer posts hinders full use of these highly technical units.

Part 2 Faculty of Health Sciences

Infrastructure development

Change management consultancy service with Elekta® to strengthen workflow in the Radiotherapy Unit and move to paperless radiotherapy planning, prescription and treatment.

Community outreach programmes/community services and interaction

International co-operation with training of supernumerary registrars from Zambia, Nigeria and Namibia

Proteahof hostel facility continues providing accommodation services for 20 rural radiotherapy patients. This venture is successfully sponsored by CANSA. Secured funding for expansion of the facility in 2017 for an additional 20 beds

Breast Cancer Awareness Day – hosted in the division and all TBH nursing staff invited. Sponsored by Astra Zeneca

The Africa Radiation Oncology Network (AFRONET) – Telemedicine meeting with colleagues across Africa hosted by the IAEA in Vienna

Partnerships

Inter-departmental:

Radiation Oncology-Pulmonology, collaboration on the utilisation of radiotherapy in infectious diseases. African Cancer Institute, collaboration on the development of an MPhil in cancer research

National:

Dr Heunis served on the SASCRO committee as a representative from the academic sector.

International:

Collaboration with MD Anderson Cancer Centre, Texas, USA, in the development of an auto planning radiotherapy system in a low resource setting

Achievements w.r.t research activities and research outputs:

One international publication from the Division
A number of divisional representatives presented at the Stellenbosch Academic Year Day

International congress poster presentations:

American Society of Clinical Oncology ASCO; Chicago. Dr D. Lombe (registrar) – receipt of the IDEA award (International Development and Education Award from the Conquer Cancer Foundation)

UICC (Global Cancer Control); Paris. Dr G. Paris, et al

National congress oral presentations:

SASGO; South African Society of Gynaecology Oncology; Gauteng. Prof. Simonds

RareX (Rare Diseases Conference 2016 featuring the 11th ICORD Annual Meeting) Cape Town. Dr H. Burger

National congress poster presentations:

SASGO: South African Society of Gynaecology Oncology; Gauteng. Dr L. Iiyambo (registrar); Prof. H. Simonds

Teaching and Training (under, postgraduate and elective students)

Introduction of the Oncology portfolio for undergraduate training in collaboration with MICO and Anatomical Pathology

Host of the College of Medicine (Radiation Oncology) 'OSCE' workshop to develop stations for the two sittings of the 2017 Part II examination

One elective undergraduate student from WITS University

There were five registrars in training posts and five supernumerary trainees

Four registrar candidates successfully passed the College of Medicine FCRadOnc Part II examination

Two registrar candidates successfully passed the College of Medicine FCRadOnc Part I examination

Prof. Simonds was a College of Medicine FCRadOnc Part II examiner and moderator

Prof. Simonds was an external examiner for the MMed Clinical Oncology in August 2016 - Muhimbili University of Health and Allied Sciences Dar-es-Salaam Tanzania

Medical Physics

Acting Head Prof. H.M. Simonds

Summary of activities

Despite the Medical Physics Division operating without a Head of Division for 2016, the staff managed to perform the daily, weekly and monthly calibrations and quality control procedures for all the treatment machines in the Oncology and Nuclear Medicine divisions. Unfortunately the necessary physics services to the Radiology Division could still not be provided due to the medical physicist post not being funded.

Prof. H. Simonds, Head of the Division of Radiation Oncology, provided support to the staff and managed the administrative aspects of the Division.

A key supporting staff member resigned early in 2016 and left after 30 years of service. That created a void that the other staff members had to fill. Miss Grobler took over the role of Mosaik (our patient verification system) administrator. The weekly QA measurements on the linear accelerators were divided between Mr Mohlapholi and Grobler. Du Toit became involved in daily checks of radiotherapy plans.

New volumetric arc therapy (VMAT) plans and dosimetry to allow patients to receive the state of the art treatment that they needed were compiled by the medical physicists.

Later in the year the treatment simulator reached its end of life and could not be replaced. The virtual simulation option on the CT scanner had to be utilised. Physics assisted with the implementation of this new method.

A decision was made in 2016 to go paperless with the patient files and we managed to reduce the paper printouts placed in the patient folders by placing everything on the Mosaik system. Patient plans were checked by medical physics on the new RadCalc program and acknowledged on the Mosaik system. This eliminated possible human error and reduced the paper printouts of results.

Dosimetry services were rendered to our client divisions, Oncology, Nuclear Medicine and Radiology. We succeeded in providing an effective radiation monitoring service to nearly 500 radiation workers. Du Toit acted as radiation protection officer for Tygerberg Hospital.

The HPCSA conducted their assessment of the Medical Physics Division and concluded that internship training of medical physicists may proceed, with the allocation of four positions. The current intern in Medical Physics, T. Mkhize, will complete his two-year internship at the end of March 2017.

During a visit from Dr Mix from Freiburg in Germany, the Lu-177 volumetric dosimetry was investigated and the PET/CT protocols for Head and Neck and Gynaecology Oncology patients were revised.

Courses in Radiation Physics and Medical Physics were presented to registrars, BSc(Hons) students and MMed students in the Nuclear Medicine and Oncology divisions, while our own staff members are all enrolled for either MSc or PhD studies. Two of the three students enrolled for the BSc (Hons) course passed their four Medical Physics subjects, and all MMed students passed their Part I Physics examination.

An ongoing collaboration between Medical Physics and the MD Anderson Cancer Centre in Texas to develop and test an automated planner to produce plans for cervix and head and neck cancers included Prof. Simonds and M. du Toit as part of the team.

Resources: Medical Physics

Posts (Full-time)	Number	Filled
Head of Medical Physics	1	0
Deputy Manager	1	1
Assistant Manager	1	1
Medical Physicists	2	2
Intern Medical Physicist	1	1
Radiation Laboratory Technologist	1	1
Medical Technologist	1	0
Radiographer	2	2 (one contract worker)
Auxiliary Service Officer	1	1
Secretary	1	1

Output

Nuclear Medicine

Procedure	Number
Stability tests on 5 doseimeters	500
Quality Control Procedures	1 100
Annual radiation protection 1 hour lecture	2
Induction on RP and Internal rules	4 new staff members
PET/CT QC Oncology	50
PET/CT QC Nuclear Medicine	12
Lu-117 administrations	21

Radiation Technology Laboratory

Alloy shielding filters	48
Plaster impressions	3
Jelly bolus	30
Wax build ups	90
Special devices (immobilization,positioning,etc.)	40

Medical Physics and Dosimetry for Radiation Oncology

PROCEDURES	TIME PER PROCEDURE	NUMBER OF PROCEDURES
Monthly Quality Assurance on Linacs	3 hrs	48
Qa after breakdowns	4 hrs	8
Monthly Quality Assurance on Simulator	1,5 hrs	10
Monthly Quality Assurance on CT	1 hr	12
Monthly Quality Assurance on TPS	2 hrs	12
Quality assurance on XVI	2 hrs	12
Dose measurements	0,5 hrs	92
Diode calibrations	0,5 hrs	92
Stability check on dosimetry equipment	10 mins (0,17 hrs)	27
Cross-Calibration of dosimetry equipment	2 hrs	2
Patient treatment plans checked	2 hr sessions/day	
VMAT plans	N/A	4
Radionuclide administrations	0,5 hrs for administration	16
Radiation monitors issued to TBH staff	N/A	5 700
Brachytherapy QA 3 monthly	3 hrs	4
Brachytherapy plans checked	N/A	200

Part 2 Faculty of Medicine and Health Sciences

Infrastructure development – upgrading, new equipment

Medical Physics prepared the specifications for the new electronic portal device to be installed on the 'baby' LINAC in 2017.

A wipe test counter and a new dose calibrator were installed in the Oncology "Hot lab". The acceptance tests were performed on the equipment and the dose calibrator is in operation to provide the correct Lu-177 and I-131 dosages. We could conduct our own leak tests on the sealed radiation sources used in Oncology.

The simulator reached its end of life and had to be decommissioned. The CT scanner's virtual simulation option was used to replace the simulator. It is hoped that the simulator can be replaced in 2017 by a CT scanner to reduce the extra burden placed on the existing CT scanner that had to take over this function.

Community outreach programs/community services and interaction.

IAEA activities: Medical Physics participated in activities of the IAEA (International Atomic Energy Agency) under auspices of AFRA (African Regional Co-operative Agreement for Research, Development and Training related to Nuclear Science and Technology).

Partnerships

National:

The Nuclear Medicine physicist maintained an involvement in the operation of REMACSA (Radiation Emergency Medical Advisory Centre of South Africa). REMACSA is a joint venture between ESKOM, the Stellenbosch University Faculty of Medicine and Health Sciences, the Western Cape Department of Health, Directorate: Radiation Control and iThemba LABS.

Du Toit and T. Moalosi served on the adjudication committee for the 2016 Academic Year Day Stellenbosch University, and Mohlapholi is member of SARPS committee.

T. Moalosi has been elected to the positions of a scientist as a medical physicist representative at the South African Society of Nuclear Medicine (2016-8) and is currently the examiner for the College of Medicine Physics Part I in Nuclear Medicine.

International:

Medical Physics maintained its collaborations with Prof. Dupont from the University of Leuven, Belgium (Nuclear Medicine Physics); Dr Mix from the University of Freiburg, Germany (Nuclear Medicine Physics); Prof. Pruim from the University Medical Center of Groningen, Netherlands (Nuclear Medicine Clinician), Prof. Schipani from the University of Glasgow, Scotland (Radiation Therapy Oncologist), and Benedek, (Medical Physicist) from Lund University, Sweden.

A new collaboration was formed between Medical Physics and the Oncology Division at Tygerberg/ Stellenbosch University with the MD Anderson Cancer Centre Texas, specifically with Dr Laurence Court, Medical Physicist. In this collaboration, medical physics play a key part in the development and testing of an automated planner that could be used in the rest of Africa for treatment of cervix cancer and head and neck cancers. This project will run for the next four years and provide a staff member for physics as well as research opportunities for physics staff.

Achievements w.r.t research activities and research outputs

Three papers were presented at the SA Association of Medical Physicists in Medicine and Biology in September, hosted in Cape Town, and one paper at the South African Society of Nuclear Medicine (SASNM) at the 17th Biennial Congress in September, hosted in Pretoria. All staff members were involved at the annual Academic Day in August at the University of Stellenbosch either presenting or adjudicating.

We are very proud of Tumelo Moalosi who completed his MSc. He obtained his degree in December 2016.

Grobler and Mohlapholi have ongoing MSc projects.
Du Toit continues to work on her PhD.

Teaching and Training (under, postgraduate and elective students)

Radiation Physics courses were presented to MMed students in Nuclear Medicine and Radiation Oncology. In addition, lectures were held for three BSc (Hons) (Medical Physics) students enrolled with the Department of Physics of the University of Stellenbosch. The Medical Physics Division followed their own CPD programme through the year presenting talks and discussion journals.

Special achievements and other highlights

The Head of Medical Physics position was advertised and a suitable candidate was interviewed and offered an appointment from February 2017. The period of review has been a challenging

year for Medical Physics due to staff shortages and no permanent Head of Physics, but we are proud of the camaraderie that has been established between colleagues and of the willingness of staff members to take on new tasks and still provide a good research output.

OBSTETRICS AND GYNAECOLOGY

Head of Department Prof Hennie Botha

Prof. J.N. de Villiers was the first Head of Department and he held this position until 1970. Prof. W.A. van Niekerk then became head, this was the beginning of the Tygerberg Hospital (TBH) era. In 1983, Prof. H.J. Odendaal succeeded Prof. Van Niekerk. Prof. T.F. Kruger succeeded Prof. H.J. Odendaal in 2003. These heads of department made significant contributions towards the discipline of Obstetrics and Gynaecology, which led to international recognition. Prof. Theron succeeded Prof. Kruger in March 2010. Prof. G.B. Theron retired at the end of 2015, and Prof. M.H. Botha became the new Head of Department.



Prof Hennie Botha

Summary of activities

Our mission: We are committed to quality care, research and training. The team of people in this Department strives to provide people-centred clinical care that is based on the best scientific evidence. The gynaecology service strives to keep waiting time for services reasonable and maximise the use of a day theatre for minor gynaecological problems. The obstetric service works towards the improvement and extension of the infrastructure for the delivery of a safe and patient friendly service.

TBH serves as the referral hospital to the Metro-East region with a population of about 2 million people. Karl Bremer, Khayelitsha, Helderberg and Eerste River hospitals are the district hospitals feeding directly into Tygerberg. In addition, TBH serves as a tertiary referral hospital to the West Coast, Winelands and Overberg regions. Winelands-West and West Coast regions are served by Paarl Hospital, and Overberg and Winelands-East regions are served by Worcester Hospital.

Generation of external funds for research and sub-specialist fellowships is a priority for the Department. Fellows doing sub-speciality training in Reproductive Medicine, Gynaecological Oncology and Maternal and Foetal Medicine are trained in the department.

Resources

Posts (full time)	Number on establishment	Number filled
Head of Clinical Department	2	2
Head of Clinical Unit	5	5
Natural Scientist (specialist)	3	2
Subspecialist	3	3
Specialist	8	8
Registrar (1 each at Worcester and Paarl)	22	22
Medical Officer	15	15
Intern	13	13
Technologists	1	1
Radiographer	2	2
Posts (sessional)		
Specialists and Medical officers 5 persons – 35 hours per week	2	2
Number of Beds	Obstetrics	Gynaecology
	126	46

OBSTETRIC STATISTICS	2015	2016
EMERGENCY CENTER		
Visits to Obstetrics Emergency Centre Triage Area	9 064	8 741
Total number of deliveries	7 481	7 793
Normal vaginal deliveries	4 016	3 615
Forceps deliveries	12	16
Vacuum extractions	118	119
Breech deliveries	109	138
Caesarean section rate	46,3%	44,8%
Twins	392 sets	411 sets
Number of low birth weight babies < 2500g	3 100 (42%)	3 307 (39%)
Very low birth weight babies <1500g	1 103 (14,7%)	1 086 (13,9%)
Extremely low birth weight babies <1000g	504 (6,7%)	479 (6,1%)
Perinatal Mortality Rates (all deliveries)	70,3/1 000	52,5/1 000
Perinatal Mortality Rates (≥1000g)	38,7/1 000	27,1/1 000
Maternal deaths	16	20
EMERGENCY OBSTETRIC PROCEDURES		
Caesarean sections	3 465	3 493
Manual removal placenta	30	25
Postpartum sterilisations	51	38
Emergency hysterectomy	7	14
Repair of cervical tears	15	14
Re-look laparotomy	9	11
Repair of third degree tears	153	142
Removal of retained products	88	67
Wound debridement	7	14
OUTPATIENTS		
Second visit and high risk obstetric patients	24 426	23 362
New patients	55	54
Post-natal patients	291	225
Diabetic Clinic	890	701
Special Care Clinic	943	1 045
FOETAL EVALUATION CLINIC		
Antenatal foetal heart rate monitoring:		
Total number of patients	1 279	1 256
New patients	964	986
Follow-up patients	315	270
Twins	122	123
External cephalic versions	10	9
Dopplers:		
Total number of patients	5 783	6 141
Follow-up patients	1 967	2 365
Foetal evaluation referrals (back to AN clinic, HRC or C2A)	283	170
IN PATIENT WARDS		
Admissions to acute labour ward	11 083	10 203
Bed occupation rate labour ward	132%	95%
Admissions to antenatal ward	3 686	3 484
GYNAECOLOGY STATISTICS		
EMERGENCY CENTRE		
Visits to Gynaecology Emergency Centre Triage	4 346	4 831
ELECTIVE SURGERY		
Operative hysteroscopies (general theatre)	79	77
Vaginal hysterectomies	56	45
Abdominal hysterectomies	229	213
Radical hysterectomies	17	17
Laparotomies	73	98
Vaginal repair (anterior/posterior)	14	20

Laparoscopic surgical cases	186	218
OUTPATIENTS		
Follow-up patients (general gynaecology)	4 487	4 218
New patients (general gynaecology)	2 455	2 396
Endocrinology	577	589
Colposcopy Clinic	1 607	1 278
Andrology	353	371
Oncology	1 898	2 058
Cytology	141	134
Urogynaecology Clinic	1 082	926
TOP (evaluations seen at Gynaecology)	1 214	1 300
Family Planning Clinic	6 905	7 078

General Specialist Services

Prof. G.S. Gebhardt

Summary of activities

The GSS manages the acute O&G emergency areas (the 19-bed labour ward, obstetric triage, gynaecology triage, elective Caesarean section theatre and 24-hour emergency theatre) as well as 113 ward beds: 42 antenatal, 44 postnatal and 21 gynaecology. This platform manages the service in which all undergraduate- and postgraduate training (apart from the registrar sub-specialist training) takes place and all the general specialists are senior lecturers on the joint Stellenbosch University platform and share in the teaching, training and research activities of the academic department.

At the beginning of 2016, a decision was made to move away from the term 'general specialist platform' for the following reasons: The Department of Health has abandoned attempts at separation of L2 and L3 services within Tygerberg on a clinical, nursing and managerial basis, instead the Department of O&G is managed as a single "Functional Business Unit" that includes head of general services, medical managers, nursing managers as well as the academic head, who chairs the group. Several of the 'general specialists' in the meantime completed subspecialist training and assist with the duties of the subspecialist units. There are also general specialists who developed special interest niches that expanded into highly specialised units recognised by the university for training (e.g. family planning, minimal invasive gynaecology) but not by the HPCSA as a subspecialty. At a clinical level, the general specialists take responsibility for all emergency services and all clinical services not included in the subspecialist units, regardless of level of care, by virtue of need. Tygerberg Hospital was re-classified as a National Central Hospital and Khayelitsha and Karl Bremer classified as Level 1+ (large metro district hospitals), with no stand-alone 'level 2' or regional hospital in Metro East (like Paarl or Somerset). The new Helderberg Hospital (350 bed regional) will not be completed in the next five years' time. Thus, plans are needed for the general specialist services within Tygerberg for the next five years until the new regional hospital is built. There is still a need to define services according to level of care in terms of referral routes, post allocation and health planning (L1, L2, L3) as recognised in the 2030 health plan.

For these (and other) reasons, the O&G "General Specialist Platform" was rebranded as the full 'clinical platform' (with existing subspecialist units that remain nested within the clinical platform) as this was in any case the current reality. There was no change in line management of existing general specialists or subspecialists. This clinical platform remained responsible for all general O&G services, Family Planning, TOP, laparoscopic training, emergency services and links with sub-specialist units. The previous outreach service was now more focussed on support of the district platform in terms of governance and less in terms of actual service delivery. The general specialist head (head of clinical services) will be assisted by an obstetric specialist with similar administrative time allocation in the job description to manage the obstetric services across the L1/L2 platform and maintain links with/support L3 obstetrics. This post started in March 2017 with the appointment of Dr Z.

Momberg. The performance plans of the general specialists will be adapted to reflect their current realities in terms of development/activities/tasks/interests. The previous “General Specialist Meeting” on Thursdays now became the “Metro East Service Coordination Working Group”, meeting once a month for Metro East coordination; with in-house meetings for hospital issues on an ad-hoc basis. One meeting per quarter will include the relevant MOU and district managers.

Resources

Post description (Full-time)	Number	Filled
Head: Clinical Department	1	1
Medical Specialist grade 1-3	6	6 (+1 from 1 March 2017)
Specialist District Obstetrician	1	1
Medical Officer	14	14
Registrars	16	16

Current O&G bed status	Number
Total maternity beds:	145 (includes 19 labour ward delivery beds)
<ul style="list-style-type: none"> Currently designated and utilised as subspecialist beds 	28
<ul style="list-style-type: none"> Currently designated and utilised as general specialist beds 	98
Total Gynaecology beds	46
<ul style="list-style-type: none"> Currently designated and utilised as subspecialist beds 	15
<ul style="list-style-type: none"> Currently designated and utilised as general specialist beds 	21

Comment on output

The main gynaecology focus remained on training junior doctors in the basic management of gynaecological complaints, each session coupled to the development of a protocol for hospital use. The second year of the RCOG Leading Safe Choices pilot project (aimed at improvement in immediate post-partum family planning and abortion services) saw more than 900 intra-uterine devices inserted at the pilot sites, many of them at Tygerberg Hospital. Redevelopment of the current gynaecology triage was not concluded in the 2016/2017 fiscal year and is carried over to the new year. This development will include a two-bed acute stabilisation/resuscitation area that can be used for local day-theatre cases as well (manual vacuum aspiration of miscarriage) as to improve bed management in the gynaecology wards.

The obstetric services remained under severe pressure during 2016, and this was exacerbated by a shortage of theatre staff and subsequent loss in theatre time for elective CS. The waiting time for elective CS (admission to operation) increased to five days and

extra cases were done over weekends to accommodate the case load.

Community outreach programmes/community services and interaction:

During 2016, the monthly training programme in essential obstetrics skills (ESMOE) continued in collaboration with Stellmed. Two permanent consultants were appointed at Khayelitsha Hospital and two are envisaged for Karl Bremer Hospital as well. This will aid in the development of the district platform and outreach programme.

Collaboration

Specialist collaboration is reflected in the subspecialist and special interest reports.

Human Genetics

Dr Mike Urban

Human Genetics functions within our Clinical Department.

Please refer to Prof. Walzl's annual report as Human Genetics information has been listed in his report.

Family Planning Unit

Dr J. Kluge

Summary of activities

- Provision of family planning services including male and female methods
- Referral centre for peripheral clinics in the Metro East and the greater Western Cape Province
- Training of nursing staff, medical students and registrars in the provision of family planning
- Outreach training of nursing staff

Resources

Posts (Full-time)	Number	Filled
Specialist	1	1
Registrar	1	1
Nursing Manager	1	1
Senior Nursing staff	2	2
Senior Auxiliary Nursing staff	1	1
Secretary	1	1

Output

Year	2015	2016
Female Programme		
Patients counselled		
- In Family Planning Clinic	7 752	7 925
Doctor consultations	678	355
Sterilisations performed at time of c/s, postpartum & interval	1 266	1 362
Hysteroscopic sterilisation (ESSURE)	10	12
Failed sterilisation (pregnancies)	4	1
Emergency contraceptive use	52	46
Intrauterine contraceptive device (IUD) insertions (interval, at Caesarean section, post vaginal birth)	207	672
- Post vaginal birth		119
Implanon Nxt® inserted (contraceptive implant)	2 167	1 380
Implant (Jadelle/ Implanon Nxt) removals	239	231
Cervical Smears		
Total taken	225	226
Male Programme		
Consultation before vasectomy	489	519
Vasectomy done (service provided by the urologists)	179	185

Comment on output

Provision of Long Acting Reversible Contraceptive (LARC) Methods (i.e. IUDs and subdermal implants)

The Leading Safe Choices (LSC) programme was implemented at Tygerberg Hospital as one of six pilot sites with the Cape Town Metro in 2016. The LSC pilot programme aims to strengthen the competence, and raise the standing of reproductive healthcare professionals in South Africa and Tanzania. One main focus of the pilot is the training programme for healthcare providers in post-partum family planning (PPFP) and comprehensive abortion care (CAC) to increase the quality of services provided. Twenty-nine midwives and Professional Nurses attended a two-day course on post-partum family during 2016. Four of whom have been certified competent to independently insert post-partum intra-uterine devices after a vaginal birth after further in-service training. This allows women to have more contraceptive choices post-partum which is an ideal time to receive family planning to prevent closely spaced and unplanned pregnancies.

Implanon Nxt insertion numbers have declined but are still satisfactory. One of the reasons for this is the National Department of Health's recommendation that HIV positive women who are using Efavirenz containing antiretroviral therapy should be advised not to use subdermal implant contraceptives due to its reduced efficacy as a result of the ARVs.

Both Professional Nurses working at the Family Planning Clinic were trained on how to remove the subdermal implants, which have aided to decrease the waiting time for this procedure as this was previously only being performed by the doctor.

Faculty of Health Sciences

Teaching and Training (undergraduate, postgraduate and elective students)

Both undergraduate and elective students have to attend sessions at the Family Planning Clinic as part of their rotation within Obstetrics and Gynaecology. The registrar in Obstetrics and Gynaecology conducts two clinics a week where complex contraceptive problems are addressed.

Gynaecological Oncology

Dr F.H. van der Merwe

Summary of activities

The Unit of Gynaecological Oncology has once again experienced a very busy and productive year during 2016. The sharp increase in the number of new patients over the previous two years has plateaued somewhat. The first priority still remains patient-centred clinical service delivery to women with gynaecologic cancers. The Unit prides itself in this and has succeeded in this. We have not experienced a reduction in waiting time for surgery – it is still beyond six weeks, which is not ideal. Various measures have been implemented to reduce waiting time for surgery. These include a monthly theatre list in Paarl Hospital since Dr Heloïse le Riche (a qualified gynaecologic oncologist) was appointed as a consultant at Paarl Hospital. Furthermore, we utilise additional theatre time afforded to the Unit by the general gynaecology firms.

Patients presenting to the Unit were managed by a multidisciplinary team and we appreciate the close working relations with colleagues in other departments. These include, but are not limited to Prof. Hannah Simonds of Radiotherapy, Dr Pieter Barnardt of Chemotherapy, Dr Rubina Razack of Anatomical Pathology, as well as the departments Urology, Plastic Surgery, General Surgery and Radiology. Our collaboration with Drs Anton Lambrecht and Tim Forgen from the Colorectal Unit of the Department of General Surgery is extremely valuable since the surgical treatment of patients with advanced ovarian carcinoma often involves bowel surgery and this allows us to offer patients with ovarian cancer better surgical outcome. We are very grateful for the service rendered to our patients by Mrs Resandt from the Social Work Department – she joins us on a regular basis on ward rounds and takes care of all social needs of our patients. The pressure on our colposcopy service has eased a bit because of the colposcopy services in district facilities in our referral area and by referring patients post-treatment to their referral clinics for follow-up cervical cytology.

Important priorities of the Unit include teaching, training and research. Drs J. Butt and M. Feketschane have completed their training as fellows in the Unit. Both of them have successfully done their Certificate in Gynaecologic Oncology exams during April and May 2016. We are very proud of them and will follow their respective careers. Dr R. Dusabe has almost completed his training as a full-time fellow and will do the Certificate in Gynaecologic Oncology exams during the latter half of 2017. His position is self-funded. Dr L. Terblanche has joined the Unit as a part-time fellow during 2016. Her position is also self-funded.

Prof. M.H. Botha was appointed as Executive Head of the Department of Obstetrics and Gynaecology from 1 January 2016. The Unit is very proud of him. Unfortunately, he had to vacate the post as Head of the Gynaecologic Oncology Unit. Dr F.H. van der Merwe was appointed in this position as from 1 November 2016. The Unit has unfortunately lost its second full-time Senior Specialist position at the same time, which makes it difficult to meet the challenges of clinical service delivery within the Unit. We are however grateful for Dr Butt who spends 50% of her time in clinical service delivery in the Unit. Dr C. Prins had to give up his sessions in the Unit at the beginning of 2016. Fortunately, Dr L. Hugo took up his sessions as from June 2016.

The Unit collaborates with various other units with regard to research. The collaboration with the Gynaecologic Oncology Unit at the University of Pretoria, which lead to the VACCS study, is continuing and we are working on a number of research proposals. Two of which will start as studies during 2017. We have collaborated with colleagues at the Department of Public Health at the University of Cape Town on a project on colposcopy services. Results from this research project should be published within the next year.

Posts (Full time)	Number	Filled
Head of Clinical Unit	1	1
Senior Specialist	0	0
Fellow Gynaecologic Oncology (external funding)	2	2
Registrar	1	1
Chief Professional Nurse	1	1
Typist	1	1
Clinic Clerk	1	1

STATISTICS

New patients managed by the Unit for Gynaecologic Oncology:

	2015	2016
Carcinoma cervix: New	344	305
Recurrence	2	3
Uterine tumours: Carcinoma endometrium	74	70
Uterine Sarcoma	18	24
Fibroid uterus (complicated)	1	4
Ovarian tumours: Carcinoma ovary	59	50
Benign ovarian tumours	12	18
Primary Peritoneal Carcinoma	2	3
Vaginal tumours: Carcinoma vagina	1	4
Malignant Melanoma	1	0
VAIN III	8	12
Leiomyoma	1	0
Carcinoma Fallopian tube	-	1
Vulva tumors: Carcinoma vulva	25	32
VIN III	12	4
Warts	2	5
GTD: Molar pregnancy	12	12
Choriocarcinoma	7	10
Persistent GTD	2	1
Other: Unknown primary	8	6
Unknown diagnosis	9	-
Breast carcinoma	1	3
Stomach carcinoma	1	-
Bladder Carcinoma	1	1
Peritoneal Tuberculosis	1	-
Malignant Mesothelioma	1	-
Carcinoma Urethra	1	-
Primary Appendix Adenocarcinoma	1	-
Endometriosis	-	3

	2015	2016
Total cancer patients: New	6	456
Follow-up	13	
	15	1 549
	41	
Colposcopy Clinic:	101	863
New	0	
Follow-up	53	457
	7	
Cytology Clinic:	22	53
New		
Follow-up	112	84
Staging Clinic:	61	633
	3	

Procedures		
LLETZ	855	513
Cervical biopsies	628	485
Cytology cervix	645	254

Outreach Programs

Gynaecological Oncology

- The Unit for Gynaecological Oncology visits Worcester and Paarl hospitals on a fortnightly rotation. The aim of the visits are:
 - Follow-up assessment of patients who completed treatment for gynaecologic cancers.
 - Evaluation of new patients in order to ascertain management in the local hospital and relevant referral.
 - Training of specialists, registrars and medical officers working in these hospitals.
- The Unit is involved in the provincial screening programme for cervix carcinoma and also provides training in cervical cytology in the rural areas
- Continued medical education (CME) remains a priority of the unit and outreach programmes towards the rest of the public sector in the Province in terms of CME activities were an important focus
- The team continues outreach visits to the referral hospitals in East London

M.H. Botha, F.H. van der Merwe and J. Butt

- Prof. Botha, Drs Van der Merwe and Butt are members of the International Gynaecologic Cancer Society (IGCS), and Prof. Botha serves on the IGCS council
- The Unit remains intimately involved in activities of the South African Society for Gynaecologic Oncology. Dr Van der Merwe serves on the executive committee as Treasurer
- Prof. Botha and Dr Van der Merwe are involved in examinations for the Colleges of Medicine of South Africa

Collaboration

- The Unit collaborates in research projects with the University of Pretoria and the University of Cape Town

Publications:

Thirteen Articles in journals during 2016 and 2 chapters in textbooks.

Reproductive Medicine

Dr T. Matsaseng

Summary of activities

Surgery utilising microsurgical principles is performed in the S & T theatres and our Unit is one of the few endoscopic theatres providing a service in an academic hospital. In addition, we have an outpatient theatre for endoscopic procedures (± 60 hysteroscopies per month), which results in a huge saving to the hospital [± 500 cases done for 2016].

The Andrology Unit provides a service for the region and helps patients with infertility, cancer patients, family planning patients and urology patients. Freezing of semen and oocytes is also offered for cancer patients requiring this service.

The In Vitro Fertilization Unit offers a low cost assisted reproduction service (IVF) to patients, reaching out to the needy and the marginalised.

The Unit provides a specialised endoscopic surgery outreach programme in Paarl Hospital to take service to the community and to train and develop skills at regional hospitals. We also support and continue development of skills amongst private gynaecologists in the Western Cape.

The Unit is an accredited HPCSA training facility for Clinical Technologists, Medical Biological Scientists in Reproductive Biology and Subspecialist fellows in Reproductive Medicine. Each year, 2 to 5 students undergo theoretical as well as practical training in Assisted Reproduction Techniques (ART) in both the Andrology and Fertility laboratories. Besides training in ART techniques, they also enrol as Honours or MSc students under the guidance of chief- and senior specialist scientists in this unit. Dr Vincent Molelekwa from Botswana (Botswana government funding) completed his subspecialist training in 2016 and is now back in Botswana. It is a proud moment for all especially in our endeavour to empower Africa. His vacant training post is occupied by Dr Gerhard Hanekom from Namibia, but trained in Bloemfontein. His studies are sponsored by the Mediclinic Group. Other fellows include Dr Jackson Ndlovu (self-funded, Tzaneen, Limpopo) Dr Pieta Geyser (self-funded, Klerksdorp) and Dr Mmaselemo Tsuari (self-funded, Johannesburg).

Resources

Posts (full-time)	Number	Filled
Head of Unit	1	1
Senior Specialist	1	1
Fellows/MPhil students	4	4
Registrars	1	1
Chief Specialist Medical Scientist	1	1
Assistant Director Medical Scientist	1	1
Medical Scientist	1	1
Clinical Technologist	1	0
Honours students	3	3
MSc students	2	2

Assisted Reproduction

ANDROLOGY	2015	2016
Number of semen analyses	598	532
Number of patients consulted at Andrology lab	694	650
Number of post-vasectomy patients (included in total)	156	120
Wet semen preparations examined	598	532
Semen counts performed	445	399
Samples examined after centrifugation	186	150
Supravital semen stains evaluated	22	18
Semen morphology smears prepared	1 552	1 264
Semen morphology smears stained	1 552	1 264
Sperm morphology evaluations performed	3 100	2 550
Antispermatozoa antibody tests performed	291	200
Reports placed on computer system	598	532
Fructose tests (Azoospermia samples)	31	29

IN VITRO FERTILISATION (IVF)	2015	2016
Patients aspirated	236	355
Number of ova and embryos handled	1 320	1 562
Number of frozen embryo transfers	-	9
Semen samples prepared for ova inseminations	230	360
Number of patients receiving embryo transfers	186	260
Semen samples prepared for IUI	33	54
Number of Testis biopsies done	7	29
Number of semen samples frozen	45	40
Number of embryo freezing done	6	10

In 2016 there was a slight decrease in Andrology and a significant increase in IVF procedures performed. Due to the substantial increased activity of the IVF programme (Low cost model), there were remarkably more IVF patients treated compared to 2015 and that lead to a high increase in the number of emails and consultations with patients, as well as semen samples, ova and embryos handled in the laboratory. In June 2016 the Unit also lost a staff member and the post is still vacant.

Output

The Unit provide general gynaecology services and also support the general Obstetrics

platform. It also provides specialised assisted reproductive services, Andrology, reproductive endocrinology and advanced gynaecological endoscopic services. The Unit support Paarl hospital on an outreach basis – providing endoscopic surgery services and training. The RMU provide teaching and training to undergraduate MBChB students and postgraduate MMed (O&G) registrars and MPhil/Certificate (Reproductive Medicine) fellows. This goes together with teaching and training of MSc students. We also provide research and development in reproductive biology.

Comment on output

The Unit has experienced an increase in work volume both from the general and specialised services. The presence of the fellows, who are qualified specialists, really adds value to our service delivery mandate even though they are on self-funded training posts. Therefore to maintain good quality care and to minimise risk, building and strengthening of capacity is necessary and quality assurance policies should always be adhered to.

Faculty of Health Sciences

Infrastructure development – upgrading, new equipment, etc. (highlights)

The Unit (IVF laboratory) managed to acquire a much needed incubator (bench top MIRI) further enabling teaching and training of fellows and reproductive biology post graduate students over and above its service delivery obligations. The new incubator has also shown to have a significant positive impact on the outcomes in the Laboratory.

Community outreach programmes/community services and interaction.

The Unit provides a specialised endoscopic surgery outreach programme in Paarl Hospital to take service to the community and to train and develop skills at regional hospitals. We also support and continue development of skills amongst private gynaecologists in the Western Cape. The effort has and continues to improve overall women's health. The RMU has really made inroads in making ART treatment accessible to the people of the Western Cape and the country as a whole. This is in line with MDG and the National Ten Point Plan to provide equal good quality care, especially to women in the marginalised communities.

Partnerships (National, International and Private)

Dr Marie-Lena Windt-De Beer is associated with the South African Society for Reproductive Sciences and Surgery (SASREG) via (ESIG).

Dr Matsaseng is the member of SASREG & SASOG.

Prof. R. Menkveld works with Dr J. Rhemrev, Bronovo Hospital, The Hague, Netherlands. Dr L. Björndahl, Karolinska Institute, Stockholm, Sweden. Prof. C. Barratt, Reproductive and Developmental Biology Group, Division of Medical Sciences, University of Dundee, Scotland, UK. Dr D. Mortimer, Oozoa Biomedical Inc., Vancouver, Canada

Dr Matsaseng and Prof. Kruger are working with Prof. Ombelet from Genk Institute in Belgium.

Dr Matsaseng works with Prof. J. Land from UMCG in Groningen Institute in the Netherlands.

Research activities and research outputs:

Number of publications from the unit

Six Journal articles have been published from the Unit for 2016.

Textbooks and contributions to textbook

Dr Matsaseng is the co-editor of the prescribed gynaecology book for the under- and postgraduate students. Drs Matsaseng, Nosarka and Windt de Beer are also contributing authors.

Teaching and Training (under, postgraduate and elective students)

The Unit is an accredited HPCSA training facility for Clinical Technologists, Medical Biological Scientists in Reproductive Biology and Subspecialist fellows in Reproductive Medicine. Each year, 2 to 5 students undergo theoretical as well as practical training in Assisted Reproduction Techniques (ART) in both the Andrology and Fertility labs.

The Unit also continues to provide high standard of teaching and training to undergraduate and

postgraduate (MMed) students.

Special achievements

The Tygerberg Low Cost Model of IVF was featured on Al Jazeera International TV Network and the clip is available on YouTube. The model significantly improved access to ART services to childless couples in and around the Western Cape Province. As part of MDG & the National Health Ten Point Plan we aim to improve the equal access to health and to improve overall health of women.

Minimal Access Gynaecological Surgery

Dr V. Thomas

Summary of activities

- Service delivery for general gynaecology, clinics and after hours duties
- Specialised services offering endoscopic surgery for reproductive medicine and urogynaecology
- Specialised service developing a new tertiary referral centre for endometriosis
- Training of registrars and fellows in endoscopy

Resources

Posts (Full-time)	Number	Filled
Consultant	One	Yes
Posts (sessional – how many hours worked per week)		
Nil		

Output

Training post graduate:

Registrars have been introduced to a formal training programme for Level 1 Endoscopy. In the past year, four registrars have received the WINNERS Part 1 certificate. These registrars are now capable of advancing to Level 2 in the next year. Six new registrars have been identified to complete this level in the next 12 months. Weekly tutorials are held for senior registrars focused on endoscopic surgery.

Fellowship training:

Dr Annelize Barnard has been in the fellowship post since April 2016. She has competed at national level and won the national prize. She has competed internationally and won second prize at the ESGE Fellowship competition.

Research:

Two registrars have completed their dissertations in 2016.

Dr A. Barnard: The reproducibility of the Least Functional Score

Dr I. Johnson: Retrospective audit of the surgical management of ectopic pregnancies at a tertiary university hospital.

Endometriosis Referral Unit

Established in late 2016

So far, 24 patients who would not otherwise have been diagnosed with deep infiltrative disease have been fully worked up and surgically staged for surgery. The first ever segmental bowel resection at Tygerberg Hospital was performed in November 2016. The patient is doing very well with almost no residual disease and no compromise to systemic function. Since then the other patients have been allocated to their necessary surgery, namely segmental excision,

discoid excision or shaving. Tygerberg Hospital is the only tertiary hospital in South Africa offering this type of surgery. We are proud of this fact.

Comment on output

For the number of staff this Unit is performing as can be expected.

Faculty of Health Sciences

Infrastructure development – upgrading, new equipment, etc. (highlights)

A new training skill lab has been developed (Sunskills). This is perfect for training. A new training room for suturing on the hospital grounds has been established. Two new laparoscopic stacks are needed for the sterilisation theatre and for emergency surgeries in C2A. An ultrasound machine is needed for the workup and diagnosis of deep infiltrative endometriosis.

Community outreach programmes/community services and interaction.

We are working with Karl Bremer Hospital and Khayelitsha Day Hospital to start endoscopic services.

We work closely with Mthatha General Hospital and offer training for their consultants and registrars.

Dr V. Thomas and Dr T. Matsaseng performed live surgery in Mthatha and offered training

Partnerships

National:

Dr J. Vd Wat: Endometriosis centre at Parklane Hospital

Dr A. de Bruin: Endometriosis centre in Pretoria

AEVITAS: Private hospital in Cape Town offering endoscopy and endometriosis surgery

International:

University of Rouen, Prof. Horace Roman; Collaboration and introduction of a novel new technique in diagnosing deep endometriosis

GESEA / ESGE / WINNERS collaboration introducing a structured training programme for registrars and fellows

Achievements w.r.t research activities and research outputs:

Published article on safety in laparoscopic entry: A collaboration of experts around the world to issue a guideline on safe endoscopic entry techniques

Two registrar projects ready for submission for publication

One study by Dr Thomas still to be submitted

Textbooks and contributions to textbooks:

One chapter written in Clinical Gynaecology 5th Edition:

Teaching and Training (under, postgraduate and elective students)

All teaching of under- and postgraduate students are fully effective.

Obstetric Critical Care Unit & Obstetric Cardiology Service

Dr E. Langenegger

Summary of activities

Obstetric critical care services include Obstetrical Critical Care Unit (OCCU; 4 beds), Acute Postnatal step-down unit / Emergency High Care Unit (APN 3 beds). The obstetric critical care team also includes an obstetric outreach and management service to the intensive care units and the medical and trauma emergency units. Emergency transfers for critical care is also coordinated by the team. The team provides labour ward consultations and assists with resuscitation in obstetric areas.

OCCU admitted 520 critically ill patients during 2016 and provided effective critical care service for these patients, preventing long-term morbidity and mortality. Compared to 2015, there was a further decrease in OCCU availability, ICU availability and the incidence of antenatal admissions decreased. Two hundred and fifty patients received non-invasive ventilation support, and 130 patients were intubated and ventilated for an average time period of 41 hours. The availability of surgical and medical ICU beds further decreased. Only 31 intubated patients could be transferred to these units.

The critical level of care and demand increased. The Acute Postnatal Unit admitted 750 patients who met criteria for Level 2 high dependency care. Patients received invasive monitoring, intravenous vasoactive infusions, admitted with severe haemorrhage, massive transfusions and severe sepsis. There is a lack of sufficient nurses for this area and there are no funds to place a professional nurse on the floor. This area is mainly managed by the OCCU doctor and an enrolled nursing assistant.

The critical care admissions as well as patients qualifying for ICU (with no bed available) nearly doubled since 2011. The human resources decreased. The Unit Manager previously managed only the OCCU and APN, the area was extended to include an 8-bed sub-acute ward as well as the Level 3 obstetric ward. This impacts on in-service training, risk management and administration. There exists an urgent need to increase critical care capacity at TBH.

Current outreach to Worcester Hospital once a month:

Combined management of cardiac patients
Ward rounds

Multidisciplinary Obstetric Cardiac Clinic:

This newly established service consists of a team led by Dr Langenegger (maternal medicine and critical care), Dr Herbst (Cardiologist) and Dr J Burke (Anaesthetist)

It consists of an outpatient service as well as an in-hospital service for cardiac patients.

The clinic service provides quality cost effective service:

- Decrease hospital stay
- Patients assessment includes cardiology review, obstetric critical care plan, anaesthetic assessment
- On average 13 patients per clinic; 4 new patients and 4-7 Level 2 to 3 follow-up
- 130 cases managed during 2016
- No maternal deaths in this group
- Focus is to provide management plans, risk evaluation and refer patients back to Paarl and Worcester
- Complex cardiac cases are delivered in OCCU on Wednesdays

The service will now include cardiac MRI working together with University College London.

Resources

Posts (Full-time)	Number	Filled
Senior Specialist	1	1
Medical Officer	2	2

Output

	2015	2016
OCCU		
Admissions	690	550
Non-invasive ventilation	300	250
Invasive ventilation	151	130
Intra-arterial lines placed	670	500
Central venous lines placed	350	140
APN (step down & emergency high care if no OCCU bed):		
Admissions	1 010	750
For step-down care	610	N/S
Level 1/2 high care (no occu bed)	400	N/S
A lines	300	210
Intravenous labetalol infusions	188	230
Central venous lines	130	64

Comment on output

There is a serious lack of critical care resources at TBH and in the Metro West. By managing both OCCU and APN efficiently, additional critical care support could be provided. The case morbidity scores are increasing, critically ill patients remain in OCCU and APN for longer which reduces capacity. The APN Step-down Unit is currently being used as a step-down area and high care when no OCCU beds are available. This area must be strengthened in terms of human resources and infrastructure. The interventions reflect the frequency of acute severe morbidity at TBH and the referral area.

A permanent more experienced medical officer is urgently needed to be able to continue to provide the obstetric critical care and cardiac service.

The maternal mortality and long-term morbidity ratio per severe acute maternal morbidity (SAMM) ratio is the lowest in the country and compares with middle and higher income countries obstetric admissions to ICUs and outcome of underlying cardiac conditions.

Faculty of Health Sciences

Upgrading, new equipment: The OCCU and APN areas still needs infrastructure modifications

Community outreach programmes / community service: A new project is planned, which will be part of critical care outreach to Worcester Hospital, where two labour ward beds will be upgraded. Dr Langenegger will provided clinical support and training as well as outreach visits on a regular basis. Phillips will assist in providing equipment as part of a combined research project between the Stellenbosch University, TBH, Worcester Hospital and Phillips International.

Wits Critical Care Outreach

Dr Langenegger is assisting Dr L. Chauke to design a similar (OCCU) blueprint to implement in the tertiary hospital.

Dr Langenegger completed his PHD: "Establishing an Obstetric Critical Care Unit in a South African Academic Hospital". This blueprint will be used to establish an OCCU at WITS Teaching Hospital.

Partnerships

National:

Phillips International, combined research project
ESMOE master trainer
ESMOE editorial board
Basic ICU course master trainer
WITS

International:

FIGO: The OCCU blueprint will be included in the FIGO maternal mortality steering committee publication on improving obstetric care
University College of London: combined research; implement obstetric three-month rotation for the UCL obstetric medicine fellow
University of Nottingham UK
Royal Phillips
European development forum partner
WHO Future (advanced obstetric emergency and critical care services)
Basic ICU course master trainer

Research activities and outputs

Number of publications from the division	3
Textbooks and contributions to textbooks	3

Teaching and training

Obstetric Critical Care Curriculum FCOG II and MFM fellowship

New obstetric ventilation skills course: training registrars, fellows, interns, Master trainer for ESMOE and Basic ICU programmes

Special achievements and highlights

Joint research with University College London (UCL)
South African structured rotation for UCL obstetric medicine fellows
Continued joint research co-operation with the University of Nottingham
Initiated and motivated funding from Phillips International to expand critical care resources
European Union development partner
Obtained additional funding for AEMOC (Establishing Advanced Emergency Obstetric Units in Level 1 and Level 2 hospitals) project
Request from WITS to assist in THE DEVELOPMENT OF AN Obstetric Critical Care SERVICE

Maternal And Foetal Medicine Incorporating Obstetric Special Care

Prof. D.R. Hall

Summary of activities

Manages women with pregnancies at very high risk

Resources

:

Posts (Full time)	Number	Filled
Principal Specialist	3	3
Specialist	1	1
*Fellows with HPCSA numbers	3	3

*One part-time fellow successfully completed training. Two full-time fellows continued with training.

Output

	2015	2016
Diabetic Clinic	1 022	743
Special Care Clinic	1 114	1 068
Anaesthetic referrals	285	181
Cardiac Clinic	231	160

Faculty of Health Sciences

Health Research Ethics Committee of Stellenbosch University (Prof. D. Hall)

Committee for Post-graduate Education (Prof. D.W. Steyn)

Faculty board members (Prof. D. Hall; Prof. D.W. Steyn)

Partnerships

National:

Members of Maternal Mortality Commission (NCCEMD) assessors in Western Cape (Dr A. Moodley; Dr L. Vollmer)

Centre for Applied Ethics under Prof. A.A. van Niekerk (Prof. D. Hall)

Unit for Health Sciences Education under Prof. S. van Schalkwyk (Prof. D.W. Steyn)

International:

Prof. D.R. Hall works with:

International Society for the Study of Hypertension in Pregnancy: committee member.

- United Kingdom. Cochrane Collaboration: Working on systematic reviews. Status: ongoing
- Australia. Preterm prelabour rupture of membranes close to term trial. National Principal Investigator for South Africa. Status: Published in Lancet
- Australia. University of Melbourne, Australia. PIE (esomeprazole) and PI2 (metformin) trials in early, severe pre-eclampsia ongoing
- Canada. Member of the PRE-EMPT (pre-eclampsia & eclampsia monitoring, prevention & treatment) International Technical Advisory Group that oversees the entire research program in pre-eclampsia/eclampsia managed by Prof. P. von Dadelszen (University of British Columbia and WHO)

- Canada. Calcium and pre-eclampsia Study. A WHO co-ordinated study investigating the effect of pre-conception calcium on the incidence of pre-eclampsia. Status: Recruitment ongoing; 2x publications
- Canada. Universities of Cape Town, Montreal and Stellenbosch. An integrated health system intervention aimed at reducing type 2 diabetes risk in women after gestational diabetes in South Africa (IINDIAGO): a randomized controlled trial. Trial leader Prof. N.S. Levitt (UCT)
- United Kingdom. CRADLE (Community Blood Pressure Monitoring in Rural Africa and Asia: Detection of Underlying Pre-eclampsia and Shock. Status: Results phase

Prof. W. Steyn works with:

- Prof. D. Nieuhaus and associates on “Maternal Mental Health: a prospective naturalistic study of the short and long-term outcome of pregnancy in women with major psychiatric disorders”
- Prof. D. Nieuhaus and associates on “Medical students and implicit attitudes”
- Prof. A. Shennan and associates, King’s College, London. New initiative – initiating phase: Blood pressure measurement in pregnancy
- WHO Collaborating Centre for Research Synthesis in Reproductive Health, Geneva. Stepmag study
- Edgardo Abalos (Argentina), Lelia Duley (UK) and David Henderson-Smart (Australia) on Cochrane reviews on Moderate Hypertension in Pregnancy (Published 2013)
- Prof. P.S. Steyn (WHO, Geneva) on Cochrane review on Dopamine in pregnancy

Prof. G. Theron works with:

The FIGO Safe Motherhood Newborn Health Committee as an appointed member since May 2016. The initiative aims to improve global maternal and new-born health.

The International Maternal Paediatric Adolescent AIDS Clinical Trials Group (IMPAACT) as principle investigator of the following studies at the FAMCRU site:

- Protocol Vice-Chair for a randomised double blind placebo-controlled trial to evaluate the safety of immediate (antepartum-initiated) versus deferred (postpartum-initiated) isoniazid preventative therapy among HIV infected women in high TB incidence settings. Also sponsored by The National Institute of Allergy and Infectious Diseases (NIAID), The Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD) and Scientific Collaboration with the Tuberculosis Trials Consortium (TBTC) of the Centres for Disease Control and Prevention. Recruitment was completed in 2016 and follow-up will continue in 2017
- Pharmacokinetic properties of antiretroviral and related drugs during pregnancy and postpartum (IMPAACT P1026s) study. Principal investigator for the FAMCRU site of a multi-centre trial sponsored by The National Institute of Allergy and Infectious Diseases and the Eunice Kennedy Shriver National Institute of Child Health and Human Development. Recruitment is ongoing. Our site is the only site that has recruited women on both antiretroviral and tuberculosis treatment
- Open-Label, Dose-Escalating, Phase 1 Study to Determine Safety and Pharmacokinetic Parameters of Subcutaneous (SC) VRC01, a Potent Anti-HIV Neutralizing Monoclonal Antibody in HIV-1 Exposed Infants (IMPAACT P1112) study. Principal investigator for the FAMCRU site of a Multicenter, Domestic and International Trial sponsored by The National Institute of Allergy and Infectious Diseases (NIAID), the Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD) and the National Institute of Mental Health (NIMH). Recruitment for the study has opened in December 2015. Recruitment in 3 arms of the study was completed. A fourth arm using the newly developed slow release version of VRC01 is planned
- Phase III Study of the Virologic Efficacy and Safety of Dolutegravir-Containing versus Efavirenz-Containing Antiretroviral Therapy Regimens in HIV-1-Infected Pregnant Women and their Infants. A Multisite Study Sponsored by the National Institute of Allergy and Infectious Diseases, the Eunice Kennedy Shriver National Institute of Child Health and Human Development and the National Institute of Mental Health. Recruitment will commence during the second semester of 2017

PATH/Novavax RSM Maternal Immunisation Programme. The goal is to develop a safe, effective, affordable respiratory syncytial virus (RSV) vaccine to protect the youngest infants from severe disease in middle- and low-resource populations through effective immunisation during the third trimester of pregnancy. Recruitment of the first cohort commenced in December 2015, and the second cohort in November 2016.

Medical Research Council (MRC) funding was obtained for the development of a uterine balloon tamponade (UBT) device and to conduct a case series with the UBT. The UBT development was done by Sinapi Biomedical. The first patient for the case series was recruited in September 2016.

A new study (R01) with the title: Neonatal imaging as an early marker of neurodevelopment and predictor of cognitive performance in infants exposed to HIV and ART in utero and perinatal was successful in obtaining funding from the National Institute of Health. The principle investigator will be Dr Barbara Laughton and Prof. Mark Cotton will be a co-investigator.

Private:

Provide ongoing consultation to pregnant patients at very high risk managed by private participating obstetricians.

Number of publications from staff linked to Obstetric Special Care

Peer reviewed	6
Continuous Professional Development	3

Teaching and Training (Postgraduate students only)

Three PhD students. Three subspecialist fellows. One successful Cert. MFM. More than 10 Masters level students in O&G, 2 Masters level students in Pathology, 1 Masters level student in Nursing and 2 Masters level students in Health Sciences Education.

Special mention: A large number of postgraduate students.

Obstetrics And Gynaecology Ultrasound And Foetal Medicine

Prof. L.T.G.M. Geerts

Summary of activities

For six months of the year Prof. Geerts was on sabbatical leave. Referral criteria were amended in order to keep the workload to manageable levels and consultant back-up for clinical decisions and certain procedures was arranged for Dr Kerry Rademan, who was acting head of the unit during that time.

The output is mainly outpatient-based and the number of foetal medicine admissions remains limited because intensive outpatient surveillance is used to avoid long-term admissions.

Resources

Posts (Full-time)	Number	Filled
Principal Specialist	1	1
Chief Medical Officer	1	1
Chief Sonographer	2	2
Registrar	1	1
Subspecialty fellow (externally funded)		
Assistant Nurse	1	1
Typist (shared with O & G)	1	1
Clinic Clerk (shared with FEC)	1	1

Posts (sessional – how many hours worked per week)		
Senior Specialist	4 sessions per week	Filled
Medical Officer	5 sessions per week	Filled

Output

OBSTETRICS	2015	2016
Total visits	7 075	7 593
Twin visits	1 837	1 831
Foetal anomaly visits	1 912	1 850
Doppler visits	4 790	4 631
Invasive procedures	381 (including 20 transfusions)	311 (including 8 transfusions)
Foetal medicine clinic	434	565
Foetal medicine admissions	51	45
Level III visits	5 211	5 291

- Five hundred and forty new foetuses with foetal anomalies were seen of which 310 had major anomalies
- Of 266 prenatal genetic tests, 39 were abnormal (yield of 12,8% or 1:7.8)
- Nine hundred and twenty-five of the twin visits were for complicated twins

GYNAECOLOGY	2015	2016
Total visits	917	927
Level III visits	752	767

Comment on output

In spite of the amended referral criteria due to staff shortage, with longer scanning intervals for uncomplicated twins and fewer follow-up visits for foetal anomalies where possible, the total number of obstetric examinations remained high and stable. As appropriate, there was no decrease in the level III workload.

After implementation of the new approach to women of advanced maternal age in 2015 and the new risk calculation algorithm, we have experienced an improved patient flow, but our audit shows a very low uptake of confirmatory invasive testing when high risk results for aneuploidy are communicated to the patients (less than 20%). This is in spite of making use of an educational video (available in 3 different languages) and counselling being offered by formally trained genetic counsellors. As this is a very labour-intensive process, one would need to explore the reasons for this low uptake. The yield of our genetic testing remains high however, and there are a substantial number of terminations for severe foetal anomalies, so prenatal diagnosis as a whole can certainly not be abandoned. Late referral from referring units continues to be a major concern and puts undue pressure on the unit, both in terms of time, urgency and emotional strain related to late pregnancy terminations.

The increasingly severe obesity in the local population puts severe pressure on the staff as examinations are time consuming, physically demanding and of unsatisfactory quality in spite of best efforts. Higher quality equipment is needed but will only partially address the limitations.

We diagnosed three advanced abdominal pregnancies as well as an increasing number of cases with morbidly adherent placentas, where ultrasound significantly contributed to safe surgical management.

Faculty of Health Sciences

Infrastructure and development

The collaboration with the genetics team supporting our foetal medicine service has benefitted substantially from the availability of extra offices for counselling.

The subspecialist-led foetal medicine clinics deliver holistic care for women with complicated pregnancies requiring detailed foetal surveillance three days a week, with ad hoc cover on the remaining days.

With recognition of the impact of late onset growth restriction, and the limited capacity of the Ultrasound Unit to deal with all suspected cases, a protocol was drawn up to deal with such cases at the level II platform.

New equipment was requested to improve scanning quality especially of obese women. An exciting new development is the formal collaboration with the endoscopy team under the lead of Dr Viju Thomas, in order to set up protocols and training for endoscopic and other therapeutic prenatal procedures in e.g. complicated twin pregnancies (twin-twin-transfusion, selective growth restriction, etc.)

Both sonographers have updated their knowledge and skill particularly in the area of more advanced gynaecological scanning, e.g. in deep infiltrating endometriosis, to support the special interest area of minimally invasive surgery.

Community outreach programmes / community service

Prof Geerts and her staff continue to offer ultrasound courses with theoretical as well as practical training for private and public sector practitioners, with accreditation on a voluntary basis for those wanting to have their competence assessed in a similar way as the registrar training programme. An outreach course of similar format (sponsored by SASUOG) was offered at Frere Hospital, East London, and attended by 23 junior doctors working there.

Prof Geerts finalised the new ultrasound policy document for the Western Cape, which is still awaiting approval.

The subspecialist programme in foetal medicine is currently offered to two subspecialty fellows. As the need for advanced ultrasound skills in the community continues to increase, the Unit also offers foetal medicine training to Dr L. Nel, general practitioner, in preparation for independent practice.

The Foetal Medicine Unit makes a significant contribution to the training of Human Genetics specialists.

Partnerships

(USA) Harvard University, University of North and South Dakota, Columbia University and Boston University for the Safe Passage study. The topic of the main study is the effect of alcohol intake during pregnancy on still-births and sudden infant deaths. The ultrasound aspect focuses on the effects of alcohol on foetal development (mainly brain and face), growth and placental function. The effect on face development forms the topic of Prof. Geerts' PhD.

(TBH) The Foetal Medicine Unit and Department of Radiology work closely together on a prenatal MRI service, mainly for prenatally detected brain anomalies and suspected morbidly adherent placenta.

(Belgium) Dr Hannes VD Merwe is spending a four-year Erasmus Mundi Fellowship for his PhD in Foetal Medicine at the Catholic University of Leuven, Belgium.

(ISUOG) Prof. Geerts, in her capacity as SASUOG President, is collaborating with ISUOG (the International Society of Ultrasound in Obstetrics and Gynaecology) to co-host an International Scientific Meeting in March 2017 in Cape Town. Prof. Geerts also facilitates the ISUOG Basic Training course, preceding the congress, aimed at trainees.

(SASOG) Prof. Geerts has facilitated a workshop and session during the SASOG 2016 Congress in Sun City in May 2016. She also serves on the SASOG council.

Achievements

The one-day accreditation courses in obstetric ultrasound (aimed at different scanning levels and attended by private practitioners and employees of the public sector) are officially approved by SASUOG and were offered locally as well as during outreach (East London).

The one-day ISUOG Basic Training course for trainees is step one in a formalised ISUOG accreditation process, which will be expanded on in the future in SA.

Research findings of a prospective study on late onset placental insufficiency were published in an international peer-reviewed journal.

Results of a retrospective study on neural tube defects in our geographical area have been submitted for publication in an international peer-reviewed journal.

Staff members of the unit have developed SUNCAD, a congenital anomaly registry capturing all fetuses with major or multiple minor anomalies prospectively, for the purpose of audit and comparison with international registries. Nearly five years of data have been collected and some of the material is used for MMed dissertations of registrars.

Prof. Geerts successfully completed a training course to become a mediator, accredited by the UCT Faculty of Law.

Teaching and training

The junior registrar training programme in basic obstetric ultrasound skills benefits patient care from the early stages of their career.

The senior registrar training in detailed foetal assessment continues to surpass the current requirements of the College of O&G.

Routine teaching activities in the US Unit include tutorials for third years, practical demonstration; hands-on training and formal assessment of ultrasound skills for registrars in

O&G and Radiology, medical officers and sonography students of CPUT; weekly tutorials and journal clubs in foetal medicine related topics.

Prof. Geerts, with the assistance of Drs Rademan, Morris and Pistorius, is responsible for the Foetal Medicine module for the subspecialty training in Maternal and Foetal Medicine.

Prof. Geerts assists two O&G registrars, one consultant and one fellow with their research projects for MMed, MPhil or publication.

Film and Television Unit

Mr W. Myburg

Summary of activities

The Unit continues to produce DVD footage of a high quality for training of under- and postgraduate students.

Resources

Posts (Full-time)	Number	Filled
*Manager and Cinematographer	1	1

*Post is remunerated by Stellenbosch University

Output

Productions during 2016

Examination of the placenta

Translation from Afrikaans to English

Al die voëltjies vlieg – All the birds Fly

Subtitles

Subtitles for interview videos – Psychiatry

Comment on output

Taking photos of students

Broadcast videos to outpatient waiting areas

Setting up of all visual aids for lectures

Preparation of examination rooms for exams

Faculty of Health Sciences

Infrastructure development

New professional DVD production equipment has been purchased with funds generated by the Unit.

Teaching and training

Continuous support provided to the department regarding multimedia educational activities and OSCE and OSPE examinations.

Urogynaecology And Reconstructive Pelvic Surgery

Dr J.A. Van Rensburg

Summary of activities

The Urogynaecology Unit experienced an average year and was involved to host the IUGA meeting during August 2016 in Cape Town. Urogynaecology has been accepted as a subspecialty as reported by the HPCSA. However, the grandfather clause to provide trainers still needs the needed approval by the HPCSA and therefore a delay occurred to offer official fellowship training. SAUGA drives this process with representation of all Universities in RSA. Dr Van Rensburg is directly involved as he holds the secretarial position. Once this issue is resolved, the Urogynaecology Unit will have the opportunity to apply to the HPCSA for official registration as a Subspecialty Unit and hopefully in 2017. This will require a visit from the HPCSA to TBH with an appropriate inspection to decide about approval and accreditation. The Unit has established the needed infrastructure to qualify accreditation to accommodate a fellow.

A lack of personnel capacity at TBH Urogynaecology Unit resulted in the discontinuation of the combined Perineal Clinic at GSH. Complex TBH patient with anorectal problems where the BK Medical ultrasound investigation is required, were referred to the GSH Colorectal Unit. The local combined Perineal Clinic once a month at TBH with the general surgeons continued. At the end of 2016, Dr Tim Forgan, newly registered colorectal surgeon, has become officially involved at the combined Perineal Clinic.

Dr Van Rensburg was on sabbatical leave from middle October 2017 until end of December 2017. The GSH surgical team supplied the surgical service during this time at no extra cost. Dr Annalize Barnard, the fellow in minimal access gynaecological surgery (MAGS), delivered a sessional clinical service during this time. Dr Thomas, head of MAGS, was approached and now involved in the laparoscopic spectrum of urogynaecological procedures.

With the help of the Stellenbosch University, two sessional physiotherapists were accepted by the Director of Medical Services. Lonese Jacobs submitted her Master thesis in 2016 successfully and will graduate in 2017. Monique Koopman will start her Master thesis in 2017.

Resources

Posts (Full-time)	Number	Filled
Specialist	1	1
Physiotherapist / Research Assistant (part-time)	2	2
Sessional post (4 sessions)	1	1

Output

	2015	2016
New patients seen	224	176
Follow-up patients seen	848	668
Perineal patients		21
Urodynamic studies performed	83	44
Operative procedures performed	164	92

Comment on output

- **Surgery:**

Good co-operation with PGWC was established over the previous years, which involved the needed devices and equipment for complicated reconstructive surgery and incontinence surgery. However, at end 2016 limited progress was made with the needed awaited tenders for the needed surgical devices and consumables.

The surgical time within the Department was increased and established with a weekly full-day theatre list for the Urogynaecological Unit. Excellent collaboration between the Department of Urology and General Surgery exist, which enable us to perform combined procedures. The outreach surgery programme for the Paarl Hospital was performed in conjunction with the GSH Urogynaecology Unit every three months.

- **Urodynamic studies**

The Urogynaecology Unit is thankful for the new UDS machine provided by PGWC. This is state-of-the-art equipment. "Eyeball" or office urodynamics is now part of the norm as an option for UDS assessment which contribute to cost saving. Unfortunately, the machine broke during the sabbatical leave of Dr Van Rensburg.

- **The combined Perineal Clinic**

The combined Perineal Clinic continued in 2016 with the help of Dr Lambrecht from General Surgery during the maternity leave of Dr I. Conradie every third Tuesday of the month. Dr Tim Forgan, colorectal surgeon, joined the combined perineal clinic after his appointment as colorectal surgeon at TBH. He also involved Dr Rademann, colorectal unit from the Durbanville Medi clinic where TBH patients received evaluation of their anal sphincters with the state-of-the-art BK medical machine at no cost.

Faculty of Health Sciences Infra-structure development

The Urogynaecology Unit has no access locally to the BK medical Ultrasound and its rectal probe investigation for faecal incontinence at TBH. In a combined effort with the Department Surgery, the BK medical Ultrasound machine was kept on the wish list. (This equipment is on the wish list since 2006.)

The O+G Ultrasound Unit obtained a 4-D Voluson machine. Dr A. Steensma from the Netherlands introduced an Urogynaecology ultrasound program in January 2013 after the IUGA/SAUGA conference. Since then, pelvic floor perineal ultrasound are offered and performed for urogynaecology patients on a Friday. Dr Van Rensburg visited the unit of Dr Steensma in Rotterdam during 2015 and again in 2016 to obtain exposure to anal sphincter scanning with the Voluson 8 machine.

Community outreach programmes

The surgical list with outreach to the Paarl Hospital was shared between GSH and TGBH.

Partnerships

- **National:**

Dr Van Rensburg held the position of secretary on the SAUGA until end of 2016. He is also a committee member of the Cape Town Pelvic Floor Society.

A good working relationship was established between the UCT Urogynaecology Unit and the UCT Colorectal Unit.

- **International:**

Dr Van Rensburg is a member of the IUGA. Dr Van Rensburg was one of the committee members who was elected to host the International conference of IUGA in 2016 at the CTICC in Cape Town. Dr Thomas, Dr Cassiem, Dr Barnard, Lonese Jacobs and Monique Koopman attended the IUGA conference.

Achievements: Research and research outputs

Dr Van Rensburg was involved with the organisation of all workshops at IUGA 2016 at the CTICC

during August 2016. He chaired and hosted two individual workshops with an International faculty. Lonese Jacobs presented her accepted abstract as a poster presentation. Dr Van Rensburg contributed as a Reviewer for the International Journal of Urogynaecology.

Teaching and Training

The Urogynaecology Unit is involved on an ongoing basis in undergraduate and postgraduate training. However, no fellow was recruited or accepted during 2016.

The PASS Network

Prof. H.J. Odendaal

Summary of activities

The PASS Network was formed in 2003 through a cooperative granting mechanism jointly supported by two NIH Institutes – *Eunice Kennedy Shriver* National Institute for Child Health and Development (NICHD) and the National Institute for Alcohol Abuse and Alcoholism (NIAAA). Most recently, the National Institute for Deafness and Communicative Disorders (NIDCD) became a partner in this unprecedented effort. The PASS Network is comprised of five elements:

- Two comprehensive clinical sites serving high risk populations for stillbirth, SIDS and FASD
- Developmental Biology and Pathology Centre (Children’s Hospital, Boston)
- Physiology Assessment Centre (Columbia University, New York)
- Data Coordinating and Analysis Centre (DM-stat, Boston)
- NICHD, NIAAA and NIDCD program scientists

The Safe Passage Study involves recruitment and analysis of a prospective cohort of 12 000 maternal/foetal pairs in a longitudinal and multidisciplinary study design. It is designed to answer critical questions regarding the relationship between prenatal alcohol and other adverse exposures, stillbirth, the sudden infant death syndrome (SIDS) and foetal alcohol spectrum disorders (FASD) in infancy. The Safe Passage Study is the largest study in underserved populations to investigate interactions between environmental, genetic, maternal, and placental factors that affect foetal and infant growth, physiology, and brain development and how these interactions lead to adverse outcomes such as stillbirth and infant death. The extensive infrastructure and large investment in this cohort affords unique opportunities for collaboration and a well characterised cohort suitable for long-term follow-up and intervention studies.

Prof. Odendaal is the local principal investigator. Funding has been obtained up until the end of August 2016. Recruitment for the study has finished; 7 062 patients were recruited. The last baby was born in August 2015. The study will end in August 2016, when the last one-year follow-up will be done.

This is a unique cohort with comprehensive information commencing with early pregnancy and presently extending to the neuro-developmental outcome of the children in the cohort.

Head of Department Professor Mariana Kruger

Executive Summary

The inpatient admissions were stable at 15 564 in 2016 (9 906 children admitted to general paediatrics and 5 658 for highly specialised paediatric care) in the Department of Paediatrics and Child Health, Stellenbosch University in Tygerberg Hospital, serving the East Metropolitan region of the greater Cape Town and the North-Eastern districts of the Western Cape. The average bed occupancy rate (BOR) was 88% for general paediatrics and 69% for highly specialised paediatric services.



Professor Mariana Kruger

Two PhD degrees were awarded in 2016 to Dr A. Bekker and Ms M. Zunza, while 13 MMed (Paed) students completed their Master's degree in paediatrics and 3 paediatricians qualified as subspecialists (medical oncology, neonatology and infectious diseases). The undergraduate pass rate increased from 98% in 2015 to 99% in 2016. There are currently 11 enrolled PhD students. There were 102 peer reviewed articles and 6 chapters in books published by staff members. Twelve staff members have NRF ratings with 2 as category A2.

Proff. E.D. Nel, H. Rabie and R. Solomons were promoted to associate professor while Prof. P. Goussard was appointed as the clinical unit head for paediatric pulmonology. Outstanding achievements included Dr Heather Finlayson appointed by the Minister of Health to serve on the Ministerial Advisory Committee (MAC) on Antimicrobial Resistance (AMR), and Dr Elmarie Malek appointed as member of the Task Team for Commissioner for Children, Department of Health.

Constraints experienced due to the financial savings plan with less session holders filled, especially in Paediatric Neurology and Neurodevelopment. Another constraint was a serious shortage of nursing staff, especially in critical care. Both paediatric endocrinology and oncology services experienced service constraints due to increase in patient numbers and acuity of disease.

Professor Mariana Kruger

Part 1 Resources and Output

Human Resources

Posts (full-time)	Number	Filled
Professor/Chief Specialists	2	2
Chief Specialist	1	1
Principal Specialists	4	4
Senior Specialists	25+1(5/8)	25+1(5/8)
Senior Registrars	6 (8 Supernumeraries)	6 (8 Supernumeraries)
Registrars	32 (5 Supernumeraries)	32 (5 Supernumeraries)
Medical Officer	24	24
Posts (sessional – hours per week)		
Specialist	3 (27 hours)	3 (27 hours)
Number of beds	268	268

Summary of Output	2016	2015	2014
General Paediatrics			
Inpatients	9 906 (-11,8%)	11 238 (-1,5%)	11 410 (2,67% growth)
Outpatients	11 983 (-18%)	14 658 (-1,4%)	14 872 (11%)
Subspecialist Paediatrics			
Inpatients	5 658 (-4%)	5 902 (-2,7)	6 068 (3,8%)
Outpatients	13 224 (-1%)	13 384 (-1,5%)	13 595 (-3%)

Output

Subspecialist Paediatrics

Total patient admissions 2016 (Clinicom data)

*A9 NICU	A9 PICU	A9 High Care	Trachea Unit	G1	G3	G9	G10	Total
442	661	108	96	1 115	1 004	1 456	733	5 615

*A9 NICU includes High-care beds, since Clinicom cannot separate data.

Bed Occupancy Rate 2016(Clinicom data)

*A9 NICU	A9 PICU	A9 High Care	Trachea Unit	G1	G3	G9	G10	Total
88%	82%	25%	44%	91%	73%	73%	75%	69%

*A9 NICU includes High-care beds, since Clinicom cannot separate data.

Neonatology

Staff: Prof. J. Smith, Drs S. Holgate, G. Kali, J.C.F. du Preez, H. Hassan, L. van Wyk, L. Lloyd, 3 Senior Registrars (Dr N. Paulse, Dr M.W. Kariuki, Dr O. Agyeman), 6 Registrars, 7 Medical Officers

A9 Intensive Care Unit

Staff: 1 Consultant (on rotation), 2 Registrars, 1 Medical Officer

Beds n=8	2016	2015	2014
Admissions	442	506	473
Average Hospital Stay in Days	9	7,9	8,1
Average Bed Occupancy %	88%	88,4%	134%
% Growth	-12,6%	+7%	-3,6%
Deaths	76 (17,1%)	101 (20%)	88 (18,6%)

- Referrals from outside TCH (out-borns) (n) = 158; 35,7% of admissions
- Referrals for **therapeutic hypothermia** from referring hospitals (n) = 52; 22 from HHH and 20 from KBH

- Inborn babies for therapeutic hypothermia (n) = 45
- Total subjected to therapeutic hypothermia (n) = 97; 21,9 % of total admissions for 2016
- Cranial ultrasounds: 1 010 (whole service)
- Neonatal echocardiography: 600 (whole service)

Ward G1: Neonatal Unit – Babies born outside TBH

Staff: 2 Consultants (on rotation), 1 Registrar, 2 Medical Officers, 1 Intern

<i>Beds n=30</i>	<i>2016</i>	<i>2015</i>	<i>2014</i>
Admissions	1 115	1 152	1 168
Average Hospital Stay in Days	9	9,2	9,2
Average Bed Occupancy %	91%	95,3%	96%
% Growth	-3,2%	-1,3%	13,4%
Deaths	33 (3%)	36	30

A9 Paediatric Intensive Care Unit

Staff: Prof. P. Goussard, Drs N. Parker, Dr I. Appel, 3 Registrars, Medical Officer

<i>Beds n=10</i>	<i>2016</i>	<i>2015</i>	<i>2014</i>
Admissions	699	745	711
Average Hospital Stay in Days	5	4	5
Average Bed Occupancy %	82%	81,6%	97,4%
% Growth	-11%	4,6%	-10%
Deaths	60 (8,58%)	55 (7,39%)	76 (10,7%)
<i>Beds n=10</i>	<i>2016</i>	<i>2015</i>	<i>2014</i>
Admissions	661	745	711
Average Hospital Stay in Days	5	4	5
Average Bed Occupancy %	82%	81,6%	97,4%
% Growth	-11%	4,6%	-10%
Deaths	62	55 (7,39%)	76 (10,7%)

A9 Paediatric High Care Unit

Staff as mentioned above.

<i>Beds n=4</i>	<i>2016</i>	<i>2015</i>	<i>2014</i>
Admissions	108	220	333
Average Hospital Stay in Days	3,2	3	3,1
Average Bed Occupancy %	25%	45,2%	62%
Deaths	3	3	0

A9 Tracheostomy Unit

Staff as mentioned above:

<i>Beds n=6</i>	<i>2016</i>	<i>2015</i>	<i>2014</i>
Admissions	96	91	115
Average Bed Occupancy %	44%	69%	77,6%
Deaths	0	1*	0

Ward G9 Paediatric Pulmonology and Allergy

Staff: Prof. P. Goussard, Dr J. Morrison, 1 Senior Registrar (Dr L. Green), 2 Registrars, Shared Medical Officer in G9

<i>Pulmonology Beds n=10</i>	<i>2016</i>	<i>2015</i>	<i>2014</i>
Admissions Pulmonology	977	925	817
Average Hospital Stay in Days	5,6	5,7	5,8
Average Bed Occupancy %	94%	92%	89,5%
% Growth	9%	9%	27,5%
Deaths	2	1	0

Theatre procedures and Other Activities

- Bronchoscopies: 550
- Thoracic surgery: 63

Ward G9 Neurology

Staff: Prof. R. van Toorn, Prof. R. Solomons, Dr P. Springer, 1 Senior Registrar (Dr A. Thomas), 2 Registrars

Beds <i>n=10</i>	2016	2015	2014
Admissions	388	425	339
Average Hospital Stay in Days	6,1	6,2	5,9
Referral other wards	550	420	300
Average Bed Occupancy %	65%	68%	60%
% Growth	-8,8%	20%	-9%
Deaths	5 (1%)	3 (1,2%)	4(1,1%)

Other Activities

- Paediatric and neonatal EEGs reported by the 2 consultants: 587
- 6 Outreach clinics to Paarl Hospital (patients seen): 96
- 4 Outreach clinics Worcester Hospital (patients seen): 132
- 2 Clinics at Alta du Toit special school (patients seen): 45
- 8 Clinics Paarl School (patients seen): 90
- Autism Diagnostic Observations Schedule (ADOS) (patients): 16
- Griffith Developmental Scales assessments: 20

Ward G9 Paediatric Endocrinology

Staff: Prof. E. Zöllner, 1 Senior Registrar (Dr M. Grantham), Registrar, and shared intern for G9

Beds <i>n=5</i>	2016	2015	2014
Patients admitted	95 Diabetic	105 Diabetic	118 Diabetics
	167 Endocrinology	131 Endocrinology	106 Endocrinology
<i>Admission Subtotal</i>	262	236	224
Admissions other wards, day cases	14		
<i>Admissions total</i>	275		
Ward reviews	98		
Average Hospital Stay in Days	6	6	7
Average Bed Occupancy %	84% (not counting outliers)	80%	67%*
% Growth	17% (not counting ward reviews)	5%	24%
Rescheduled patients	46 (last 7 months of year only)		
Deaths	0	0	0

Endocrine tests performed; 114

Inpatient and outpatient workload has increased phenomenally over the last year – the latter mirroring the former. Patient numbers at diabetes and endocrine clinics have increased respectively by 5 and 4 % respectively.

Ward G10 Gastroenterology

Staff: Prof. E.D. Nel, 1 Senior Registrar (Dr J. Ikobah), Registrar, and one Intern.

Beds <i>n=9</i>	2016	2015	2014
Admissions	185	231	179
Average Hospital Stay in Days	11	8 (median 4,5)	7
Average Bed Occupancy %	75%	96%*	94%
% Growth	-19%	35%	-40%
Deaths	5 (2,7%)	5 (2%)	18 (10%)

*Clinicom data combined for gastroenterology and infectious diseases

Theatre procedures

- Paediatric Endoscopy: 67
- Adult Endoscopy: 273

Ward G10 Infectious Diseases Unit

Staff: Prof. M.F. Cotton, Prof. H. Rabie (HIV Clinic), Dr L. Frigati, Registrar, Shared Medical Officer for G7

Beds <i>n=14</i>	2016	2015	2014
Admissions	269	317	243
Average Hospital Stay in Days	14	12,7	12,5
Average Bed Occupancy %	75%	96%*	90%
% Growth	-15%	30%	28,57%
Deaths	2	2	4

* Clinicom data combined for gastroenterology and infectious diseases

- 10 new referrals per week
- Telephonic referrals: 20 per week (including outside calls)
- Stewardship rounds: 2 per week

HIV service:

- Total children followed up: 400
- Total New cases initiating and followed up at TBH: 88 children started (25 infants <12 months)
- Transfers out: 5
- Transfers in: 10

Ward G3 Oncology & Haematology

Staff: Prof. M. Kruger, Drs A. van Zyl, R. Uys, 2 Senior Registrars (Dr V. Netshituni, Dr E. Madzhia), 2 Registrars

Beds <i>n=9</i>	2016	2015	2014
New patients	43 Haematology	42 Haematology	40 Haematology
	72 Oncology	73 Oncology	56 Oncology
Admissions	759	678	596
Average Hospital Stay in Days	6,05	4,9	5,25
# Average Bed Occupancy %	148,25%	93,8%	74,3%
% Growth	10,67% in admissions 32,1% in day patients	12%	13,5% (**31,7%)
Deaths in G3	14	9	7
G3 Day Patients (Haem/Oncology)	2 806	1 905	1 421
Chemotherapy administrations for day patients	4 590	1 944	
Bone marrow aspirations and biopsies	143	122	83
Intra-theal procedures	263	286	269

Ward G3 Rheumatology & Immunology

Staff: Dr M. Esser, Dr D. Abraham (10 hrs per week), Registrar Shared with G3, Shared Medical Officer for G3

Beds <i>n=4 (shared with Nephrology)</i>	2016	2015	2014
Admissions	90	66	128
Average Hospital Stay in days	3	3	2
Average bed occupancy %		12%	86%
Deaths	0	0	0

Ward G3 Nephrology

Staff: Dr C.J. du Buisson, Dr J.L. Shires – part-time, Registrar shared with Rheumatology & Immunology, Shared Intern for G3

Beds <i>n=4</i>	2016	2015	2014
Admissions	134	240	184
Average Hospital Stay in days	5	5	5
Average bed occupancy %	45%	75%	86%
% Growth	# -44%	31%	26%
Deaths	0	0	4
Renal Biopsies*	21	24	14
Acute Dialysis**	12	25	20
Renal patients outside of G3***	354 26% increase	282	286
Referrals****	345	313	392

* Done in C4B Theatre under general anaesthesia, 4 biopsies where done in PICU

** All done in PICU and NICU

*** Most of our patients are not in our ward due to acute infections, and inborn neonates are cared for in neonatal wards, thus neonates diagnosed antenatally. More patients where seen outside due to lack of space within G3 as we share with oncology and our patients are infectious

**** These are patients seen and only advise needed, not continuous care

This decrease was due to the increased number of oncology patients admitted, necessitating admitting nephrology patients in G10 (data not captured)

Ward G3 & G10 Cardiology

Staff: Tygerberg Hospital (TBH): Dr J. Lawrenson, Dr B. Fourie, 1 Senior Registrar (Dr L. Swanson), 2 Registrars

Red Cross War Memorial Children's Hospital (RXH): 2 Consultants, 2 Senior Registrar

Beds <i>n=10 (G3=5, G10=5)</i>	2016	2015	2014
Admissions	171	194	194
Average Hospital Stay in Days	7	*	*
Average Bed Occupancy %	*	*	*
Inpatient Echocardiography	836	854	732
Inpatient Consultations	875	925	857
Deaths	3	2	0

* Clinicom data combined with nephrology and general paediatrics therefore not possible to calculate

Worcester Clinic: 105 patients

Paarl Clinic: 62 patients

Outpatient Complex

Subspecialist Clinics

<i>Clinics</i>	2016 Total	2015 Total	2014 Total
Haematology	307	311	262
Immunology	191	156	164
Oncology	361	376	344
Pulmonology	1 063	1 015	1 156
Gastroenterology	563	605	726
High-risk Babies	2 005	2 006	1 973
Neurology & Developmental paediatrics	2 185	2 375	2 301
Allergy	580	583	693
Premature Follow-up	234	228	360
Nephrology*	1 469	1 374	1 345
Cardiology	1 073	1 064	953
Bronchopulmonary Dysplasia	0	3	21
Diabetic	703	670	633
Endocrinology	689	661	625
Rheumatology	348	351	283
Infectious diseases	890	983	1 079
Genetics	393	415	391
Pharmacy prescriptions	170	208	286
Total	13 224	13 384	13 595

*Centre for Referral for Congenital Anomalies of the Kidney and Urinary Tract general specialist services

Total Patient Admissions 2016 (Clinicom data)

GG Short Stay	G2	G7	G8	J3	Total
4 643	2 087	1 191	1 013	972	9 906

Bed Occupancy Rate 2016 (Clinicom data)

GG Short Stay	G2	G7	G8	J3	Total
62%	104%	77%	88%	109%	88%

Neonatology

Ward G2 Neonatal Unit – Babies born in TBH

Staff: 2 Consultants (on rotation), 1 Registrar, 3 Medical Officers, 1 Intern (if available)

Beds <i>n=27</i>	2016	2015	2014
Admissions	2 087	2 067	2 182
Average Hospital Stay in Days	5	5	4,6
Average Bed Occupancy	104%	105,8%	104%
% Growth	0,96%	-5,3%	-9,2%
Deaths	94 (4,5%)	64 (3%)	120

* Data from Clinicom

Ward J3 Neonatal Unit – Babies born in TBH

Staff: 1 Consultant (on rotation), 1 Registrar, 1 Medical Officer, 1 Intern

Beds <i>n=25</i>	2016	2015	2014
Admissions	972	1 007	951
Average Hospital Stay in Days	10	10	10
Average Bed Occupancy	109%	114%	104%
% Growth	-3,4%	5,9%	3,6%
Deaths	1(0,1%)	2	0

Ward G8 Neonate & Kangaroo-mother Care – Step-down Facility

Staff: 1 Consultant (on rotation), 1 Registrar, 2 Interns

Beds <i>n=30</i>	2016	2015	2014
Admissions	1013	917	971
Average Hospital Stay in Days	10	10,8	10,3
Average bed occupancy %	88%	85,4%	89,75%
% Growth	10,4%	-5,5%	3,2%
Deaths	3 (0,3%)	4	2

*Data from Clinicom

Short-stay G Ground: <48-hour Admissions

Staff: Prof. S. Schaaf, Drs E. Malek, L. Smit, A. Redfern, 2 Registrars, (1 Emergency Medicine Registrar), 2 Medical Officers, 2 Interns

Beds <i>n=24</i>	2016	2015	2014
Admissions	4 643	5 943	6 029
Average Hospital Stay in Days	1	1,0	1,0
Average Bed Occupancy %	62%	81%	85%
% Growth	-22%	- 0%	+8%
Average Admissions per day	17	16	17
Deaths	16	14	19
HIV-related Mortality	0	2	0
HIV Exposed-related Mortality	2	4	4

Ward G7 General Paediatrics

Staff: Prof S Kling, Dr H Finlayson, 1 Registrar, 2 Medical Officers, 2 Interns

Beds <i>n=25</i>	2016	2015	2014
Admissions	1 191	1 232	1 175
Average Hospital Stay in Days	6	*6,5	3,1
Average Bed occupancy	77%	*88,25%	89,6%
Increase in Admissions	-3,3%	+5%	-7%
Deaths	17	12 (1%)	7 (0,6%)

*Clinicom data

General Paediatrics: Emergency & Clinics

Clinics	2016	2015	2014
OPD 8am-4pm: Emergency & Routine	7 661 (GG total) 1 643 OPD 6018 Emergency	9 766 (GG total) 2 790 OPD 6 976 Emergency	9 446 (GG)
		645 (Delft)	462 (Delft)
Daily average seen	31	39	26
Annual OPD after hours: 4pm-8am & weekend – Emergency	4 322	4 892	5 426
Daily average seen after hours (4pm- 8am)	12	13	15
OPD after hours: 4pm-8am %	36%	34%	36%
Total	11 983	14 658	14 872

2016 Morbidity & Mortality

PPIP data from PPIP database 2016

(NB. Provisional data only available from Jan – Oct)

Total births in TCH (TBH): n = 6 515 (Stillbirths n = 386)

Perinatal Mortality Rate (PNMR) (≥ 500 g) = 70, 5/1 000

- Perinatal Mortality Rate (PNMR) ($\geq 1 000$ g) = 36.2/1 000
- Early Neonatal Death Rate (ENNDR) (≥ 500 g) = 11.9/1 000
- Early Neonatal Death Rate (ENNDR) ($\geq 1 000$ g) = 5.1/1 000

Mortality of babies born in TCH (TBH) per birth weight category: n=92 (*Note: only January – October data available)

Birth Weight	% Mortality 2016	% Mortality 2015	% Mortality 2014
$\leq 1 000$ g	25,1	9,5	19,7
1001 to 1500g	3,4	2,1	4,2
1501 to 1999g	1,5	0,0	0,6
2000 to 2499g	0,75	0,19	0,3
≥ 2500 g	0,2	0,14	0,18

Causes of death of babies born in TCH (TBH): n=71

Cause of Death	% of Total 2016	% of Total 2015	% of Total 2014
Prematurity-related Complications	60,8	49,3	60
Infection-related	10,8	16,9	15,4
Peripartum Hypoxia	8,1	16,9	3,1
Congenital Anomalies	13,5	9,9	16,9
Other	6,8	7	4,6

% Deaths of babies referred to TCH per weight category

Birth Weight*	% Mortality 2016 (n=62)	% Mortality 2015 (n=56)	% Mortality 2014 (n=48)
<1 000 g	25	23,2	10,4
1 000 to 1 499 g	35	28,6	20,8
1 500 to 1 999 g	10	5,3	8,3
2 000 to 2 499 g	7,5	8,9	20,8
$\geq 2 500$ g	25	30,4	31,2

*Weight categories as a percentage of total deaths (outborn)

Outborn babies mortality according to referral area of origin

Geographic Service Area	2016 (n=62)	2015 (n=56)
Metro East	26	30
Winelands (Paarl area)	14	22
Overberg (Worcester drainage area)	5	4
Unknown	17	

Geographic distribution of the NICU admissions and death of babies born outside and referred to TCH

Place of Origin (Hospital)	Number deceased 2016	Number deceased 2015
Paarl	11	12
Helderberg	5	6
Karl Bremer	12	6
Worcester	3	2
Hermanus	1	0
Khayelitsha	4	1
Swartland	2	2
Caledon	1	0
Ander/Other	7	

CHIP MORTALITY for all sub-specialist paediatric wards (2016)

Audited deaths CHIP MORTALITY for all paediatric wards (2016)

CHIP Mortality	Total Admissions/ Tally	% Total	Deaths	Hosp Mortality Rate	Male	Female
*0 - 28 days	262	4,6	10	3,8	7	1
28 days – 1 year	1 729	30,9	27	1,6	24	30
1-5 year	2 258	40,3	26	1,2	19	8
5-13 years	1 164	20,8	14	1,2	7	13
13-18 years	182	3,2	3	1,63	1	1
Unknown					1	1
Total	5 595		80		54	59

*Please note: Excluding neonatal deaths reported under the PPIP section

Referral

Referring facility	Number	%
Not referred/not noted	39	
Community clinics		
Delft CHC	12	
Kraaifontein CHC	1	
Kleinville CHC	2	
Site B CHC	5	
Mfuleni CHC	1	
St. Josephs' Home	1	
Total	22	
Level 1 Metro		
Khayelitsha Hospital	11	
Helderberg Hospital	7	
Karl Bremer Hospital	11	
Eerste River Hospital	3	
Total	32	
Level 1 Outside Metro		
Stellenbosch Hospital	4	
Swartland Hospital	3	
Ceres Hospital	2	
Caledon Hospital	1	
Vredenburg Hospital	1	
Total	11	
Referral from Level 2		
Paarl Hospital	8	
Worcester Hospital	1	
Total	9	

Main Causes of Death in Children*	Number	%
Pneumonia ARI	18	15,5
Septicaemia, possible serious bacterial infection	13	11,2
Respiratory condition not ARI	13	
Cardiac congenital and acquired	10	8,6
CNS conditions	7	6
Chronic & severe acute liver disease	7	6
Acute Diarrhoea	5	4,3
Other diagnosis	5	4,3
Circulatory condition/undefined	4	3,4
Meningitis	4	3,4
Tuberculosis meningitis/Disseminated/extra pulmonary	4	3,4

*Please note: Other co-morbidities not reflected

HIV - mortality	Number	%
Negative	56	48,2
Not tested (not indicated)	20	17,2
Unknown	15	12,9
Exposed status not known	14	12
Infected	7	6,3
No result	4	3,4

Mortality according to Weight Category

Weight Category	Number	%
Normal	60	51,7
UWFA	25	21,5
Marasmus	9	7,7
Unknown	8	6,8
Overweight for age	5	4,3
Kwashiorkor	5	4,3
Marasmic-Kwashiorkor	4	3,44

Mortality per Ward Audited deaths only (from available CHIP data)

Ward	Number	%
Paediatric Intensive Care Unit	64	55,1
Acute Care (GG)	20	17,2
General Paediatrics (G7)	11	9,4
Gastroenterology (G10)	5	4,3
Infectious Diseases (G10)	4	3,4
High Care	3	2,5
Neurology (G9)	3	2,5
Cardiology (G10)	3	2,5
Respiratory (G9)	2	1,7
Oncology (G3)	1	0,8
Endocrinology (G9)	0	
Nephrology (G3)	0	
Total	116	

Mortality per Ward (Clinicom data)

Ward name	Freq	Per cent	Cum.
A9 Paediatric High Care	3	0,85	26,06
A9 Paediatric ICU	57	16,15	42,21
G10 Infectious Diseases	13	3,68	55,52
G3 Paediatric Oncology	11	3,12	86,12
G7 General Paediatrics	13	3,68	90,08
G9 Paediatric	7	1,98	92,92
GG Paediatric Emergency	17	4,82	97,73

Table of Length of Stay*

Ward	N	Mean	SD (Min-Max)
A9 High Care	3	3	- (0-4)
A9 Intensive Care Unit	57	12,9	16,6 (0-75)
G10 (Combined speciality ward)	13	31,1	58,7 (0-212)
G3 (Combined speciality ward)	11	8,6	6,8 (1-22)
G7 General paediatrics	13	7,6	10,3 (1-39)
G9 (Combined speciality ward)	7	16,7	13,5 (3-39)
GG Emergency service	17	0,35	0,6 (0-2)

*Clinicom data

Infrastructure Development

Tygerberg Children's Hospital Trust Contribution to Infrastructure

DATE	SUPPLIER	EQUIPMENT	AMOUNT
05/04/2016	Interconnect Systems	Equipment(Upgrade) – New Data Point	R5 390.55
13/04/2016	Drager South Africa (Pty) Ltd	Drager JM-103 Jaundice Meter	R46 000.00
24/10/2016	Tafelberg Furniture	Renovations for the Registrars' kitchen and restroom A9: Bosch 4 Dishwasher, 8 desk lamps, bookshelf, 4 Plastic Black Dustbins	R7 050.00
24/10/2016	Bidvest Waltons	Purchase the following items for the Registrars kitchen A9: Toaster, forks, knives, spoons	R1 232.20
28/10/2016	De Klerk Painters & Maintenance	Renovations at A9 Registrars restroom and Kitchen: Supplier all necessary materials and paint Responsible for the removal of rubbish from premises. Building / break through wall to have one huge room, Rest room and install 2 x doors with locks Paint the restroom, kitchen and study room	R22 350.00
04/11/2016	De Klerk Painters & Maintenance	Renovations at A9 Registrars restroom and Kitchen: Paint the restroom, kitchen and study room	R1 600.00
02/12/2016	UBM Construction s	Renovations for the Registrars kitchen and restroom A9 Install dishwasher water supply with tap and waste outlet; Supply and install 5 ℓ Hydro Boil in kitchen including the electrical connection	R11662.20
TOTAL			R95 284.95

Community Outreach Programmes/Community Service and Interaction & Partnerships

Expert Members

Prof. Mariana Kruger

- Global Forum on Bioethics in Research (GFBR) Planning Committee Member since February 2016
- Member of an Expert Committee of the Medicines Control Council: Clinical Committee since November 2014
- Member of the Executive Committee of the South African Children's Cancer Study Group (SACCSG)
- Member Council of College of Paediatricians 2014-2017
- Member of the Provincial Clinical Governance Committee (PCGC)
- Member of the Senate Research Ethics Committee of Stellenbosch University
- Member of the Research Ethics Executive Committee of the Faculty of Medicine and Health Sciences, Stellenbosch University

Prof. Sharon Kling

- Colleges of Medicine of South Africa (CMSA)
 - President, Council of College of Paediatricians 2014-2017
 - Senator, CMSA, for the triennium 2011 - 2014 and 2014 - 2017
 - Member of Financial and General Purposes Committee 2011 – 2014 and 2014-2017
 - Member of Management Committee, Financial and General Purposes Committee, 2013 – date
- Ethics accreditor, CPD Committee, Faculty of Health Sciences
- Vice-chair, Undergraduate Research Ethics Committee (since 2015)
- Member of the Research Ethics Executive Committee of the Faculty of Medicine and Health Sciences, Stellenbosch University
- Member, Clinical Ethics Committee Tygerberg Hospital (2002 – 2004 and 2009 to current)

- Allergy Society of South Africa (ALLSA)
 - Member of Executive Committee since 1998
 - Chairman, Research Subcommittee (2011 to date)

Prof. Anneke Hesselning

- NRF SARChi Chair in Paediatric Tuberculosis

Prof. Cotton

- Member of the Clinical Guideline Development Group (GDG) to support the update of the World Health Organization (WHO) Consolidated Guidelines on the use of antiretroviral drugs for treating and preventing HIV infection
- WHO HIV/TB Task Force Advisor

Prof. Beyers

- National Department of Health
- POPART Zambia and RSA

Prof. H.S. Schaaf

- Board of Directors and Chairperson of Adult and Child Lung Health section, The Union (International Union Against Tuberculosis and Lung Disease)
- Expert on ATS/CDC committee for new TB guidelines
- MDR-TB Review Board Western Cape
- Member of the Subcommittee C of the Research Committee, Faculty of Medicine and Health Sciences

Prof. E. Zöllner

- Safety representative on Health and Safety Committee, Faculty of Medicine and Health Sciences

Prof. P. Goussard and Dr S. Holgate

- Health Research Ethics Committee, Faculty of Medicine and Health Sciences

Dr A. Bekker

- International Maternal Paediatric Adolescent AIDS Clinical Trials Network (IMPAACT) P1106 vice-chair
- CDC: Tuberculosis Trials Consortium (TBTC) Tuberculosis and Pregnancy Working Group - membership

Drs G.T.J. Kali& and S. Holgate

- USANA executive committee members – organiser and treasurer respectively

Prof. R. van Toorn

- PANDA executive committee member – treasurer

Outreach

International

- Proff. M. Kruger and P.B. Hesselning – Childhood cancer Cameroon

Regional and District

- Worcester – Prof. M. Kruger, Prof. R. van Toorn, Dr R. Solomons, J. Lawrenson, C. du Buisson
- Paarl – Prof. P. Goussard, Dr H. Rabie, Prof. R. van Toorn, Dr R. Solomons, HIV outreach, Dr Frigati
- Delft Drs L. Smit, R Gioio (HIV outreach)
- Helderberg – Dr T. Wessels; Perinatal – Dr H. Hassan, Dr Frigati, (HIV outreach)
- Khayalitsha District Hospital – Dr Rabie
- Eersterivier – Drs H. Finlayson (HIV outreach), M. du Preez
- Ikwezi Clinic HIV outreach
- Bishop Lavis Clinic, HIV outreach
- Grabouw CHC HIV outreach
- Kraaifontein CHC HIV outreach
- City of Cape Town - DTTC
- DTTC - skills development in the community
- Karl Bremer Hospital, Haemophilia, Childhood Cancer - Dr A. van Zyl; Perinatal – Dr H. Hassan, Prof. S. Kling (General Paediatrics) and Dr H. Finlayson (Antibiotic Stewardship)
- George – Dr B. Fourie, Dr J. Lawrenson

- East London – Dr J. Lawrenson
- Brooklyn Chest Hospital – Prof. H.S. Schaaf, Dr H. Finlayson
- Paarl School for Children with Cerebral Palsy, Brackenfell Dr Cilla Springer
- Orientation Workshops of the Eastern Cape Department of Health for multidrug resistant tuberculosis and the new shortened regimen, February 2017 – Prof. P.R. Donald

Media Exposure

TV/Radio Interviews:

- Dr J.C.F. du Preez – Cape Talk, Voice of the Cape
- Prof. J. Smith – KFM - 17 Nov 2016 (Premmie Day)
- Prof. M. Kruger - CCTV: Women's Talk – Invited speaker – Mandela Day – 18 July 2016
- Prof. R. Solomons - Radio Al Ansaar, KZN - TB meningitis - June 2016
- Prof. R. Solomons - Umhlobo Wa Nene - TB meningitis in children - June 2016

Articles:

Name of publication: Stellenbosch University Webpage News

Name of article: Reading project inspires change at Tygerberg Children's Hospital (Dr M. du Preez)

Date: 4 February 2016

Name of publication: Stellenbosch University Student News

Name of article: Stellenbosch University researcher committed to lifelong learning (Ms M. Zunza)

Date: 17 March 2016

Name of publication: News24

Name of article: Never give up on your dreams, says Stellenbosch graduate (Ms M Zunza)

Date: 18 March 2016

Name of publication: Stellenbosch University Webpage News

Name of article: Foundation for life laid in first 1 000 days (Prof. M. Kruger)

Date: 18 March 2016

Name of publication: The Weekend Witness

Name of article: Zim mom gets doctorate, degree on same day (Ms M. Zunza)

Date: 19 March 2016

Name of publication: Cape Argus

Name of article: Call for dedicated breastfeeding spots in public spaces (Prof. M. Kruger)

Date: 22 March 2016

Name of publication: Cape Talk

Name of article: Breast is best and dedicated public spaces would help make breastfeeding easier (Prof. M. Kruger)

Date: 23 March 2016

Name of publication: The Conversation

Name of article: Four things parents can do to keep their kids' kidneys health (Dr C.J. du Buisson)

Date: 1 April 2016

Name of publication: Cape Argus

Name of article: TB meningitis in kids 'fully treatable if detected early' (Prof. R. Solomons)

Date: 14 June 2016

Name of publication: Health 24

Name of article: Treatable TB meningitis disables too many SA children (Prof. R. Solomons)

Date: 14 June 2016

Name of publication: Jump
Name of article: Fever Facts (Dr H. Finlayson)
Date: 21 June 2016

Name of publication: Tygerburger
Name of article: Children's ward gets some colour (Tygerberg Hospital School)
Date: 21 September 2016

Name of publication: Stellenbosch University Webpage News
Name of article: More children survive cancer (Prof. M. Kruger)
Date: 8 September 2016

Dr A. Bekker
Print: Hope for pregnant women and babies with TB. Vivus, 2016. wwwO.sun.ac.za/.../hope-for-pregnant-women-and-babies-with-tb.html

Teaching & Training

Education-related Activities

Postgraduate Students

Successful PhD Candidates

- **Dr A. Bekker:** Title: Prevention And Treatment Of Perinatal And Infant Tuberculosis In The HIV Era. Supervisors: Proff. A.C. Hesselning, H.S. Schaaf
- **Ms M. Zunza:** Title: Prolonged Breastfeeding with Antiretroviral Prophylaxis or Commercial Infant Formula Milk and associated health outcomes: A comparative study of a birth cohort of HIV-exposed infants in public health care setting. Supervisors: Prof. M.F. Cotton, Dr M.M. Esser
 - *Ms Zunza also received her BCom Honours degree from Stellenbosch University in December 2016*

Enrolled PhD students

- **Dr P. Bock :** Title: Impact of a Universal Test and Treat strategy on clinical outcomes amongst HIV-infected adults in South Africa: Supervisor: Prof. N. Beyers, Dr S. Fidler
- **Dr A. Dramowski:** Title: Determinants Of Healthcare-Associated Infections Among Hospitalised Children. Supervisors: Proff. M.F. Cotton, A. Whitelaw
- **Mr R. Dunbar:** Title: How can virtual implementation modelling inform the scale-up of new molecular diagnostic tools for tuberculosis? Supervisor: Prof. N. Beyers, Mr I. Langley
- **Dr G.T.J. Kali:** Title: A comparative study of neuroprotective strategies in neonatal hypoxic ischaemic encephalopathy. Supervisors: Prof. J. Smith, M. Rutherford
- **Dr B. Laughton:** Title: The effects of early versus delayed antiretroviral treatment on the short and long-term neurodevelopmental outcome of children who are HIV positive. Supervisor: Prof. M.F. Cotton, Prof. M. Kruger
- **Dr F. Marx:** Title: Mathematical modelling to project the impact of interventions targeted to previously treated individuals on the trajectory of the tuberculosis epidemic in high tuberculosis prevalence settings Supervisors: Prof. N. Beyers, Prof. T. Cohen
- **Dr S-A Meehan:** Title: The contribution of a community based HIV counselling and testing (HCT) initiative in working towards increasing access to HIV counselling and testing in Cape Town, South Africa. Supervisors: Proff. N. Beyers, R. Burger
- **Dr P. Naidoo:** Title: Evaluating the Impact of an Xpert® MTB/RIF-based TB Diagnostic Algorithm in a Routine Operational Setting in Cape Town. Supervisors: Prof. N. Beyers, Dr C. Lombard
- **Dr H. Rabie:** Title: Pharmacokinetics and therapeutic outcomes of children with tuberculosis/HIV co-infection treated with lopinavir/ritonavir and a rifampicin-containing anti-tuberculosis regimen. Supervisors: Proff. M.F. Cotton, H.S. Schaaf, R.P. Gie
- **Dr P. Springer:** Neurodevelopmental Outcome of the HIV exposed but uninfected Infant and evaluation of a developmental screening tool. Supervisors: Prof. Mariana Kruger, Prof. Christopher Molteno

- **Dr E. Walters:** Title: Novel diagnostic strategies and markers of treatment response for paediatric pulmonary tuberculosis. Supervisors: Proff. A.C. Hesseling, R.P. Gie

Successful MMed (Paed) Candidates

- **Dr Ashton Coetzee:** The role of lumbar puncture in young infants presenting with seizures and fever in a resource poor setting. *Supervisors: Prof. R. Solomons, Dr L. Smit*
- **Dr Andre Gie:** Utility of Open Lung Biopsy in a Paediatric Intensive Care Unit. *Supervisors: Proff. S. Kling, P. Goussard*
- **Dr Chandre Geldenhuys:** Central Line-associated Bloodstream Infections in a resource-limited Neonatal Intensive Care Unit in South Africa. *Supervisors: Drs A. Bekker, A. Dramowski*
- **Dr Lindy-Lee Green:** Predicting the risk of adverse events in children with febrile neutropenia - validation of a clinical risk assessment tool. *Supervisor: Prof. M. Kruger*
- **Dr Wayne Hough:** Establish the prevalence of metabolic syndrome (MS) and fatty liver disease in obese patients. *Supervisor: Prof. E.W.A. Zollner*
- **Dr Chané Kay:** A cost analysis of Paediatric Cancers. *Supervisors: Dr A. van Zyl/Prof. D.C. Stefan*
- **Dr Osee Robert Karangwa:** A retrospective review of the outcome of children presenting to TCH with biliary atresia. *Supervisor: Prof. E.D. Nel*
- **Dr Yajna Koobla:** Unlicensed and off label drug use in the sub speciality wards. *Supervisor: Prof. M. Kruger*
- **Dr Hennie Liebenberg:** A retrospective review of paediatric cerebral venous sinus thrombosis in a South African Tertiary Hospital. *Supervisors: Dr E.D. Nel, Prof. R. Solomons*
- **Dr Marang Molotsi:** Relationship between serum sodium levels and neurodevelopmental outcome of cooled HIE babies. *Supervisors: Dr G. Kali, Prof. J. Smith*
- **Dr Muneerah Satardien:** The value of head computed tomography (CT) in children presenting with focal seizures to a paediatric ambulatory unit in a resource poor setting. *Supervisor: Dr L. Smit*
- **Dr Leana van Dyk:** The impact of familial environmental factors in the development of ADHD in South African children. *Supervisors: Prof. R. van Toorn, Dr P. Springer*
- **Dr Irwin Webster:** Paediatric Bronchoscopy: A retrospective analysis at TBH from 2009 to 2013. *Supervisor: Prof. P. Goussard*

Colleges of Medicine of South Africa (CMSA)

- **Certificate in Neonatology**
 - Dr Zaheera Kajee
- **Certificate in Medical Oncology**
 - Dr Vutshilo Netshituni
- **Certificate in Infectious Diseases (Paeds)**
 - Dr Buhle Makongwana
- **FC Paed (SA) Part II**
 - Dr Salah Abumhara
 - Dr Kate Carkeek
 - Dr Ashton Coetzee
 - Dr Sam Fry
 - Dr Andre Gie
 - Dr Wayne Hough
 - Dr Shaegan Irusen
 - Dr Carmen Jacobs
 - Dr Thembi Katangwe
 - Dr Chané Kay
 - Dr Aruna Lakhani
 - Dr Hennie Liebenberg
 - Dr Marang Molotsi
 - Dr Yabwiule Mulambia
 - Dr Leana van Dyk
 - Dr Frans van der Westhuizen
 - Dr Andrew van Eck

- **FC Paed (SA) Part I**
 - Dr Larissa Barker
 - Dr Carien Bekker
 - Dr Lynn Booysen
 - Dr Tracey Cummins
 - Dr Derrik du Toit
 - Dr Louise Erasmus
 - Dr Muhammad Mathure
 - Dr Lorraine Ndjoze
 - Dr Luvina Nuckchedee Dookhony
 - Dr Sandra Sebitosi-Van Jaarsveld
 - Dr Nightingale Sekgabo

Undergraduate Students

99% pass rate (2015 = 98%)

Education-related Activities

- The Education Committees of the Department comprised as follows:
 - Undergraduate: Dr L. Smit (Chairperson), Prof. S. Kling (secunde)
 - MBChB II: Drs R. Uys, E. Malek, I. Appel, A. Bekker, L. Lloyd
 - Early rotation: Drs L. Frigati, C. du Buisson, H. Hassan, S. Holgate, Prof. R. Solomons, Drs B. Makongwana, A. Thomas, M. Morkel, Sr L. Yzelle
 - Middle rotation: Drs A. Redfern, N. Parker, H. Finlayson, L. Swanson, G. Kali, A. Bekker, D.R. Abraham, B. Fourie
 - SI: Drs M. du Preez, L. Smit, A. van Zyl, S. Holgate, C. Springer, Prof. E. Zöllner, Drs M. Morkel, V. Netshituni
 - Remedial: Dr M. Morkel, Sr L. Yzelle
 - Elective students: Drs H. Finlayson, I. Appel, Prof. M. Kruger
 - Postgraduate: Proff. R. van Toorn (chairperson), M. Kruger, E.D. Nel, H. Rabie, P. Goussard, H.S. Schaaf, Dr G. Kali
 - PhD: Proff. M. Kruger (Chairperson), M.F. Cotton, A.C. Hesselings, H.S. Schaaf, J. Smith
- All consultants are involved with under- and postgraduate teaching on a daily basis. Additional education activities included:
- External examiners at universities in South Africa:
 - Undergraduate:
 - Dr L. Smit: MEDUNSA, University of the Free State
 - Dr I. Appel: Sefako Makgatho Health Sciences University
 - Dr H. Hassan, University of KwaZulu-Natal
- Senior registrars in training:
 - Neonatology: Drs N. Paulse, Dr M. Kariuki (Supernumerary from Kenya), Dr K. Onwona-Agyeman (Supernumerary from Ghana)
 - Paediatric Oncology: Drs V. Netshituni, E.I. Madzia (supernumerary from Gauteng Department of Health), F. Tchintseme Kouya (Supernumerary from Cameroon)
 - Paediatric Infectious Diseases: Dr B. Makongwana (Supernumerary from Eastern Cape)
 - Paediatric Cardiology: Dr L. Swanson
 - Developmental Paediatric: Dr A. Thomas, with Life Healthcare Scholarship
 - Paediatric Rheumatology: Dr Abraham
 - Paediatric Endocrinology: Dr M Grantham
 - Paediatric Pulmonology: Dr L-L Green
 - Paediatric Gastroenterology: Dr J.M. Ikobah, sponsored by a Nestle Nutrition Institute Fellowship endorsed by the European Society of Paediatric Gastroenterology, Dr F.O. Adeniyi (Supernumerary from Nigeria)
- Colleges of Medicine of South Africa (CMSA):
 - Convenors (C)/Moderator (M)/External Examiners (EE):
 - Cert Neonatology: Prof. J. Smith, Dr G.T.J. Kali
 - Cert Paediatric Neurology: Proff. R. Solomons, R. van Toorn
 - FC Paed Part 1: Dr S. Holgate

- Lectures at courses
 - Cranial US and functional echocardiography training (Dr L. van Wyk): Dr Z. Kajee and Dr L. Lloyd
- South African Research Ethics Training Initiative (SARETI) UKZN, funded by Fogarty International Fogarty International Center (FIC) of the National Institutes of Health (NIH), grant number 6R25TW001599-13: Prof. M. Kruger (Co-principal Director)

Achievements and Highlights

Prof. Pierre Goussard appointed as Head Clinical Unit: Paediatric Pulmonology from 1 May 2016

Prof. Regan Solomons appointed as Associate Professor from 1 June 2016.

Prof. Etienne Nel appointed as Associate Professor from 1 November 2016

Prof. Helena Rabie appointed as Associate Professor from 1 November 2016

Dr Heather Finlayson appointed by the Minister of Health to serve on the Ministerial Advisory Committee (MAC) on Antimicrobial Resistance (AMR) for a period of 3 years.

Dr Elmarie Malek appointed as member of the Task Team for Commissioner for Children, Department of Health, Western Cape Government, for a period of 6 months from July 2016.

NRF ratings:

New:

- Prof. P. Goussard C2
- Prof. P.B. Hesselning C2
- Prof. R. Solomons Y2

Existing:

- Prof. M.F. Cotton A2
- Prof. P.R. Donald A2
- Prof. H.S. Schaaf A2
- Prof. E.W.A. Zöllner C3
- Dr A. Bekker C3
- Prof. J. Smith C2
- Prof. R. van Toorn C2
- Dr H. Rabie C3
- Dr S. Innes Y2

Prof. M.F. Cotton was given a special award on 1 September 2016 by the NRF for receiving an A-rating.

The **second Annual Paediatric Registrar Research Day** was held on Wednesday 9 November here in the Faculty where 6 registrars presented their research. The prize for best research was awarded to Dr Carmen Jacobs for the best presentation.

The **sixth annual Paediatric Academic Day of Excellence** was held on Friday 11 November 2016 in the Faculty titled: "A Panoramic View of Paediatrics".

Prof. E.W.A. Zöllner is the recipient of the 2016 Roche Travel Fellowship as well as the AstraZeneca SATS Research Fellowship of R100 000 for 2017; also awarded best poster at 2016 SEMDSA Congress together with Dr M. Grantham for the paper entitled "Is genotyping useful in neonatal diabetes mellitus?"

Prof. Ronald van Toorn was awarded the Paul Harris fellowship award by Rotary Club Blouberg (via Rotary international).

Dr Angela Dramowski is a co-investigator and study co-ordinator for a new collaborative pilot project with seed funding from the Bill and Melinda Gates Foundation.

The project will study the impact of antimicrobial resistance at two African hospitals: Tygerberg, South Africa, and Kilifi District Hospital in Kenya and is entitled: "Estimating excess mortality risk from antibiotic-resistant Gram negative bacteraemia in hospitalized African patients."

The PI is Dr Alex Aiken from The London School of Hygiene and Tropical Medicine (where the grant administration will be based). The study team will be required to submit a proposal for a large-scale project (\$1 million USD) in 18 months' time.

Dr B. Laughton, Prof. M.F. Cotton and Prof. G.B. Theron have been awarded an NIH R01 grant - US\$ 820,141.00 over 5 years. Project title: Neonatal imaging as an early marker of neurodevelopment and predictor of cognitive performance in infants exposed to HIV and ART in utero and perinatally.

Publications

Journal Articles (subsidised)

1. ACKERMANN C, ANDRONIKOU S, SALEH MG, LAUGHTON B, ALHAMUD A, VAN DER KOUWE A, KIDD M, COTTON MF, MEINTJES EM. Early Antiretroviral Therapy in HIV Infected Children Is Associated with Diffuse White Matter Structural Abnormality and Corpus Callosum Sparing. *AMERICAN JOURNAL OF NEURORADIOLOGY* 2016; **37**:2363-2369.
2. ARAUJO DA SILVA AR, ZINGG W, DRAMOWSKI A, BIELICKI JA, SHARLAND M. Most international guidelines on prevention of healthcare-associated infection lack comprehensive recommendations for neonates and children. *JOURNAL OF HOSPITAL INFECTION* 2016; **94**:159-162.
3. BAHR NC, MARAIS S, CAWS M, VAN CREVEL R, WILKINSON RJ, TYAGI JS, THWAITES GE, BOULWARE DR, SCHOEMAN JF, SOLOMONS RS, VAN TOORN R. GeneXpert MTB/Rif to diagnose tuberculous meningitis: Perhaps the first test but not the last. *CLINICAL INFECTIOUS DISEASES* 2016; **62**(9):1133-1135.
4. BAILEY SL, AYLES H, BEYERS N, GODFREY-FAUSETT P, MUYOYETA M, DU TOIT EJO, YUDKIN JS, FLOYD S. Diabetes mellitus in Zambia and the Western Cape province of South Africa: Prevalence, risk factors, diagnosis and management. *DIABETES RESEARCH AND CLINICAL PRACTICE* 2016; **118**:1-11.
5. BAILEY SL, AYLES H, BEYERS N, GODFREY-FAUSETT P, MUYOYETA M, DU TOIT EJO, YUDKIN JS, FLOYD S. The association of hyperglycaemia with prevalent tuberculosis: a population-based cross-sectional study. *BMC INFECTIOUS DISEASES* 2016; **16**:733.
6. BARLOW-MOSHA L, ANGELIDOU K, LINDSEY JC, ARCHARY M, COTTON MF, DITTMER S, FAIRLIE L, KABUGHO E, KAMTHUNZI P, MBENGERANWA T, KINIKAR A, ET AL . Nevirapine- Versus Lopinavir/Ritonavir-Based Antiretroviral Therapy in HIV-Infected Infants and Young Children: Long-term Follow-up of the IMPAACT P1060 Randomized Trial. *CLINICAL INFECTIOUS DISEASES* 2016; **63**:1113-1121.
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3. KATAYI ET, HESSELING PB. Burden of Childhood diseases at Baptist Hospital Mutengene: A retrospective study. *South American Journal of Public Health* 2015; **3**(4):1-12.
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6. RABIE H, GOUSSARD P. Tuberculosis and pneumonia in HIV-infected children: an overview. *Pneumonia* 2016; **8**:19.
7. SEDDON JA, SCHAAF HS. Drug-resistant tuberculosis and advances in the treatment of childhood tuberculosis. *Pneumonia* 2016; **8**:20.
8. SLOGROVE AL, COTTON MF. Special issues and management of HIV exposed uninfected infants and children. *Pediatric Oncall* 2016; **13**(2):31-35.
9. TORRE P, COOK A, ELLIOTT HU, DAWOOD G, LAUGHTON B. Middle Ear Function in Human Immunodeficiency Virus (HIV)-Infected South African Children. *Journal of Paediatric Care Insight* 2016; **1**(1):13-17.

Chapters in Books

1. BEKKER A. Tuberculosis in Neonates and Infants. In: Starke JR, DONALD PR (eds.) *Handbook of Child and Adolescent Tuberculosis*, Oxford University Press, Cape Town, South Africa, 2016: 231-243.
2. DEMERS A, WHITELAW AC, EISENACH K. Microbiology and Pathology of Tuberculosis. In: Starke JR, DONALD PR (eds.) *Handbook of Child and Adolescent Tuberculosis*, Oxford University Press, Cape Town, South Africa, 2016: 13-29.
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4. RABIE H, COTTON MF. Tuberculosis in HIV-Infected and exposed infants, children, and adolescents. In: Starke JR, DONALD PR (eds.) *Handbook of Child and Adolescent Tuberculosis*, Oxford University Press, Cape Town, South Africa, 2016: 245-261.
5. SCHAAF HS, GARCIA-PRATS AJ. Diagnosis of the most common forms of extrathoracic tuberculosis in children. In: Starke JR, DONALD PR (eds.) *Handbook of Children and Adolescent Tuberculosis*, Oxford University Press, Cape Town, South Africa, 2016: 177-199.
6. VAN TOORN R. Central Nervous System Tuberculosis in Children. In: Starke JR, DONALD PR (eds.) *Handbook of Child and Adolescent Tuberculosis*, Oxford University Press, Cape Town, South Africa, 2016: 201-216.

Courses and Conferences Attended and/or Participated

Name	Courses Attended	Dates	Type Of Training	Provider
Appel, I.	Attended and presented a poster on "Acquired infections in paediatric patients after cardiac care" 8 th World Congress on Pediatric Intensive Care, Toronto, Canada	4-8 June 2016	Conference	Kenes International Organizers of Congresses SA
	Invited speaker and attended the Critical Care Congress of SA, Presentation: Use of Red Blood Cell transfusion in the PICU	Aug 2016	Conference	Critical Care Congress of SA
	Instructor on APLS courses in Durban,	Aug 2016	Instructor	APLS courses in Durban
	Instructor on APLS courses in Cape Town	September 2016	Instructor	APLS courses in Cape Town
	External examiner at SMU, for VI MBChB exams	September 2016	Examiner	SMU, VI MBChB
Bekker, A.	CME MEETING 2016	11 Aug 2016	Course	SU
	GCP Refresher Course	5 August 2016	Course	Society of Medical Laboratory Technologists of South Africa
Beyers, N.	PopArt Workshop	1-5 February 2016	Workshop	PopArt
Cotton, M.	PENTA Conference in India	26-30 January 2016	Conference	PENTA Conference
	Epiitital Meeting in Rome	11-13 February	Meeting	Epiitital Meeting
	SAIS 5 th Conference of the South African Immunology Society JHB	6-9 March 2016	Course	South African Immunology Society
	Tr@inforPedHIV Course, Tanzania	10-11 March 2016	Conference	PENTA / ESPID / EuroCoord
	SACORE Conference, Malawi	16-17 March 2016	Conference	SACORE
	SAHIVCSOC SOUTHERN AFRICAN HIV CLINICIANS SOCIETY CONFERENCE, JHB	13-16 April 2016	Workshop	SOUTHERN AFRICAN HIV CLINICIANS SOCIETY CONFERENCE
	4 th Annual Bioethics Seminar, Spier, Stellenbosch	23 April 2016	Conference	4th Annual Bioethics ,US
	CTC Industry Workshop	11 May 2016	Workshop	Pretoria
	STOP TB Conference, Abudja, Nigeria	17-18 May 2016	Conference	The National Tuberculosis & Leprosy Control Programme (NTBLCP)
	Paeds HIV Workshop and IAS, Vancouver CA	14-15 July 2016	Workshop	AIDS Conference
Paeds HIV Workshop and IAS, Durban	18-22 July 2016	Workshop	AIDS Conference	
Du Preez, J.	African Doctoral Academy Summer school (ADA)	18-22 January 2016	Workshop	SU
	GCP Course Mother & Infant Health Workshop	25-26 January 2016	Course	SU
	BARNARDS-study Congress, Vinyard Hotel	17-18 May 2016	Conference	Barnards-study Congress
Finlayson, H.	ECCMID Conference, Amsterdam	9-12 April 2016	Conference	European Congress of Clinical Microbiology and

Name	Courses Attended	Dates	Type Of Training	Provider
				Infectious Diseases
Fourie, B.	Prontak Course	26 January 2016	Course	PRONTAK
	Intervention Workshop, Red Cross Children`s Hospital	14-18 March 2016	Workshop	UCT
	Predac Course	12-13 July 2016	Course	SU
Goussard, P.	ADA Summer School, Doctoral Supervision Course	18-22 January 2016	Course	SU
	Here be lungs Congress, Lanrac, Stellenbosch	17-18 March 2016	Conference	SU
	Pediatric Pulmonology XV, Naples, Italy	23-26 June 2016	Congress	International Congress of Pediatric Pulmonology
Holgate, S.	Training at AMS	1 February 2016	Course	AMS
	CMSA Examiners Workshop	29 March 2016	Workshop	The Colleges of Medicine South Africa
	ECCI Conference, Venice , Italy	24-26 April 2016	Conference	European Congenital Cytomegalovirus Initiative
	HREC workshop	5 August 2016	Workshop	SU
	Ventilation Workshop	21-22 November 2016	Workshop	SU
	ISTAN SIM Training	24-25 November 2016	Course	STAN SIM Training
Ikobah, J.	Fellow Weekend, Spier	5-7 February 2016	Conference	Gastroenterology Hepatology and Nutrition
	Gastroenterology Conference India	11-14 Feb 2016	Conference	Gastroenterology Conference India
	ESPGHAN Conference, Athens	25-28 May 2016	Conference	European Society for Paediatric Gastroenterology, Hepatology and Nutrition
	South African Paediatric Association Conference, Durban	31 July-4 August 2016	Conference	South African Paediatric Association Conference
Kali, G.	ADA Summer School, Doctoral Supervision Course	18-22 January 2016	Course	SU
	SAPA congress, Durban	31 August- 3 September 2016	Conference	SAPA
Kling, S.	HREC workshop	5 August 2016	Workshop	University Stellenbosch
Kooblah, Y.	ADA Summer School	8-22 Jan 2016	Workshop	SU
Kruger, M.	How to manage Retinoblastoma in 2016, Barcelona, Spain	10-11 June 2016	Conference	How to manage Retinoblastoma, Barcelona, Spain
	AIDS Malignancy Consortium (AMC) International Strategic Planning and Priority Setting Meeting, Cape Town, South Africa	17 July 2016	Meeting	AIDS Malignancy Consortium (AMC) International Strategic Planning and Priority Setting Meeting
	Cancer Care/CHOC Cancer Survivors' Summit, His People Church, Goodwood	10 Sept 2016	Meeting	Cancer Care/CHOC
	20 th Annual Controversies and problems in surgery, University of Pretoria	8-9 October 2016	Conference	University of Pretoria

Name	Courses Attended	Dates	Type Of Training	Provider
	48 th SIOP Congress of the International Society of Paediatric Oncology (SIOP): Dublin, Ireland	19-22 October 2016	Conference	International Society of Paediatric Oncology
	UICC 2016 World Child Cancer Congress, Paris, France	31 Oct- 2 November 2016	Conference	Union for International Cancer Control (UICC)
	Global focus on bioethics in research (GFBR) meeting, Buenos Aires, Argentina	3-4 November 2016	Meeting	Global Forum on Bioethics in Research (GFBR)
Lawrenson, J.	APLS Course (ADVANCED PAEDIATRIC LIFE SUPPORT COURSE)	4-5 February 2016	Course 2. Conference	Red Cross Hospital
	World Congress of Cardiology, Mexico	4-7 June 2016	Conference	World Congress of Cardiology and Cardiovascular Health
Lloyd, L.	Ventilation Workshop	21-22 November 2016	Workshop	
	ISTAN SIM Training	24-25 November 2016	Course	STAN SIM Training
Malek, E.	BLS Course, Cardiocare, Platteklouf	8 February 2016	Course	Emergency Care Institute of South Africa, UCT Faculty of Health Sciences
	35 th Conference on Priorities Perinatal Care, Warnbaths	8-11 March 2016	Conference	Priorities in Perinatal Care in Southern Africa
	TBH AOP Workshop, Paarl	17 March 2016	Workshop	TBH AOP
	First 1 000 days Road show workshop, Khayelitsha Hospital	18 March 2016	Workshop	Department of Health
	WAIMH Conference, Prague	30,31 May, 1-3 Jun 2016	Conference	World Association for Infant Mental Health
	Child PIP Workshop, Robertson	15 August 2016	Workshop	SU
	Community Child Care Workshop	21 November 2016	Workshop	SU
	Global Resilience Academy (GRA) workshop, Lenteguur	22-23 November 2016	Workshop	Global Resilience Academy (GRA)
	ECD Programme workshop, Parow	9. 08 Nov 2016	9. Workshop	ECD Programme
Nel, E.	Gastroenterology Course	27 January 2016	Course	SU
	Fellow Weekend, Spier	5-7 February 2016	Congress	Gastroenterology Hepatology and Nutrition
	International Conference Pediatric Gastroenterology, Hepatobiliary, Transplant & Nutrition, Gastroenterology Conference India Nims University, Jaipur, India	11-14 February 2016	Congress	Gastroenterology Conference India
	Collaborative Research Workshop, ESPGHAN Conference, Athens	25-28 May 2016	Congress	European Society for Paediatric Gastroenterology, Hepatology and Nutrition
	GP update, Lord Charles, Somerset West	9 June 2016	Congress	GP
	Postgraduate Course in	August 2016	Meeting	(SAPA 2016) -

Name	Courses Attended	Dates	Type Of Training	Provider
	Paediatric Gastroenterology (SAPA 2016) – organiser Gastroenterology Foundation Meeting			Gastroenterology Foundation Meeting
	Sages Course	5-8 August 2016	Congress	Society of American Gastrointestinal and Endoscopic Surgeons
	Gastroenterology Foundation Meeting	27 August 2016	Meeting	Gastroenterology Foundation
	South African Paediatric Association Conference, Durban	31 July-4 August 2016	Congress	South African Paediatric Association Conference
	Nutrition Conference, Somerset West	5 September 2016	Congress	O. Nutrition Conference Somerset West
	9 th International Child TB Training Course, Goudini	22 September 2016	Course	Desmond Tutu TB Centre
	Expert Community Network (ECN) Meeting, Cape Town	24 September 2016	12. Meeting	Expert Community Network (ECN)
	Paediatric Pulmonology Interest Group Meeting	5 October 2016	Meeting	Paediatric Pulmonology Interest Group
	World Congress of Paediatric Gastroenterology Hepatology and Nutrition	7 October 2016	Congress	World Congress of Paediatric Gastroenterology Hepatology and Nutrition
Parker, N.	Paediatric Registrars Skills Marketplace	9 th June 2016		
	SPRINTT PROGRAM	23 August 2017		RED CROSS SKILLS LAB
	Paediatric BASIC	19-20 May 2016		Cape Town
	Saving Young LivesSAVING YOUNG LIVES – RENAL SKILLS WORKSHOP	28 Nov- 1 Dec 2016		Red Cross Children's Hospital – Cape Town, South Africa
Rabie, H.	Course, Swaziland	7-9 March 2016	Course	
	APLS Course	11 November 2016	Course	
Redfern, A.	APLS Course (ADVANCED PAEDIATRIC LIFE SUPPORT COURSE)	4 February 2016	Course	Red Cross Hospital (VLE)
	ICEM conference, CTICC , Cape Town	18-20 April 2016	Conference	THE INTERNATIONAL CONFERENCE ON EMERGENCY MEDICINE
	APEM Course, Brisbane	8-10 November 2016	Course	APEM Course, Brisbane
Schaaf, S.	ECSMID Course Lecture	19 January 2016	Teaching	UCT
	HPTN/IMPAACT Annual Meeting, Arlington, VA, USA	13-17 June 2016,	Meeting	PTN/IMPAACT Annual Meeting, Arlington, VA, USA
	8th International Workshop on HIV Paediatrics and Co-Infection with HIV, Durban, South Africa	15-16 July 2016	Workshop	8 th International Workshop on HIV Paediatrics and Co-Infection with HIV, Durban, South Africa

Name	Courses Attended	Dates	Type Of Training	Provider
	The Xth International Child TB Training Course	25-30 September 2016	Course	DTTC/Department of Paediatrics and Child Health
Shires, J.	Paediatric Nephrology workshop and Nephrology Congress, Cape Town	9-11 Sept 2016	Workshop	Paediatric Nephrology workshop and Nephrology Congress, Cape Town
Smit, L.	SAFRI	1-4 March 2016	Workshop	SU
Smith, J.	Here be lungs Congress, Lanzerac, Stellenbosch	17-18 March 2016	Congress	SU
	SAPA congress, Durban	31 Aug - 3 Sept	Conference	SAPA
Solomons, R.	14 th International Child Neurology Congress, in Amsterdam, The Netherlands	1-5 May 2016	Course	14 th International Child Neurology Congress, in Amsterdam, Netherlands
	PET (Epilepsy) trainer	February 2016	Course	British Paediatric Neurology Association
	The Xth International Child TB Training Course	September 2016	Course	DTTC/Department of Paediatrics and Child Health
	SAPA 2016, Durban - session chair	September 2016	Course	South African Paediatric Association
Springer, P.	African Doctoral Academy course on Writing and Publishing an Article	12-16 January 2016	Course	SU
	PANDA workshop on Metabolic disorders and Rare Diseases	May 2016	Workshop	PANDA, Pretoria
Thomas, A.	PET (Epilepsy Conference)	February 2016	Conference	
	PANDA Conference on Metabolic conditions	May 2016	Conference	
	1 st International Conference on Cerebral Palsy, Stockholm, Sweden	1-4 June 2016	Conference	The International Conference on Cerebral Palsy and other Childhood
	Griffiths 111 Course Part 2	16-18 November 2016	Course	ARICD
Van Toorn, R.	ADA Summer School, Doctoral Supervision Course, Stellenbosch	18-22 January 2016 2	Course	SU
	14 th International Child Neurology Congress, in Amsterdam, The Netherlands	1-5 May 2016	Course	14 th International Child Neurology Congress, in Amsterdam, Netherlands
Williams, J.	Meeting Customer Service Requirements	3 June 2016	Workshop	SU
	MS Outlook 2013 Level 2	3 July 2016	Course	CTU Training Solution
	MS PowerPoint 2013 level 2	10 August 2016	Course	CTU Training Solution
	Office Administration Management	8 September 2016	Course	SU
Yzelle, L.	2016 Advanced life support programme	4-5 February 2016	Course	UCT
Zollner, E.	SEMDSA	15-17 April 2016	Conference	Society for Endocrinology, Metabolism and Diabetes of South Africa

Centres

The Family Clinical Research Unit (FAMCRU)

Director: Prof. M.F. Cotton

Date	Name	Meetings/Conferences	Place
26 – 30 January	Prof. Cotton	PENTA Meeting	India
10 – 12 February	Prof. Cotton	EPIICAL Meeting	Rome, Italy
6 – 9 March	Prof. Cotton	South African Immunology Society Conference (SAIS)	Gauteng, SA
9 – 11 March	Prof. Cotton	PENTA Meeting	Tanzania
16 – 17 March	Prof. Cotton	SACORE Conference	Malawi
13 – 16 April	Prof. Cotton	SAHIVSOC Conference	Gauteng, SA
5 – 6 May	Prof. Cotton	NIH Meeting: Improving Birth Testing and Linkage to Care for HIV-infected Infants	Rockville, Maryland
17 – 18 May	Prof. Cotton	STOP TB Conference	Nigeria
12 – 17 June	Prof. Cotton	IMPAACT Annual Meeting – Member of the primary therapy study group	Washington DC, USA
26 – 30 June	Prof. Cotton	Annual AIDS Clinical Trials Group Network Meeting	Washington DC, USA
17 July	Prof. Cotton	2 nd HEU Workshop Organizer and session Chairman	Durban, SA
18 – 19 July	Prof. Cotton	8 th International Workshop on HIV Paediatrics <ul style="list-style-type: none">• Member of international organising committee• Chair to session: Management of Paediatric HIV	Durban, SA
19 – 23 July	Prof. Cotton	IAS Conference – 7 th International workshop on Paediatric HIV <ul style="list-style-type: none">• Session Chair: Young adults with perinatal HIV infection workshop	Durban, SA
1 – 4 September	Prof. Cotton	South African Paediatric Association Conference	Durban, SA
7 October	Prof. Cotton	Clinical Pharmacology Session	Gauteng, SA
26 – 30 October	Prof. Cotton	ID Week	New Orleans, USA
7 – 8 November	Prof. Cotton	Viiv Board Meeting HIV and neurodevelopment workshop	London, UK
3 December	Prof. Cotton	7 th Child Health Priorities Conference	Cape Town, SA
5 – 7 December	Prof. Cotton	WHO – Paediatric ARV Drug Optimization Meeting (PADO 3)	Geneva

Ongoing Research Support:

NIH 5U01AI069521-10 Stellenbosch University Clinical Trial Unit – IMPAACT projects. The major goal is to conduct HIV clinical trials funded through IMPAACT.	12/01/2015 – 11/30/2016 \$1,032,117	4.2 calendar
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No overlap with other projects		
USAID 674-A-12-00031 HIV-Innovations for Improved Patient Outcomes in South Africa. The Major goal: Developing and Institutionalizing an Innovative Capacity Building Model to Support South African government Priorities and to Improve HIV/TB Health Outcomes for Priority Populations. No overlap with other projects	10/17/2012 – 09/30/2017 \$14,999,432	0.60 calendar
1RO1MH105134-03 Latent reservoir characterization and correlation with neurocognitive function – major goal is to describe latent HIV reservoir in children from the CHER trial and to correlate with neurocognitive outcomes and thymic output. No overlap with other projects	07/09/2016 – 06/30/2017 \$562,870	1.2 calendar
1U01CA200441-02 Characterizing HIV-1 diversity, evolution, and integration sites in children initiating cART in early infection. No overlap with other projects	05/01/2016 – 04/30/2017 \$157,220	0.6 calendar

Data Management Plan

IMPAACT: 99%
ACTG: 95,4%

Very well done to the entire FAMCRU IMPAACT/ACTG team for keeping our data management scores high!

Special thanks to the data team for the extra effort they put in to follow up queries and managing the data within the strict timelines.

2016 Awards and Accomplishments

1. Prof. Cotton – Appointment Board Member at the South African Medical Research Council – November 2016.

International Visitors

1. Swedish delegation from Karolinska 12 – 14 April

Training and Development

Weekly teachings and presentations are being held on different work-related aspects and guest speakers have been invited. This can be viewed on
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South2South Programme for Comprehensive Family HIV Care and Treatment Dr I.O. Oluwatimilehin

Summary of activities

2016 was the penultimate year of the PEPFAR/USAID Cooperative Agreement No. AID-674-A-12-00031; HIV-Innovations for Improved Patient Outcomes in South Africa for the South to South Programme (hereafter S2S). This cooperative agreement ends on 30 September 2017.

S2S is currently implementing an innovative capacity building programme and intervention that addresses capacity building at different levels of the health system in South Africa, with the overall goal of improving maternal and child HIV/TB health outcomes. The S2S capacity building model is an integrated and multi-level intervention aimed at improving the capacity of

individuals, organisation and systems of the National Department of Health (hereafter NDoH) to implement, scale up, and institutionalise innovations to improve patient outcomes of key populations.

Key features of the multi-level S2S capacity building programme are: (1) activities at an individual health worker level, (2) programme activities at an organisational level and (3) programme activities at a systems or policy level. Individual level capacity building activities are aimed at the individual healthcare worker. Organisational level capacity building activities are aimed at supporting health facilities, cluster of facilities, district/sub-district multidisciplinary teams, provincial regional training centres and Master Trainer networks. At a systems or policy level, S2S programme activities are targeted at attendance and responding to requests from NDoH such as to participate in technical working groups and supporting the Human Resources Directorate.

In 2016, S2S implemented the rapid scale-up phase of the Quality Improvement (hereafter QI) Collaboratives in 112 health facilities in four Sub-districts of the Amathole District, Eastern Cape Province. This led to the establishment of four sub-district level learning Networks with each consisting of a multidisciplinary team from supported and non-supported facilities as well as the 112 facility-based QI Teams. S2S, in collaboration with the Eastern Cape (EC) Regional Training Centre (RTC), conducted the Paediatrics Master Trainer network and the Advanced Quality Improvement Courses. In addition, S2S conducted trainings for Lay Counsellors, Enrolled Nurses and Ward-Based Outreach Teams drawn from 40 facilities; and provided intensified coaching and mentoring to facility staff to improve the Paediatric 90-90-90 tracer indicators by supporting community-facility linkages. S2S conducted an Implementation Science Workshop with 60 participants in attendance drawn from District DoH, Implementation Partners, Academia and USAID. District DoH presented three posters at the workshop. Focus group discussions were conducted for the competency dictionaries development by the S2S Strategic Information Unit as well as the writing workshop.

Most activities in the work plan were successfully implemented as scheduled except for challenges experienced in standardisation of the integrated management of childhood illness (hereafter IMCI) curriculum due to poor buy-in by the NDoH contact person. In some cases, there were delays in program implementation occasioned by unscheduled holidays.

Progress to PEPFAR Targets:

S2S provided technical assistance for service delivery improvement in the prevention of mother to child transmission (hereafter PMTCT) programme areas in the Amathole District, Eastern Cape Province, through the scale up of the S2S Elimination of mother-to-child transmission (hereafter eMTCT) and IMCI QI Collaboratives. S2S supported 112 facilities in all four sub-districts of the Amathole District. The QI is comprised of learning sessions followed by action periods focusing on improving key PMTCT/IMCI, and paediatric care and support the treatment and care pathway. In addition to this, S2S also conducted 1-2 hour need based facility training in supported facilities. The Train the Trainer course conducted by S2S for DoH Trainers and Implementing partners to support Management of Paediatrics, Adolescents HIV/AIDS and PMTCT and ensure sustainability of all capacity building activities complements this.

During 2016, S2S were allocated PMTCT facility level targets as an Innovation implementing partner. Table 1 summarises the PMTCT annual targets against results for the supported District.

Table 1: PMTCT Annual targets against results for Amathole District

Annual Target (Total)	% of annual target achieved	Comments / Analysis
PMTCT_STAT Numerator (N) (14125)	75%	S2S implemented the scale up phase of the QI Collaboratives in April 2016. Facility support in the Amathole District was scaled up from 14 to 112.
PMTCT_STAT Denominator (14413)	60%	
PMTCT_ART Numerator (2737)	97%	
PMTCT_EID Numerator (2737)	78%	

Source: DATIM FY2016 MER Results

- PMTCT_STAT Numerator: This target refers to the **Number of pregnant women who were tested for HIV and know their results, plus Number of pregnant women with known HIV status at entry to services**. S2S has achieved a 75% achievement of the target set by PEPFAR for the facilities supported
- PMTCT_STAT Denominator: This target refers to **Number of new antenatal (ANC) and Labour and Delivery (L&D) clients**. S2S achieved 60% of the set target by PEPFAR
- PMTCT_ART Numerator: This target refers to the **Number of HIV positive pregnant women who receive antiretroviral (ARV's) to reduce risk of mother to child transmission during pregnancy**. S2S achieved 97% of target received by PEPFAR
- PMTCT_EID Numerator: this target refers to **Number of infants who had a virological HIV test within 12 months of birth during the reporting period**. S2S achieved 78% of target set by PEPFAR

Technical assistance dashboard

S2S provided technical assistance to various health system structures and levels in the Eastern Cape Province including the RTCs, District Clinical Specialist Teams, sub-district- and health facilities. Activities conducted also comprised conducting modular, needs based training and mentorship, facilitating district learning QI networks and facilitating the Paediatric and adolescent Care Master Trainer Course. Table 2 summarises S2S technical assistance coverage for FY2016.

Technical Assistance Type	Technical Assistance Output Indicator	Total targeted sites/districts (per indicator)	Disaggregates	Annual Total
Training	Number of staff trained as Trainers on the Paediatric and Adolescent HIV and TB Management ToT course	8 districts	Staff completing the course	52
			Number of districts	8
	Number of staff trained in Paediatric and Adolescent HIV and TB Management by DoH trainers with the support of S2S	8 districts	Staff completing the course	147
			Number of districts	8
	Number of staff trained in QI coaching	1 district, 4 sub-districts	Staff currently on the course	17
			Number of sub-districts	4
Mentoring	Number of staff mentored Paediatric and Adolescent HIV course	1 District, 112 Health Facilities	Staff mentored	43
			Number of facilities	0
Mentoring/organisational	Number of districts/facilities receiving documented mentoring assistance with follow-up action plans by technical area	1 District, 112 Health Facilities	Number of Facilities	112
			Number of districts	1
Quality Improvement of Services	Number of districts/facilities supported to implement QI activities by technical area	1 District, 112 Health Facilities	Number of Facilities	112
			Number of districts	1
Clinical Quality Programme Areas	Clinical Quality Capacity Outcome Indicator	Total targeted sites/districts (per indicator)	Disaggregates	Annual Total
Quality Improvement Capacity	Number of districts/sites with quality improvement activities implemented that address clinical HIV	1 District, 112 Health Facilities	Number of Sites	112
			Number of districts	1

	programme processes or outcomes and have documented results			
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District Work Plan

In 2016, S2S expanded the programme into facilities previously not selected in Mnquma sub-district where the programme was already in progress. Additionally, new facilities in the other three sub-districts (Mbashe, Nkonkobe and Amahlathi) were added for the rapid scale up phase. By September 2016 we have covered a total of 28 facilities in Mnquma consisting of new and previously selected facilities, 28 new facilities in Mbashe, 28 new facilities in Nkonkobe and 28 new facilities in Amahlathi. The main aim of the rapid scale up phase was to define conditions under which the eMTCT QI collaborative is most effective during scale up.

As a result, the following targeting strategies were used to select facilities to be included in the rapid scale up phase: Burden of disease high burden/high volume vs low burden/low burden, Facility type (Hospital vs CHC or PHC Clinic), Socio-demographic (Rural vs Urban location). The distinguishing characteristics of the rapid scale up phase has been the comparative nature of the effectiveness of the QI approach to eMTCT using the Urban/Rural location, Hospital/PHC facility type and the high volume/low volume sites, presence/absence of a hospital in the supported facility cluster.

In expanding programme coverage through the rapid scale up process, the following achievements stand out:

- S2S had established 112 QI Teams in the targeted facilities across the 4 sub-districts
- Each facility QI Team had an elected Team Lead from amongst the constituted team
- S2S Technical Advisors conducted QI coaching with each one of the 112 QI Teams
- As part of the Learning Network established through the rapid scale up process two Learning Sessions were held for facilities to share best practices, namely, Learning Session 2 in July and Learning Session 3 in September
- All maternal District Implementation Plan (hereafter DIP) PMCT 90 90 90 tracer indicators have been rolled out in the selected 112 facilities
- A Community Health Worker (hereafter CHW) training was conducted for Lay Counsellors and CHW in selected facilities
- High level of buy-in was achieved into the QI Collaborative process in the Eastern Cape in general and the Amathole District management in particular

Amathole District PMTCT Cascade

There were 8 595 total number of antenatal clients and 8 481 (99%) tested for HIV. In addition, out of a total of 2 710 positive antenatal clients, 2 682 (99%) were initiated on treatment.

Progress to Targets under the first 90

From January to March the S2S programme focused on the establishment of Facility-based QI Teams. One hundred and twelve QI Teams were established with 112 Facility-based QI Team Leads in the four Sub-districts. The 1st quarter ended by holding the 1st Learning Session, which marked the establishment of 4 Sub-district Learning Networks characterised by the roll-out of the first set of indicators in the PMTCT and Paediatric cascade:

- Antenatal first visit before 20 weeks
- HIV counselling and testing rates
- HIV re-testing of pregnant women
- Infant first PCR test positive at birth
- Infant rapid HIV test around 18-month uptake
- Couple year protection rate
- Infant HIV prophylaxis
- Exclusive breastfeeding

Progress to Targets under the second 90

From April to June, the S2S programme focused on continuing with the coaching of 112 QI Teams, 112 Facility-based QI Team Leads and 27 Sub-district managers in the 4 Sub-districts on QI Methodology. The 2nd quarter ended by holding the 2nd Learning Session characterised by

the roll-out of the second set of indicators in the PMTCT and Paediatrics cascade:

- HIV retesting rate in pregnancy
- Positive antenatal client receiving ART
- Antenatal client initiated on ART
- Mother postnatal visit within 6 days
- Infant first PCR test positive at birth
- Couple year protection

At the 2nd Learning Session, three facilities from each sub-district presented QI projects to showcase the improvements in selected indicators. The following are highlights of some of the presentations made by the facilities:

Clinic Name:	Indicator:	Observed Improvements:
Nyhwara Clinic	1 st ANC Booking < 20 weeks	34% Increase from Baseline
Butterworth Hospital	Birth PCR	85% Increase from Baseline
Komga Clinic	1 st ANC Booking < 20 weeks	40% Increase from Baseline

Progress to targets under third 90 (PMTCT and Paediatrics)

In Quarter 3, the S2S programme focused on coaching the 112 QI Teams, 112 Facility-based QI Team Leads and 27 Sub-district managers in the 4 Sub-districts on QI Methodology; the 3rd quarter ended by holding the 3rd Learning Session characterised by the roll-out indicators in the paediatrics cascade:

- First clinic visit <6 days, linking mother/baby pair
- HIV test positive child 19-59 months
- HIV test positive child 5-14 years
- Child under 1 year naïve started ART
- Child 12-59 months naïve started ART
- Child 5-14 years naïve started ART
- Child under 15 years remaining on ART – total

All 112 facilities were ready and prepared to present QI projects to showcase the improvements in selected indicators. The following are highlights of some of the presentations made by the facilities:

Clinic Name:	Indicator:	Observed Improvements:
Nompumelelo Gateway	Viral load suppression 0-15 years	5% Increase from Baseline
Victoria Gateway	Viral load done 0- 15 years	40% Increase from Baseline
Victoria Gateway	Children remaining on ART 0-15 years	40% Increase from Baseline

Human Resources for Health and Health Systems Strengthening (Crosscutting):

Service Delivery:

A CHW Forum Workshop, where 40 lay counsellors and 40 Community Health Workers (CHWs) were trained, was thus rolled out in 40 high volume Amathole District facilities consisting of 10 Facilities in each of the four sub-districts. The following criteria were utilised to characterise high volume site for the targeted intensive improvements on poor performing paediatric HIV DIP indicators:

- Total number of pregnant women for antenatal 1st visit total to estimate the projected number of children eligible for health services in each facility – high volume facility predictor
- Total number of children receiving Hex 1st dose to estimate number of children who have received a service in the health facility – to estimate volumes in the facility
- Live births to HIV positive women to identify the number of HIV-exposed children who will be used as index cases to identify un-serviced exposed siblings – to estimate disease burdens in the facility

Health workforce:

Integrated IMCI Training

The integrated course trained CHWs, Lay counsellors and Enrolled Nurses. It integrated clinical topics with QI topics. Two courses were held, one for the Mquma and Mbashe sub-districts and the other for the Amahlathi and Nkonkobe sub-districts. One hundred and seventeen healthcare workers were trained. Clinical topics included treatment of paediatric HIV, IMCI, TB management and breastfeeding. Adherence and disclosure were also discussed. The QI approach was covered and the participants had the opportunity to practice using tools such as the fishbone and process map.

Paediatric Master Trainer Network

Close Collaboration with the RTC continued throughout 2016. The RTC has endorsed the S2S Paediatric and Adolescent HIV and TB Management Train the Trainer Programme. It is currently the only course on Paediatric HIV which has permission to train in the Eastern Cape. The RTC identified the participants to be trained as trainers. The trainers were required to do their training skills assessment in a geographical area identified as priority by the RTC. These assessment trainings were funded by the RTC and the S2S participants facilitating them were mentored to organise them in collaboration with the RTC. This was done to support the provincial training systems and build relationships between the trainers and RTC for sustainability of training.

Three Paediatric and Adolescent HIV and TB Management five-day courses were in progress at the beginning of 2016. Two of them were completed during 2016 with the assessment of the participant training skills. The third group could not complete theirs as planned as the final assessment had to be postponed to accommodate the voting day. The following activities were conducted for each course:

Course:	Clinical Component:	Train the Trainer Component:
Paediatric ToT Course 1	Completed 2015	17 participants trained 60 nurses and doctors as assessment of their training skills
Paediatric ToT Course 2	Completed 2015	16 participants attended 1 planning workshop to prepare for their assessment 16 participants trained 60 nurses and doctors as assessment of their training skills
Paediatric ToT Course 3	18 participants joined 1 conference call 18 participants attended 1 group mentoring session	18 participants attended a 2-day session on course development skills

The Train the Trainer component underwent an intensive revision after the first group completed it. While the content remained the same, the training methodology used during the course by S2S was changed from lecture style to interactive workshoping. This was done to model the training methodology we would like to see the participants use. This new methodology resulted in a marked difference in the way participants trained during their assessments. Instead of giving the S2S presentations to the participants as the previous group had done, the participants designed their own interactive learning activities to supplement slides which they developed themselves. This resulted in a training which was better tailored to the local context, which was practical and interesting. Quality was maintained through supervision by the S2S trainers. Some of the learning activities created by the participants will be integrated into the S2S course going forward.

The WhatsApp groups and Conference Calls were appreciated by the participants. While the content of the WhatsApp group has not contained as many clinical discussions as anticipated, the participants have used them to support each other in their work and personal lives. During the courses the S2S facilitators initiated contact on a weekly basis. Communication through the

groups has continued beyond the completion of the course, although these discussions have generally been initiated by the S2S facilitators and not the participants.

One research project on the course was completed. The title of the research project was “participants’ experience and perceptions in applying their learning about paediatric HIV and TB”. Five themes were identified during the research:

1. Learner context: The participants found the content to be relevant and useful in their contexts, which varied from supervision of several facilities to clinic work and mentoring.
2. Technology as a teaching medium: The conference call gave the participants opportunities to ask questions and the WhatsApp group helped them to stay in contact and support one another.
3. Professional growth enabling application: The participants identified how their practice had changed during the course and started applying the content as soon as they completed the first contact session.
4. Community of learning: The community of learning provided a feeling of support and not having to face challenges alone.
5. Learning beyond the clinical context: The participants broadened their understanding of what was required to adequately treat Paediatric HIV clients and appreciated the role model provided by the S2S facilitators, intending to emulate them in their own practice.

Despite the challenges of workload and lack of access to technology, the course design did answer to the educational needs of the group. The course was experienced as being transformative, deep learning took place and an ongoing community of practice was created. With adaptations, the blended learning model was useful and translated into our context.

QI Master Trainer Network

The first Advanced QI course was facilitated in collaboration with the District NDoH. It was decided to situate the course within the district rather than RTC systems as the RTC focusses on clinical training and the district on systems training. As the district role is more supervision and mentoring than training, we were unable to make the course a train the trainer course as originally planned. Rather we focussed on training managers and supervisors to coach their staff through implementing QI methodology in the facilities they manage. Fourteen Operational Managers and 3 Registered Nurses started the course. Completion of the course was delayed as a result of the voting day. The following activities have thus far been facilitated as part of the course:

- 1 x 5-day classroom session covering QI methodology and theory
- 11 x telephonic coaching sessions to support participants to set up a QI project across their facilities
- 1 x 1 hour conference call allowing participants to share their QI projects with each other and receive feedback
- Daily contact via WhatsApp

The participants have each started a QI project within their context. The following projects were chosen by the participants after looking at the data:

Indicator:	Number of Projects:
Child < yrs commenced on ART	2
ANC 1 st visit before 20 weeks	4
HCT coverage 15 – 49 years	2
TB screening rate	5
ANC retesting rate	1
Couple year protection rate	1
Uptake 18-month HIV testing	1
Infant EBF at Hep 3	1

The participants whose facilities are part of the S2S Learning Collaborative were encouraged to choose projects to fit in with the work they are doing as part of the collaborative and to become more involved in that process. One participant commented via WhatsApp about how she had managed to use her learning on the course to support her team to implement what they had learnt at the learning session: “Tnx very much for your support. My facility presented very well

last month due to your support.....your training came at a right time; why the champions were recently trained so there were some gaps in implementation so they needed coaches who are powerful with info to drive them in a right track so now I am confident and have insight of how to coach and be supportive for our success.”

Strategic Information:

Competency dictionaries for frontline healthcare workers

Through the health system strengthening work, the S2S programme supports relevant old and new policy initiatives that have been introduced to strengthen the South African health system such as (1) Re-engineering of Primary Health Care, (2) National Health Insurance, (3) Ideal clinic initiatives, and (4) NDOHs 90-90-90 just to mention a few. This ever-changing policy and implementation context for the health system has implications for competencies required as well as training of health workers. During 2016, S2S has been in the process of developing a comprehensive list of competencies through a training and performance needs assessment for frontline healthcare workers. The competency dictionaries are focused on HIV/TB services, prevention of mother-to-child transmission of HIV; and paediatric and adolescent HIV/TB treatment.

Planned activities for 2016 included conducting focus group discussion with frontline health workers and getting input and buy-in from the District Management on the draft competencies. Stakeholder engagement and buy-in meetings were conducted successfully in all the provinces at the beginning of the year (2016). Subsequently, a total of 12 focus group discussions out of the targeted 18 have been completed for phase 1 in all three participating provinces. The following is a summary of perceptions of training needs for different health workers providing HIV/TB services at the frontline:

1. Training for new policies and guidelines is a need across all cadres and in all three provinces.
2. Doctors: Current performance areas of focus vary by district and province. This has implications for capacity building requirements for HIV/TB services training providers.
3. Registered Nurses: Role description similar across contexts. Managing HIV/TB co-infection, leadership and customer care training in addition to technical and programmatic training seen as key skills in need of capacitation.
4. Pharmacists: Stock and cold chain management capacitation was highlighted as great need, including systems training in profession.
5. Facility Managers: Highlighted a lot of burden in conflict management in their roles. Groups expressed need for leadership and management training, financial management, and project management capacitation. In addition to programmatic focussed training.
6. Community Based Workers: a high burden of task in their role; expressed need to HIV/TB knowledge training, counselling skills, HIV testing and psychosocial and palliative care delivery skills. Groups also highlighted resource needs and issues.
7. Lay Counsellors: Highlighted the need for update in counselling skills including handling mentally ill, managing stress and burnout, and NIDS data capture systems training.

Key Operational Research in Programme Areas:

During 2016, S2S conducted various inter-disciplinary research on training and mentoring, to improve Maternal and Child Health programmes through implementation science and education research approaches. Two S2S staff members completed Master Degree research projects based on capacity building projects being implemented by S2S.

1. The clinician's experiences of a simulated ART adherence exercise: A qualitative study.
2. Learning about paediatric HIV and TB – exploring participant's experience and perceptions to apply what they learned in a blended learning course.

Both projects were completed in September 2016 and the staff members will be completing their Masters Degrees.

Evaluation of Collaboratives (EMTCT & IMCI Collaboratives)

S2S has been conducting an overall process and summative programme evaluation study to describe the processes and impact of the S2S projects under Cooperative Agreement No. AID-674-A-12-00031. During 2016, the project launched the scale-up phase. At scale up, 112 facilities

started receiving support from S2S and these facilities were the focus of evaluation activities during the 2016. There were two data collection activities that were required for data collection at baseline of the scale-up phase of the project:

1. Baseline interviews for QI Maturity Surveys: A samples of at least 2 health workers surveys was required for all the scale-up facilities. A total of 236 QI Maturity Surveys were conducted with health workers at the 112 scale-up facilities in Amathole District in the Eastern Cape.
2. Baseline site assessment forms were required to be completed for 112 scale-up facilities to collect information of the health facility profiles. A total of 112 site assessment forms were completed.

No major challenges were encountered during data collection and the study is on course of being completed successfully. No adverse events were reported for the data collection period.

Positives outcomes from the QI Collaboratives

In the pilot and demonstration phase of the project, we observed marked regional variation in improvement for early booking rates in 2 out of 3 provinces (24 % in the Eastern Cape; $p < .001$; 4% in the Western Cape). All sites improved antenatal HIV retest rates (Eastern Cape 31%; $p < .001$; 11% in the Northern Cape 11%; $p < .001$; Western Cape 74%; $p < .001$). Postnatal visit within 6 days' rates improved (varying from 6%-15% in supported provinces). Exclusive breastfeeding rates improved (28% increase in the Eastern Cape; $p < .001$, 15% in the Northern Cape; $p < .001$, 12% in the Western Cape; $p < .001$). The 18-month rapid test uptake rates improved for all provinces (Eastern Cape 28%; $p < 0.001$, Northern Cape 20%; $p < .001$ and Western Cape 25%; $p < .001$). Factors influencing performance were baseline rates, facility type and size, QI skills, leadership and buy in for QI. The collaborative approach achieved rapid improvements in eMTCT program outcomes in a wide range of facilities across South Africa. Performance variability may be attributed to contextual, organizational and system factors.

National Work Plan Activities:

Support national and provincial human resource development

The project to review the IMCI curriculum for undergraduate nurses with a view to standardisation was stalled earlier this year when NDoH stopped responding to emails and answering calls. It was later discovered that the IMCI representative at NDoH had changed. In consultation with the new IMCI coordinator at NDoH, it was decided that this project would not continue. The project concept had never been presented by the initial coordinator to the relevant NDoH director for approval and it is not feasible to start at the conceptual phase again at this point in the funding cycle. It is recommended that the project be included in future funding opportunities.

Conduct improvement science research and education research

S2S supported implementation science projects with DOH and PEPFAR partners to support achievement and documentation of 90-90-90 best practices and innovations.

Implementation science workshop

S2S conducted the 3rd Implementation science workshop in Cape Town from 6- 8 September 2016. The theme of the workshop was: "Prioritising key maternal and child health 90-90-90 targets into action: The role of implementation science". Specific objectives of the workshop were: (1) To capacitate districts stakeholders to use QI approaches as an implementation science approach, to ensure effective implementation of district and programme priorities (focussing on maternal and child in the context of HIV/AIDS); (2) To clarify the extent, nature of district and sub-district level cause of service level bottlenecks for PMTCT and paediatrics and adolescent services; (3) To share best practices and interventions across context to ensure effective responses for maternal and child health services; and (4) To identify and share strategies for sustaining QI projects over time to ensure continuous improvement for maternal and child health services.

The workshop was targeted at district health management teams, provincial level maternal and child health managers, district information management teams, PEPFAR implementing partners, facility managers and QI leaders. Seventy-three delegates attended from DoH in the Eastern

Cape, Northern Cape, Western Cape and PEPFAR partners.

Writing workshop and research outputs

To promote the identification and evaluation of innovations to establish best practices for institutionalisation of capacity building approaches, S2S staff as well as Department of Health (DoH) staff have co-published work ongoing operational research, programme evaluation research, in order to write-up of best practices and proven interventions. From 25 – 27 July 2016 S2S conducted a writing workshop with both S2S and DoH stakeholders.

Summary of 2016 research outputs:

Papers submitted to peer review journals in 2016

1. Engelbrecht, J., Skinner, D., Mukinda, F., & Green, B. (Submitted, under review). The clinician's experiences of a simulated ART adherence exercise: A qualitative study. Journal article submitted to Medical Education Online.
2. Engelbrecht, J. Letsoalo, M. & Chirowodza, A. (Submitted, under review). Homebased care study. Journal article submitted to the BMC Health System.

Conference Papers presented in 2016

1. Chirowodza, A; Williams, D; Diergaardt, D; Adetokunboh, O; Gede, S; Gobodo, N; Makeleni, N; Tuswa, N; Eckard, M; O'rie T; Shingwenyana, N; Green, B & Oluwatimilehin, I. (2016). The effectiveness of a quality improvement collaborative to accelerate elimination of mother-to-child transmission (eMTCT): Key outcomes and determinants from a demonstration phase collaborative implemented in South Africa, 2012 – 2015. Poster discussion paper presented at the 21st International AIDS Conference, 18th – 22nd July 2016, Durban, South Africa.
2. Geiger, J & Green, B. (2016). Learning about paediatric HIV and TB – exploring participant's experience and perceptions to apply what they learned in a blended learning course. Oral presentation at the SAAHE conference, 22-24 June, 2016, Port Elizabeth, South Africa.
3. Goosen, C., Geiger, J & Schubl, C. (2016). Empower us! Change ideas for improving exclusive breastfeeding rates. Oral presentation at the 18th International Society for Research in Human Milk and Lactation (ISRHML) conference in Breastfeeding Medicine, 03-07 March 2016, Stellenbosch.
4. Engelbrecht, J., Green, B., Skinner, D. & Mukinda, F. (2016). The clinician's experiences of a simulated ART adherence exercise: A qualitative study. Poster presentation at the 60th Annual Academic Day, Stellenbosch University, 11 August 2016, Tygerberg campus, Stellenbosch University, Tygerberg, Cape Town, South Africa.
5. Green, B., Chirowodza, A., Shingwenyana, N. & Oluwatimilehin, I. (2016). Strengthening Communities of Practice amongst stakeholders working towards the Prevention of Mother-to-Child Transmission (PMTCT) in Amathole District. Electronic poster presentation at the PHASA conference, East London, 19-22 September 2016, South Africa.
6. Shingwenyana, N., Chirowodza, A., Green, B., & Oluwatimilehin, I. (2016). The effectiveness of a quality improvement collaborative to accelerate elimination of mother-to-child transmission (eMTCT): Key outcomes and determinants from a demonstration phase collaborative implemented in the Eastern Cape, 2012 – 2015. Oral presentation at the Stellenbosch University Annual Academic Day Conference, 11 August 2016, Tygerberg campus, Stellenbosch University, Tygerberg, Cape Town, South Africa.
7. Mzileni, N., Mpepo, S., Williams, D., Arendse, N. Adetokunboh, O., Gobodo, N., Makeleni, N., Tuswa, N., Gede, S., Chirowodza, A., Shingwenyana, N., Green, B. & Oluwatimilehin, I. (2016). Using quality improvement methods to improve uptake of 18-month HIV Exposed Infant (HEI) testing rate in Mquma Sub-district, Amatole District, Eastern Cape Province, South Africa. Oral presentation at the 3rd South to South Implementation Science Research Workshop Poster Presentation, 7-9 September 2016 Durbanville, Cape Town, South Africa.
8. Swarts, A.L., Wawini, L., O'rie, T., Johnstone, W., Williams, M., Gunst, C., Liebenberg, H., Arendse, N., Diergaardt, C., Chirowodza, A., Shingwenyana, N., Green, B. & Oluwatimilehin, I. (2016). Using quality improvement methods to improve uptake of 18-month HIV Exposed Infant (HEI) testing rate in Mquma Sub-district, Amatole District, Eastern Cape Province, South Africa. Oral presentation at the 3rd South to South

Implementation Science Research Workshop. Poster Presentation, 7-9 September 2016, Durbanville, Cape Town, South Africa.

9. S.J. Gous, S.J., Koekemoer, H., Arendse, N., Chirowodza, A., Shingwenyana, N., Green, B. & Oluwatimilehin, I. (2016). Outcome evaluation of the Early Ante-Natal Booking < 20/52 using Quality Improvement Methods at a Primary Health Care Facility in Siyancuma, Northern Cape. Oral presentation at the 3rd South to South Implementation Science Research Workshop Poster Presentation, 7-9 September 2016, Durbanville, Cape Town, South Africa.

Technical assistance request from NDOH Technical working groups:

Paediatric TWG

No Paediatric Technical Working group meetings were called by NDoH in 2016. There has been no response from NDoH to requests for information on the future of the meetings.

PMTCT TWG

S2S participated in three PMTCT TWG meetings, the first meeting was scheduled to review DIPs from selected districts out of the 52 districts across the whole of South Africa. As a follow-up to this meeting, S2S assisted the NDoH in reviewing over 10 DIPs from districts other than Amathole.

The second TWG attended focused on change in the PMTCT guidelines, including birth PCR, universal test and treat amongst others. Follow-up activities from S2S was to comment on the practicality of the changed guidelines as well as alignment of changes in the guidelines with DHIS to allow for uniform data collection and standardised calculation of the indicator.

The third meeting focused on steps by NDoH towards achieving the last mile in the eMTCT of HIV.

Implementation Science TWG

S2S supported the National Implementation Science technical working group in 2016 by participating, sharing 90 90 90 best practices and contributing to NdoHs and PEPFAR's implementation science agenda. S2S attended and participated in one Implementation Science TWG that focussed on: South Africa HIV/TB implementation research advisory committee:

Research Agenda Workshop. The objective of the workshop was to refine and endorse HIV/TB research questions that had been in draft during the previous workshops. There were no other technical working groups held during FY2016.

Responding to technical assistance request to District TWGs:

HR Platforms (Training platforms)

The Eastern Cape RTC did not call any training meetings in 2016. Check-in meetings were arranged between the head of the RTC and S2S to ensure that the S2S training programme remained aligned with the Provincial DoH priorities.

Adhoc technical assistance request from stakeholders

Two requests were received from the Eastern Cape this quarter:

1. Paediatric ART training for district managers. This request was integrated in the Paediatric Master trainer programmes, where it will be trained by the new trainers under S2S supervision as their assessment.
2. Assistance in monitoring the disposal of Hepatitis B vaccines. S2S QI coached assisted by ensuring that the vaccines were removed from the fridges and quarantined, following up to ensure that they had been sent to the province for disposal.

District Implementation Plans Progress and Next Steps

S2S contributed to the joint Provincial and Partner District Implementation Plans Development meetings. S2S Technical Advisors assisted facilities in identifying, analysing and prioritisation which of the DIP poor performing indicators to be included in the sub-district and finally consolidated into an Amathole DIP. Next steps would be to finalise incorporation of the S2S QI inputs as part of the Amathole DIP to reflect the budgetary requirements for maintaining and sustaining the established Learning Network for the S2S led QI Collaboratives in Amathole

District and the Eastern Cape Province, as well as provide a blue print for scale up into other Districts.

Resources:

All positions are funded 100% by PEPFAR/USAID funds through Cooperative Agreement No. AID-674-A-12-00031; HIV-Innovations for Improved Patient Outcomes in South Africa.

Posts (Full time)	Number	Filled
Principal Investigator (10% FTE)	1	1
Clinical Programme Director	1	1
Operations Director	1	1
Programme Manager: Health Programmes	1	1
Programme Manager: Learning Support	1	1
Programme Manager: Strategic Information	1	1
Administrative Assistant	1	1
Travel and Logistics Coordinator	2	2
Financial Officer	1	1
Administrative Officer	2	2
Programme Assistant	1	1
Programme Data Officer	1	1
Data Capturer	1	1
M&E Officer	1	1
Strategic Information Officer	1	1
Research Assistant	3	3
Clinical Advisor	4	2
Nurse Advisor	4	4
Nurse Advisor Training	3	3
Training Designer	2	2
APS Advisor	4	4
Pharmacy Advisor	2	2

New equipment:

- 10 Dell Latitude E7440 Laptops
- 3 HP MFP M477 Printers

Partnerships:

1. South African Government:

S2S have ethical approval from the provincial government structures to conduct research:

- Western Cape Department of Health: Cape Winelands District
- Northern Cape Department of Health: Pixley-ka-Seme District
- Eastern Cape Department of Health: Amathole District

2. Non-governmental organisations:

S2S is a USAID provincial specialist partner forming part of the broader NGO network of PEPFAR support to the South African Government to improve HIV/TB health outcomes. S2S works closely with the following organisations:

- ANOVA Health Institute: USAID district implementing partner in the Cape Winelands District, Western Cape Province
- Health Systems Trust: USAID district implementing partner in the Pixley-ka-Seme District, Northern Cape Province
- IYDSA: USAID district implementing partner in the Amathole District, Eastern Cape Province
- ITECH: Specialist training support partner to the NDoH Human Resources Directorate and Regional Training Centres
- Keth'Impilo: Training collaboration on paediatric and adolescent HIV/TB
- Broadreach: Training collaboration and technical assistance on paediatric and adolescent HIV/TB and eMTCT
- 20 000+ UKZN: Quality improvement partner organisation
- Aurum institute: Co-support of the NDoH PMTCT Steering Committee on quality improvement

- WRHI: Co-support of the NDoH PMTCT Steering Committee on quality improvement
- Institute for Healthcare Improvement: Providing technical assistance and training to S2S staff in quality improvement methods
- Paediatric Aids Treatment Africa (PATA): PATA uses the S2S Paediatric HIV/TB Toolkit for training events
- Numerous other NGOs and training institutions utilises S2S training material

Teaching and training:

The table below is a summary of S2S staff and their current postgraduate studies.

S2S Staff Member	Degree Course	Institution
Admire Chirowodza	PhD in Counseling Psychology	University of KwaZulu-Natal
Justin Engelbrecht – Graduated 2016	MPhil in Health Systems Research	University of Stellenbosch
Justine Geiger – Graduated 2016	MPhil in Health Professions Education	University of Stellenbosch
Beryl Green	MPhil in Health Professions Education	University of Stellenbosch
Madoda Sitshange	DPHil in Social Work	University of Pretoria

Desmond Tutu Tb Centre (DTTC)

Prof. A.C. Hesseling

Letter from the Director

The past year at the Desmond Tutu TB Centre (DTTC) has been characterised by considerable transition, challenges, growth and opportunities. Our centre leadership was transitioned from its founding and visionary director, Professor Nulda Beyers, to Professor Anneke Hesseling in March 2016.

Internal restructuring, the establishment of an ExCo, standardisation of core support functions (e.g. laboratory, data, information technology, administrative support, logistics, operations and finances) have been established. Resulting from a deliberate strategy, increased internal collaboration has been established between our three main focus areas, underpinned by other key competency areas. New internal and external collaborations have been established and a strong emphasis has been placed on transformation of our researcher profile.

An exciting development has been partnering with South African institutions outside of the Western Cape Province, with three new investigator-initiated clinical trials led by the DTTC, which will be implemented in collaboration with national partners.

We have enormous human capital potential at DTTC, which is our main asset. As evidenced by the substantial number of South African, African and international postgraduate researchers, there is significant potential to train and retain a new generation of clinical and other researchers who will be able to impact on the tuberculosis and HIV epidemics in the Western Cape, in South Africa and beyond. The South African National Research Foundation SaRCHI Chair in Paediatric Tuberculosis, currently held by the director, offers a strategic and relatively sustainable platform to support this vision.

Looking ahead, we aim to continue with our strong collaboration with government partners, and to design and implement research which will truly impact on the tuberculosis and HIV epidemic in our setting. We will seek to further transform and diversify our researcher portfolio, engage in strategic new partnerships, seek long-term core funding for ongoing centre support, diversify our funding portfolio, and develop a strategy to anticipate and address expected and unexpected risks. Finally, we will develop and utilise more ambitious marketing and communication strategies to increase awareness and further improve the profile of the centre.



Desmond Tutu TB Centre Strategy House 2020

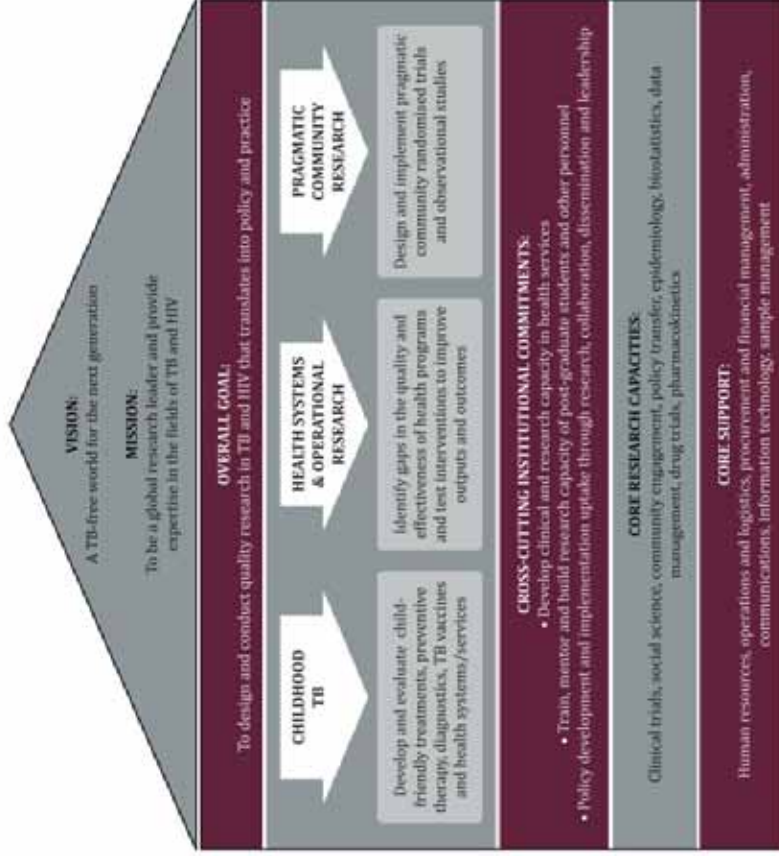


Figure 1. DTTC Strategy House

Glossary of Terminology

ACTG	AIDS Clinical Trials Group
AE/AER/EAE	Adverse Event / Adverse Event Report / Expedited Adverse Event
AIDS	Acquired Immunodeficiency Syndrome
ART/ARV	Antiretroviral Therapy / Antiretroviral
BMC	BioMed Central
BMRC	British Medical Research Council
CAB/CAG	Community Advisory Board/Community Advisory Group
CD4	Cluster of Differentiation 4
CDC	US Centers for Disease Control and Prevention
CEBHC	Centre for Evidence based Health Care
CFP-10	Culture Filtrate Protein 10-kDa
CFU	Colony-forming units
CHIP	Community HIV Care Providers
CM	Clarification Memo
COMAPP	Community AIDS Prevention Project
CRS	Clinical Research Site
CTU	Clinical Trials Unit
CXR	Chest X-ray
DAERS	DAIDS Adverse Experience Reporting System
DAIDS	Division of AIDS, NIAID
DFID	Department for International Development
DMC	Data Management Center
DOT	Directly Observed Therapy
DR-TB	Drug-Resistant Tuberculosis
DS-TB	Drug-Susceptible Tuberculosis/Drug-Sensitive Tuberculosis
DSMB	Data and Safety Monitoring Board
DST	Drug Susceptibility Testing
EC	Ethics Committee
DTTC	Desmond Tutu TB Centre
ECG	Electrocardiogram
ERS/ATS	European Respiratory Society/American Thoracic Society
ESAT-6	Mycobacterium tuberculosis early secreted Antigen 6 kDa
EDCTP	The European & Developing Countries Clinical Trials Partnership
FAMCRU	Family Clinical Research Unit
FDA	Food and Drug Administration
FHI 360	Family Health International and Academy for Educational Development
FMHS	Faculty of Medicines and Health Science
FSTR	Frontier Science & Technology Research Foundation
HAART	Highly Active Antiretroviral Therapy
HCT	HIV Counselling & Testing
HIV	Human Immunodeficiency Virus
HPTN	HIV Prevention Trials Network
HR	Human Resources
IMPAACT	International Maternal Pediatric Adolescent AIDS Clinical Trials Group
INH	Isoniazid
IRB	Institutional Review Board/ethics committee
IT	Information Technology
LAB	Laboratory
LFMi	Lung Function Measurement instrument
LPV	Lopinavir
LPV/r	Lopinavir/ritonavir
MA	Master of Arts
MCC	Medicines Control Council
MDR-TB	Multidrug-Resistant Tuberculosis
MIC	Minimum Inhibitory Concentration
MPH	Master of Public Health
MRC	Medical Research Council

MS	Mass Spectrometry
MSF	Médecins sans Frontières
<i>M.tb</i>	<i>Mycobacterium tuberculosis</i>
NIAID	National Institute of Allergy and Infectious Diseases
NICHHD	National Institute of Child Health and Human Development
NIH	National Institutes of Health
NSP	National Strategic Plan
NTP	National TB Program
OR	Operational Research
ORAP	Operational Research Assistance Project
OGAC	Office of the U.S. Global AIDS
PC	Population Cohort
PEPFAR	President's Emergency Plan for AIDS Relief
PHC	Primary Health Care
PI	Principle Investigator
PK	Pharmacokinetics
PID	Patient Identification Number
SID	Study Identification Number
PMTCT	Prevention of Mother To Child Transmission
PTB	Pulmonary Tuberculosis
RIF	Rifampicin
QA	Quality Assurance
QGIT	QuantiFERON Gold-In Tube (QGIT)
RSC	Regulatory Support Center
SACEMA	South African Centre for Epidemiological Modelling & Analysis
SADR	Suspected Adverse Drug Reaction
SANTP	South African National TB Program
STI	Sexually transmitted infections
STINT	Swedish Foundation for International Cooperation in Research and Higher education
SU	Stellenbosch University
TBTC	TB Trials Consortium
UCL	University College London
VMMC	Voluntary Male Medical Circumcision
ZAR	South African Rand (currency)

Achievements & Targets

Leadership and transition: Professor Anneke C. Hesseling was officially appointed Director of the Desmond Tutu TB Centre, effective 1 March 2016, following the retirement of its founding director, Professor Nulda Beyers.

KEY ACHIEVEMENTS 2016	TARGETS 2017
<ul style="list-style-type: none"> • Participation in 4 new global World Health Organization (WHO) treatment guidelines 12 Grants Awarded • 54 Publications (PubMed) • 16 PhD Students Registered • 2 PhD Students Graduated • Initiating new honorary appointments at DTTC • 20 Masters Students Registered • 188 Staff completed external capacity building coursework • 171 Staff attended Stellenbosch University SETA courses • Restructuring and standardisation of core 	<ul style="list-style-type: none"> • Increased transformation of PI profile; HR strategic plan for staff wellness, retention, coaching, student mentoring and capacity building • Regular scientific strategy planning for centre scientific leadership • Ongoing restructuring and standardisation of core functions including data, QA/monitoring, data, IT, labs and sample management • Expansion of sustainable funding for DTTC core support functions • Diversifying funding portfolio • Expansion of additional key strategic

<p>functions for database development and lab teams and sample management structures</p> <ul style="list-style-type: none"> • Establishment of first overarching DTTC Community Advisory Board (CAB) • Director awarded SA NRF B1 rating (first application) • South African NRF SarCHI Chair in Paediatric TB • Transition to new leadership 	<p>honorary appointments</p> <ul style="list-style-type: none"> • Expansion of South African and African collaboration through instigator-initiated and trial networks • Improved communication and profiling of the Centre (internal and external) • 8-10 new international large grants planned for submission • 3 new PhD students enrolled • 2 new postdocs /senior researchers appointed
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Paediatrics	Operational Research	POPART	Social Sciences
Investigators Prof. Anneke Hesselting Prof. Simon Schaaf Dr Karen du Preez Dr Anthony Garcia-Prats Dr Jana Winckler Dr Louvina van der Laan Dr Elisabetha Walters Dr Anne-Marie Demers Dr Marieke van der Zalm Dr Megan Palmer Dr Sue Purchase Dr Adrie Bekker	Investigators Dr Pren Naidoo Sue-Ann Meehan Project Managers Margaret van Niekerk Zamakhaya Ndiki Site Managers Patricia Heneke Nandipha Magwaca Vuyiswa Ndunana Annalean Sampson Gertrude van Rensburg Enrolled nurses HIV counsellors Trainers Administrators Data clerks Drivers	Investigators Prof. Nulda Beyers, Dr Peter Bock Medical Officer- Dr Kerry Joubert Project Managers Blija Yang Nomtha Mandla Nozizwe Makola Junior Project/District Managers Francionette Esau Jerry Molaolwa Jacky Hlalukana Eliud Nkuna Charise Pedro Fortunate Ndaba District Logistic Officers Nurses Supervisors Fieldworkers	Investigator Graeme Hoddinott Lario Viljoen Abigail Harper Constance Mubekapi- Musadaidzwa Social Science Fieldworkers
Study Coordinators Petra de Kokker Jessica Workman Sharon Mbaba Adelaide Carelse Serena Sukhari Health Counsellors Community Workers	Staff component including support staff – n= 72	Staff component including support staff –n= 407	Staff component including support staff – n= 39

Figure 2. Desmond Tutu TB Centre Staff Complement: 2016 (n= 520)

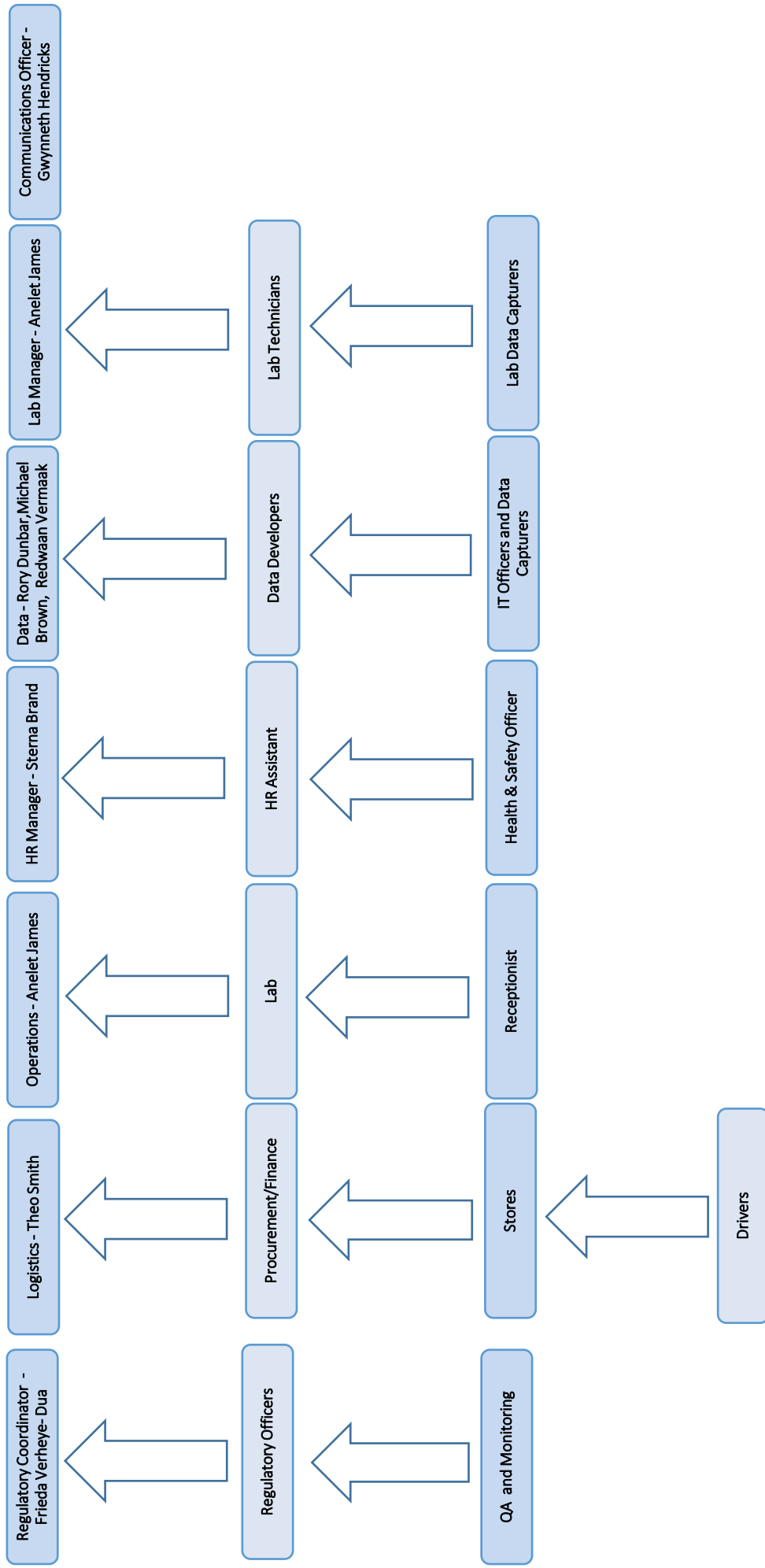


Figure 3. (Continued) Desmond Tutu TB Centre Staff Complement: 2016 (n= 520)

Research Updates

Research Focus Area One: Paediatric Tuberculosis

This key research focus area at DTTC is led by Anneke Hesselning, centre director. Four key areas, each led by a scientific lead, include: Therapeutics for DS and DR-TB in children (leads; Marieke van der Zalm, Anthony Garcia-Prats), prevention of TB in children (lead: Anneke Hesselning), evaluation of novel diagnostics and biomarkers for TB diagnosis in children (lead: Elisabetta Walters), TB vaccine trials (lead: Karen du Preez), which are underpinned by in-depth epidemiological and operational research in children (lead: Karen du Preez).

Major focus areas for the DTTC paediatric team specifically include the evaluation of novel therapeutic strategies for MDR-TB in children, where it is a global leader in its field and is generating seminal data on an ongoing basis. The DTTC officially opened its upgraded state of the art paediatric pharmacokinetics clinical research unit at Brooklyn Chest Hospital (medical director: Tony Garcia-Prat) in July 2016 (refer to highlights, 2016), where it has been working since 2011.

During 2016, the paediatric group (n=60 personnel including 14 clinicians) at DTTC has specifically actively pursued improved internal collaboration within DTTC including between the social science group from PopArt (social science lead: Graeme Hoddinott), and the operational research pillar (lead: Pren Naidoo), as well as with other disciplines at the Tygerberg campus (Professor Gert van Zijl, Medical Virology), and Medical Microbiology (Professor Andrew Whitelaw) and at the Stellenbosch campus, including health economics (Professor Ronelle Borger) mathematical modelling (SACEMA, Dr Alex Welte), and basic scientists including biochemists (Professor Jacky Snoep), to support its expanding research agenda. Expanding national collaboration have included Shandukani (PI: Dr Lee Fairlie and PHRU Matlosana site (Professor Neil Martinson), and new international collaborations have included the Uppsala pharmacometrics modelling group and Professor Tony Hu, Arizona State University and Professor Bob Husson (Boston Children's). The DTTC paediatric group is a clinic site for the DAIDS-funded International Maternal, Paediatric, Adolescent AIDS Clinical Trials (IMPAACT) and also for the US Centres for Disease Control (CDC) TB Clinical Trials Consortium (TBTC).

The paediatric group has been highly productive during 2016, resulting in a larger number of publications (refer to DTTC publications, Appendix I), participation in several national and international TB treatment guideline meetings, significant numbers grants awarded, strategic new South African and international collaborations, several national and international conference presentations and the graduation and ongoing support of several postgraduate students (See Appendix II).

Therapeutic trials: prevention of drug-susceptible TB

IMPAACT P1078: This IMPAACT-funded network multisite randomised controlled double blinded trial evaluates the safety and tolerability of isoniazid ante-vs. postpartum in HIV-infected pregnant women. DTTC was the last site to join this trial as a newly funded IMPAACT site, in 2015. 12 women were enrolled and follow-up will be completed by July 2017. The overall trial was closed to accrual in 2016 and follow-up is ongoing (740 maternal-infant pairs).

TBTC Study 35: This multisite study, funded by the CDC TBTC (PIs: Anneke Hesselning, Deron Burton, Kelly Dooley) will evaluate the optimal dosing and safety of the novel 12-dose combination regimen of rifapentine and isoniazid, shown to be efficacious in prevention of TB in adults and children. The protocol has been in development for four years and has been finalized and approved by the MCC and local ethics committees. Sixty participants are expected to be accrued, starting in Q4 2017. A novel fixed dose score paediatric formulation has been developed for the trial.

Therapeutic trials: treatment of drug-susceptible TB (DS-TB)

SHINE: treatment shortening for non-severe pulmonary TB in children: This multi-site open-label international trial evaluates (funder: BMRC/Wellcome Trust, DFID), is the first trial ever to evaluate the efficacy and safety of 4 vs. the standard 6-month WHO-recommended regimen for

treatment shortening of non-severe DS TB in children in 1 200 children in South Africa, Zambia, Uganda and India. The trial PI and sponsor is the MRC CTU at UCL (PI: Di Gibb). DTTC opened to accrual to July 2016; to date, 70 participants have been enrolled at DTTC. Nested PK sampling has been completed in 17 children to date. This trial, if successful, will have a major impact on the current long treatment regimens for paediatric TB, which is usually paucibacillary (smear-negative). DTTC has led nested qualitative work to evaluate the acceptability and palatability of the new WHO-endorsed fixed dose combination formula used in the trial (findings presented at the 2016 WHO Childhood TB Subgroup meeting in Liverpool).

IMPAACT P1101: (PI: Anthony Garcia-Prats) this IMPAACT-funded multisite network phase I/II trial evaluates the PK and safety of raltegravir, a new integrase inhibitor, in combination with first-line TB treatment, including rifampicin. Children should be HIV-infected, on TB treatment but not currently on ARVs. This patient group has been difficult to enrol in Cape Town, given good HIV prevention and treatment services in children. Two participants have been enrolled to date and interim data analysis is ongoing for the overall trial (5 South African sites).

OptiRif Kids: this phase I/II trial (PI Hesselning), funded by TB Alliance, will evaluate the optimal and safe dose of rifampicin in HIV-negative children treated for TB. The study will utilise a dose escalation approach in 5 dosing cohorts, with a final sample size of 60 children aged 0-12 years. The PK target is determined by recent adult studies using high dose rifampicin (35-40 mg/kg per day in adults), which was well tolerated. Final study approvals including MCC and ethics have been obtained and the study will start during Q 2017. Findings from this study will inform the treatment of more severe forms of TB in children, where treatment shortening using current drug doses, is not realistic. This trial includes collaboration with the University of Cape Town Clinical Pharmacology Division, Radboud University, Nijmegen, and Uppsala University, Sweden.

Therapeutic trials: prevention of MDR-TB

TB-CHAMP: MDR-TB preventive therapy trial: This is the first ever randomised phase III placebo-controlled trial to assess the efficacy of levofloxacin preventive therapy vs. placebo in child contacts of multidrug-resistant (MDR) TB (TB). The sample size includes approximately 1 500 children 0-5 years of age. The trial, led by DTTC (PI: Hesselning, Schaaf, Seddon) is funded by the BMRC/Wellcome Trust/DFID and includes 3 South African sites. Formative social science work has preceded the trial opening. A formal PK lead-in study has opened with the target of enrolling the bio-availability of a novel scored dispersible levofloxacin formulation, to be used in the trial, in 24 children (open-label). The main trial is expected to open to accrual in May 2017. Once delamanid dosing and safety data is available (See Otsuka 232/233) in young children, children with pre-XDR and XDR exposure will be offered delamanid. This trial is likely to have a considerable impact on global and national guidelines and on clinical care.

Phoenix Feasibility study (A5300/P20013): This ACTG/IMPAACT led observational cohort study evaluated the feasibility and risk of TB infection, TB disease and HIV infection, in 20 international sites, in preparation for a larger interventional trial in 24 international sites, which is projected to open to accrual in 2018. This open label trial will evaluate delamanid vs. standard dose isoniazid for the prevention in all high risk contacts, including HIV-infected adults, TB-infected contacts and children below 5 years of age. DTTC enrolled 53 households over a 10-week enrolment period, with good retention rates, and is busy completing 1 year follow-up in all high-risk contacts.

Therapeutic trials: treatment of MDR-TB

Otsuka 232/233: PI Anthony Garcia-Prats: Along with a site in the Philippines, the DTTC is implementing this industry sponsor-funded (Otsuka, Japan) Phase 1 (232) and Phase 2 (233) trials which seek to characterise the pharmacokinetics and safety of delamanid in children with multidrug-resistant (MDR) TB (TB). New drugs are desperately needed for the treatment of children with MDR-TB, and these trials are critical for ensuring timely access to this important new medication. In this age de-escalation trial, Groups 1 (ages 12-18 years) and 2 (ages 6-12 years) have fully enrolled, and data from these groups informed WHO guidance in 2016 for the use of delamanid in children 6-17 years of age with MDR-TB. Group 3 (ages 3-6 years) completed enrolment in 2016 with long-term follow-up ongoing, and Group 4 (ages 0-2 years) will begin enrolling in Q1-2 2017.

MDR PK 1: PI Anneke Hesselning. This NIH-funded (RO1 grant) was completed during 2016. This study of the pharmacokinetics and safety of routine doses of existing second-line anti-TB drugs in HIV-infected and uninfected children, was the first study of its kind, in some cases generating some of the only data on the pharmacokinetics and safety of these medications in children with TB. Over 4 years 312 children aged 0-15 years were enrolled and followed long-term for safety and treatment outcome. This study has already resulted in seminal data on the use of levofloxacin, ofloxacin, moxifloxacin, amikacin, high dose isoniazid, and the effect of MDR-TB treatment on the pharmacokinetics of ARVs commonly used in children. Analysis of para-aminosalicylic acid (PAS), ethionamide, terizidone, clofazimine and linezolid are ongoing. Long-term outcome and toxicity data will be reported separately. These data are informing international guidance on the dosing of these medications in children. The platform generated from this study has supported 5 PhD students and 6 Master's degree students, to date.

MDR PK 2: PI Anthony Garcia-Prats. Building on the data, experience, and clinical platform of MDRPK1, this NIH-funded (RO1 grant) seeks to evaluate the pharmacokinetics and safety of model-optimized doses of the key second-line anti-TB medications levofloxacin, moxifloxacin, and linezolid in children treated for MDR-TB. The study will also characterise the acceptability and palatability of different dosing strategies and will evaluate the effect of formulation manipulation on pharmacokinetics in children. The total sample size is n= 100; to date, 42 children have been enrolled over an 18-month period. An interim analysis presented in October 2016 provided the first data on both moxifloxacin pharmacokinetics in children <7 years of age and on linezolid pharmacokinetics in children with TB.

IMPAACT P1108: PIs Anneke Hesselning and Simon Schaaf. This NIH-funded IMPAACT network phase I/II trial to determine the optimal and safe dose of bedaquiline in HIV-infected and uninfected children with MDR-TB has been in development for four years. The protocol was fully developed and received MCC approval in 2016. Five international sites, including DTTC, 2 other South African sites, one in India and one in Haiti, will open up to accrual during 2017. Bedaquiline has become a critically important treatment option for adults with MDR-TB, with extensive roll-out of the drug within the routine TB programme setting in South Africa and many other countries; however the lack of data in children has prevented paediatric access. This trial will provide desperately needed data on bedaquiline in both HIV-infected and -uninfected children with MDR-TB in order to ensure paediatric access to this new TB medication.

TB vaccine trials (PIs: Hesselning, Du Preez)

Vaccine Project Management (VPM): PI: Mark Cotton, project lead: Karen du Preez, site PI: Anneke Hesselning. This phase 2 multicentre trial evaluated the safety and immunogenicity of a novel recombinant BCG vaccine in HIV-exposed and unexposed infants, in 4 South Africa sites (overall PI: Mark Cotton). DTTC enrolled 40 infants in Khayelitsha during 2016 and the trial was closed to accrual during Q4 2016. Clinical follow-up is ongoing. No concerning safety signals have been detected based on interim data analysis.

Diagnostic and biomarker studies (PIs Elisabetta Walters and Anne-Marie Demers)

The diagnostic platform nested in the DTTC paediatric programme focuses on improving the diagnosis of TB in children. TB in children is mostly clinically diagnosed as the collection of high-quality sputum samples is resource-intensive and relatively invasive, and available laboratory methods are insufficiently sensitive to detect the low organism concentration typically found in samples from children. However, young children are at risk of delayed diagnosis due to poor diagnostic tools, resulting in increased risk of morbidity and mortality from advanced TB. The overall aim of the diagnostic platform is to improve the detection of TB in children using comprehensive strategies that are feasible, child-friendly and adequately sensitive to detect paucibacillary disease, focusing especially on young children.

We are evaluating different diagnostic approaches using samples that are minimally invasive and easy to collect, such as stool, urine and blood. Children who present to Tygerberg and Karl Bremer hospitals with possible intrathoracic (pulmonary) TB are enrolled and thoroughly investigated clinically and bacteriologically. Novel diagnostic strategies are compared to a rigorous clinical and bacteriological reference standard which includes multiple respiratory samples analysed by smear microscopy, Xpert MTB/RIF and culture. The platform also includes a well-characterized bio-repository of blood and urine samples for evaluation of promising new biomarkers for TB diagnosis and treatment response. Children are followed to six months

regardless of TB diagnosis. Over 600 children have been enrolled to date on this platform, with >85% retention at 6 months.

Utility of stool samples for the diagnosis of TB in children: We have published data demonstrating that the Xpert MTB/RIF assay on stool samples collected from young children who present to hospital with severe pulmonary disease can rapidly detect 1 in 4 children who will be treated on clinical grounds, and 1 in 2 who will be confirmed on respiratory samples collected using invasive procedures. These results should encourage resource-limited settings with access to Xpert, to attempt diagnosis using stool. It is common in these settings for children to present to hospital seriously ill with advanced disease, and to die of undiagnosed TB. Stool Xpert could be a life-saving strategy if applied to these paediatric populations.

In a hospital-based study in Cape Town, South Africa, we enrolled children below 13 years of age with suspected pulmonary TB from April 2012 to August 2015. Standard clinical investigations included tuberculin skin test, chest radiograph and HIV testing. Respiratory samples for smear microscopy, Xpert and liquid culture included gastric aspirates, induced sputum, nasopharyngeal aspirates and expectorated sputum. One stool sample per child was collected and tested using Xpert. Of 379 children enrolled (median age 15.9 months, 13.7% HIV-infected), 73 (19.3%) had bacteriologically confirmed TB. The sensitivity and specificity of stool Xpert vs. overall bacteriological confirmation were 31.9% (95% CI 21.84-44.50%) and 99.7% (95% CI 98.2-100%) respectively. 23/51 (45.1%) children with bacteriologically confirmed TB with severe disease were stool Xpert positive. Cavities on chest radiograph were associated with Xpert stool positivity irrespective of age and other relevant factors (OR 7.05; 95% CI 2.16-22.98; p=0.001).

Stool Xpert can rapidly confirm TB in children who present with radiological findings suggestive of severe TB. In resource-limited settings where children frequently present with advanced disease, Xpert on stool samples could improve access to rapid diagnostic confirmation and appropriate treatment. Next steps: We plan to optimise stool sample processing for TB diagnosis, and test novel, more sensitive assays on stool samples.

Evaluation of novel TB biomarkers in children

- 1. Urine Proteomics:** In collaboration with Boston Children's Hospital (Harvard University; PI Professor R. Husson), our group was awarded a Thrasher Foundation Research grant to evaluate the diagnostic potential of host-based urine proteomic signatures for the diagnosis of TB in children. Preliminary data using urine samples collected from our cohort suggest that the urine proteome of children with TB differs significantly from that of children who do not have active TB. The project will span 2016-2018. Samples collected from South African, Kenyan and Peruvian children will be analysed in the US laboratory.
- 2. Serum bio-signatures:** In collaboration with Arizona State University (PI Tony Hu; South African PI E Walters), we have obtained Ro1 funding from the NIH to evaluate a novel diagnostic method, independent of mycobacterial isolation, that quantifies the low molecular-weight *M.tb* antigens (CFP-10 and ESAT-6) and the TB-associated host marker IP-10 in patient blood samples. The technology utilizes hollow, energy-focusing TiO₂ NanoShells functionalised with custom antibodies specific for *M.tb* CFP-10 and ESAT-6 and host IP-10 peptides with high-throughput mass spectrometry (MS) to increase diagnostic sensitivity and specificity. Initial evaluation of 292 adult and 102 paediatric patients and controls NanoShell-MS sensitivity and specificity for active TB (bacteriologically confirmed and clinically diagnosed) was high in adults and children. NanoShell-MS results can be obtained within one hour of sample collection compared to 4-6 weeks for conventional culture, and detected decreases in blood *M.tb* antigen levels within four days of anti-TB treatment initiation. In this project, we aim to use NanoShell-MS profiling to develop a quantitative prediction model for active TB diagnosis in large, well-described prospective paediatric TB cohorts. We will also determine the utility of this technology for evaluation of treatment response.

Broader impact of TB in children: the impact of TB on child lung health and influence of respiratory pathogens on TB and lung health in children (PI Marieke van der Zalm)

There is limited data available on the impact of TB on long-term lung health, and specifically, lung function measurements in young children living in resource-limited settings. To date there

has been no simple, reliable and reproducible lung function test, which can be used in infants and young children. We investigated the feasibility of a new handheld lung function apparatus in young children investigated for suspected pulmonary TB (PTB). This study was nested in the diagnostic cohort study in children investigated for suspected PTB in Cape Town, South Africa (PI Liz Walters). The lung function measurements were done using the automated Whistler LFMi (Medispirit BV, Nuenen, The Netherlands) meeting the ERS/ ATS criteria for infant lung function testing. Lung function measurements using the Whistler LFMi are feasible in young children with suspected PTB but ongoing training is needed to increase success rate. The role of *Mycobacterium TB* and other respiratory infections on short and long-term lung function in children requires further investigation. An EDCTP development grant was awarded to Marieke van der Zalm for 3 years to investigate the role of PTB and other respiratory pathogens on the lung health of children. For this study (expected to start Q2 2017), a total of 300 children with suspected PTB will be enrolled and followed up for 6-12 months. Lung function measurements will be done at the start of the study and 6-12 months later. Respiratory pathogen investigations include bacteria (including PTB), viruses and the respiratory microbiome.

For paediatric operational research (lead: Karen du Preez): please refer to the overarching DTTC operational research section below

Highlights: paediatric TB team

The official opening of the NIH DAIDS-supported **Paediatric Pharmacokinetic Unit at Brooklyn Chest Hospital** including the naming of the **Simon Schaaf Clinical Wing** and the **Peter Donald Administrative Wings**, July 6, 2016: The keynote speakers were Professor Nico Gey van Pittius, Vice dean, Research, Faculty of Medicine and Health Sciences, and Professor Mariana Kruger, Executive head, Stellenbosch University, and Dr Paul Spiller, Executive Director, Brooklyn Chest Hospital. Other distinguished guests included senior officials and TB experts from the Western Cape Department of Health City and Provincial offices and healthcare workers from the various government sites where DTTC conducts research. The ceremony was followed by a site tour of the PK Unit, the cutting of the ribbon and a social gathering with refreshments, which was thoroughly enjoyed by all.

The Khayelitsha Trial Unit was renamed, "Ubunye", meaning "unity", a trial platform which is being expanded to accommodate multiple preventive, treatment and diagnostic studies.

Grants awarded: paediatric team

DTTC was awarded the **NRF Knowledge Interchange & Collaboration (KIC) grant**, to the value of R60 000, submitted by Gwynneth Hendricks for scholarships for the 10th International Child TB Training Course (PI: Hesseling).

Elisabetta Walters was awarded a grant on studying urine proteomics from the **Thrasher Research Fund**, with Boston Children's Hospital (\$150 000).

Anneke Hesseling was awarded a grant for OptiRif Kids (USD 450 000) from the TB Alliance, New York

Scholarships: paediatric team

Marieke van der Zalm was awarded an **EDCTP fellowship** for her work on lung function and respiratory pathogens in children.

James Seddon, Imperial College London, UK, was awarded a **Fullbright Scholarship** to spend 6 months at Harvard University, to model cost-effectiveness of MDR-TB intervention in children, after which he plans to return to Cape Town to join DTTC faculty.

Dr Muhammad Osman was awarded the **NSP and SACEMA scholarships** for his PhD work which will focus on TB and mortality.

Awards

Steffi Thee was awarded the **HD Breede Award** 2016 for the best clinical postgraduate student research publication in the FMHS.

Academic Collaboration/ Exchange

DTTC was awarded the STINT Swedish/SA collaborative award to **Uppsala University, Stellenbosch University, jointly; together with the University of Cape Town, Division of Clinical Pharmacology group.**

Anneke Hesseling returned to DTTC on 8 February 2016 from a **2 month sabbatical at Uppsala University in Stockholm**, with whom DTTC has several ongoing and planned new collaborative TB pharmacokinetic studies in children.

Research Focus Area Two: Health Systems and Operational Research

The aim of the research in this pillar is to help improve TB and HIV care by building an evidence base for effective programme implementation. Operational research (OR) focuses on identifying gaps in health programme quality, efficiency and effectiveness, evaluating factors that contribute to these, and testing interventions to improve outputs and outcomes. Dr Pren Naidoo leads the OR pillar.

PROVE IT (Policy Relevant Outcomes from Validating Evidence on Impact) (PI: Dr Pren Naidoo) Slow, inaccurate diagnostic tests have impeded TB control efforts. A new accurate, rapid molecular diagnostic test, Xpert® MTB/RIF, offers the prospect of identifying more cases, detecting them rapidly and enabling quicker treatment initiation. The aim of this study was to evaluate the impact of an Xpert® MTB/RIF-based TB diagnostic algorithm in a routine operational setting in Cape Town, guided by an Impact Assessment Framework. This entailed a pragmatic comparison between the historic smear/culture-based TB diagnostic algorithm and the newly introduced Xpert-based algorithm

In 2016, we published a stepped-wedge analysis of **TB yield** in five sub-districts undertaken between 2010 and 2013. Among the 54,393 presumptive cases tested, the proportion with a bacteriological diagnosis of TB was not increased in the Xpert-based algorithm. We found a decline in TB yield over time, possibly attributable to a declining TB prevalence. When the time-effect was taken into consideration, there was no difference between the algorithms: TB yield was 19,3% in the Xpert-based algorithm compared to 19.1% in the smear/culture-based algorithm with a risk difference of 0.3% ($p=0,796$). Inconsistent implementation of the Xpert-based algorithm and the frequent use of culture tests in the smear/culture-based algorithm may have contributed to the yield parity.

A sub-study on **MDR-TB yield** found that amongst the 10,284 TB cases identified in the five sub-districts, the Xpert-based algorithm was more effective in identifying MDR-TB cases than the smear/culture-based algorithm. Pre-treatment, the probability of having drug susceptibility tests undertaken ($RR=1,82$, $p<0,001$) and of being diagnosed with MDR-TB ($RR=1.42$, $p<0.001$) was higher in the Xpert-based algorithm than in the smear/culture-based algorithm. Overall 8,5% and 6% of TB cases were detected with MDR-TB in respective algorithm, translating to approximately 375 additional MDR-TB cases diagnosed in Cape Town annually. This sub-study has been submitted for publication.

A sub-study on **laboratory costing** published in 2016 showed a 43% increase in overall PTB laboratory costs at the central laboratory in Cape Town, from \$440,967 (ZAR4,299,869) in the smear/culture-based algorithm to \$632,262 (ZAR6,165,187) in the Xpert-based algorithm for 3-month periods. The cost per TB case diagnosed increased by 157% from \$48,77 (ZAR476) in the smear/culture-based algorithm to \$125,32 (ZAR1 222) in the Xpert-based algorithm. The mean total cost per MDR-TB case diagnosed was similar at \$190,14 (ZAR1 954) in the smear/culture-based algorithm compared to \$183.86 (ZAR1793) in the Xpert-based algorithm.

We used study data from PROVE IT to develop and validate an **operational model** (PI Rory Dunbar) for the smear/culture and Xpert-based TB diagnostic algorithms in Cape Town. The model was developed using a discrete event simulator, to comprehensively represent PTB patient diagnostic pathways and processes in the smear/culture and Xpert-based diagnostic algorithms. We found that under identical conditions, the Xpert algorithm resulted in a 13,3% increase in TB diagnostic yield compared to smear/culture. The model demonstrated that the extensive use of culture in the smear/culture-based algorithm and the decline in TB prevalence over time were the main factors contributing to our failure to find an increase in diagnostic yield in the routine data. This sub-study has been submitted for publication.

Operational Research Assistance Project (ORAP - Lead: Pren Naidoo)

The overall aim of ORAP is to undertake operational research as an integral component of health programmes in South Africa to contribute to improved quality and performance of the health system. The national study completed in 2015 provided training to 115 health service providers and medical researchers from all 9 provinces in South Africa trained, 36 research studies

undertaken and 19 publications in peer-reviewed journals.

In November 2016, a new miniature version of ORAP was implemented in the Western Cape. Nine participants (6 from health services) embarked on a 6-month experiential learning course to develop a study protocol for research to be undertaken in 2017. Seven mentors from DTTC are supporting the trainees through protocol development, study implementation and publication of their findings. Protocols are due for completion and submission for ethics approval in March 2017.

Community HIV/AIDS Prevention Project (COMAPP - Lead: Sue-Ann Meehan)

This project, implemented since October 2011, addresses the challenge of reducing HIV transmission in high disease burden communities around Cape Town, with the aim to make HIV testing more accessible to all populations. The Desmond Tutu TB Centre provided overall management and technical assistance to a number of local non-governmental organizations (NGOs), who implemented HIV prevention services in the Western Cape communities of Nyanga, Philippi, Kraaifontein, Mfuleni and Somerset West.

The project consisted of two components;

1. HIV testing services were provided from community-based stand-alone centres (fixed premises) and on an outreach (mobile) basis in each of the five project communities. An integrated package of services (HIV testing, screening for TB and STIs, chronic health screenings, pregnancy testing, family planning and referral for medical male circumcision) were delivered to individuals or couples in a client-centred manner.
2. The "Families Matter! Programme" (FMP), implemented since 2014, is an evidence-based programme which aims to enhance protective parenting practices that are associated with reduced sexual risk among adolescents and promote parent-child communication about sexuality and sexual risk reduction. Ultimately, the programme aims to delay sexual debut and reduce risk of HIV transmission among adolescents. Implementation was in one project communities; Nyanga. Participants (caregivers of pre-adolescent children, 9-12 years) were recruited using a door-to-door strategy. Participants who were eligible and provided consent were enrolled in the programme.

Key outputs:

- More than **25 000 clients were tested for HIV** (49% of these were men). In total **868 clients** were **newly diagnosed with HIV**; **64%** were **linked into HIV care and treatment** at government health facilities
- Within FMP, **442 caregivers** attended all sessions and **successfully graduated** from the programme
- A **video** was made to capture the many successes and lessons learned from COMAPP. Direct service delivery came to an end after September 2016; the end of the five-year funding cycle. The video can be viewed at the following address: <https://youtu.be/DhtSEU9rDjcat>
- COMAPP **collaborated with FAMCRU** in a pilot study to detect acute HIV infection in clients who tested HIV negative at a COMAPP testing site. Implementation started in April 2016 in two COMAPP areas; Kraaifontein and Mfuleni
- COMAPP received **\$350 000 additional funding** from CDC to **write a practical guide to implementing community-based HIV prevention activities**. Experiences shared and lessons learned from South Africa. This provided a "no cost" extension for the project until June 2017
- An expenditure analysis to determine how financial resources were expended and the costs associated with realising key HIV outputs (HIV testing, diagnosis and linkage to HIV care) for the stand-alone and mobile HIV testing service modalities, was completed (manuscript was submitted to BMC health Services Research)

Paediatric operational research

TB KIDS E-Training: a novel pragmatic approach to training on paediatric TB for healthcare workers in the Eastern Cape Province, South Africa (Lead: Karen du Preez, Lienki du Plessis)

Novel, cost effective TB training strategies are needed in developing settings to scale up training and decentralise management capacity. This study evaluated the feasibility of implementing an online childhood TB training course for community-based healthcare workers in the Eastern

Cape Province, South Africa, and measured impact on knowledge. Training sessions were convened centrally and participants completed the course independently. A total of 220 primary-care participants (all service areas) completed pre- and post-training tests. The mean knowledge increase was 8% (95% CI 7,0-8,8, $p < 0,001$). The course proved an acceptable, versatile option for decentralized training for childhood TB given that technology requirements can be met. (*Manuscript in press; Public Health Action*)

Clinical characteristics and diagnostic practices of child TB cases managed at a high burden, district level hospital in Cape Town, South Africa (Lead: Lienki du Plessis, Karen du Preez)

The aim of this study was to characterize the paediatric TB burden and routine management practices at Khayelitsha District Hospital (KDH) – a district level hospital established in 2012. All children routinely diagnosed with TB at KDH during January-June 2014 were identified through a TB health system strengthening project. Data was extracted from hospital folders, and compared to recommendations from 2013 South African National TB Programme (SANTP) guidelines. A total of 102 children were identified during the study period, with 99 (97%) folders available for review. More than two thirds of the children [71 (70%)] were <2 years old; 69 (67%) male; 94 (94%) with pulmonary TB and 19 (19%) with extra-pulmonary TB (2 millary TB and 1 TB meningitis case). Almost all children were tested for HIV [96 (97%)], 19 (20%) were HIV-infected and 11 of these 19 (58%) co-diagnosed with HIV and TB. Seventeen (17%) children had severe malnutrition. Household TB exposure was documented in 38/96 (40%), however only 5/36(14%) eligible child contacts received isoniazid preventive therapy.

Most children had symptoms suggestive of TB [coughing: 80(81%); failure to thrive/weight loss: 78 (79%)] and 90 (91%) had chest X-rays suggestive of TB. Bacteriological investigation was completed in 92 (93%) children: 10 (11%) had Xpert MTB Rif, 90 (91%) had mycobacterial cultures and 8/92 (9%) had both. Only 11/90 (12%) children were culture positive, and 3/10 (30%) Xpert positive. Resistance were confirmed in two cases (1 INH mono-resistant culture; 1 Rif-resistance Xpert).

The study found a young, acute on chronically ill cohort with substantial co-morbidities were managed at this district level hospital. Clinical management were further complicated by delayed HIV diagnoses and missed opportunities for TB prevention. Overall management were consistent with SANTP guidelines, however, improved utilisation of Xpert-driven laboratory algorithms may decrease follow-up burden and allow for rapid screening of drug resistance. Final analysis and manuscript preparation for this study is ongoing. Ongoing surveillance and linkage to care for children at KDH with TB is facilitated by the DTTC paediatric team.

TB in Adolescents and Young Adults: Epidemiology and Treatment Outcomes in the Western Cape Province, South Africa: (Lead: Kathryn Snow, Karen du Preez)

The main objective of this study was to characterise the TB epidemiology, disease presentation and treatment outcomes among adolescents and young adults (aged 10-24 years) in the Western Cape.

A retrospective, cross sectional review of routine patient-level data from the Electronic TB Register (ETR.Net) for 2013 were conducted. Site of TB disease, HIV status and TB treatment outcomes were analysed by five-year age groups (<5, 5-9, 10-14, 15-19, 20-24 and 25+ years of age), and TB notification rates were calculated using census data.

The study found that adolescents and young adults contributed 18,0% of all new TB notifications in 2013. The notification rate was 141 TB cases per 100,000 person years (py) among 10-14 year olds, 418 per 100 000 py among 15-19 year olds, and 627 per 100 000 py among 20-24 year olds. HIV prevalence among TB patients was 10,9% in 10-14 year olds, 8,8% in 15-19 year olds, and 27,2% in 20-24 year olds. Older adolescents (15-19 years) and young adults (20-24 years) with HIV co-infection had poor treatment outcomes; 15,6% discontinued treatment prematurely and 4,0% died.

Main messages from this study included the substantial burden of TB young people in the Western Cape suffer, and the high risk of treatment discontinuation amongst older adolescents and young adults with HIV/TB in this setting. This work will inform future more accurate estimates of burden of TB disease in children and young people in the Western Cape and beyond. (*Manuscript in press; International Journal of TB and Lung Diseases*)

Research Focus Area Three: Pragmatic Community Research HPTN071 (PopART) (Lead: Nulda Beyers, Peter Bock)

The HPTN 071 or PopART study is a cluster-randomised trial which aims to determine the impact of two community-level combination prevention packages, both of which include universal HIV testing and intensified provision of HIV/ART care, on population-level HIV incidence. The study is being conducted in 9 communities in South Africa and 12 in Zambia and enrolment. Communities have been randomised to arms A (full intervention prevention package plus ART regardless CD4 count), B (full intervention prevention package plus ART according to government guidelines) or C (standard of care). Following recent changes to ART guidelines Arm A and B are now both offering ART regardless CD4 count. Despite this change the study is still well powered to evaluate the primary outcome, HIV incidence. At each site of the arm A and B sites, interventions are delivered to the entire community by a cadre of community HIV care providers workers (ChiPs) with referrals to government Primary Health Care (PHC) clinics. ChiPs provide clients with condoms, and screen and refer relevant clients to government clinics for HIV, TB and STI treatment and voluntary male medical circumcision (VMMC). Primary outcomes are measured in a randomly selected individual level cohort of approximately 2 000 individuals in each community (including the Arm C communities) over 36 months referred to as the population cohort (PC). Details of the interventions and trial outcomes are outlined below. There is also an extensive social science component to describe and explain the trial outcomes; inclusive of formative research conducted before intervention implementation and ongoing research throughout the study period. Refer to DTTC social science component for summaries on qualitative work conducted for this trial.

The study is currently conducting the 3rd annual round of the ChiPs intervention which will be completed end 2017. PC follow-up will be completed in June 2018. Between June and December 2018 there will be extensive consultation with stakeholders as part of a planned exit from study communities and clinics. The primary findings of the study will be reported end 2018/early 2019. In October 2016 the PopART interim Data Safety Management Board (DSMB) review was completed over 3 days in Lusaka, Zambia. The outcome of the review was favourable, the DSMB recommending that the PopART study continue until study completion as outlined in the HPTN 071 (PopART) research protocol.

PopArt highlights: 2016

The Annual Round 2 for the intervention part of the study started 1 June 2015 was completed on 1 August 2016. During this time, ChiPs newly diagnosed 1 923 clients with HIV. At the end of the Round 2, there were 9 184 clients known to be HIV positive in the PopART database (this includes newly diagnosed from Round 1, newly diagnosed from Round 2, and clients who self-report they are HIV positive). ChiPs follow up on clients by returning back to houses to provide additional counselling if need be to link them into HIV care, and for retention in care. At the end of Round 2, 87,5% were in HIV care and 76,5% were on ART. The Intervention team work closely with the clinics to bridge the gap between the community and the clinic for clients by having regular meetings with clinic staff. During Round 2, there were 160 clients identified as TB positive, and 139 (86,9%) started on TB treatment.

The PC 2nd round (PC12), which started in August 2015, was completed end of June 2016. During PC12, PC teams successfully retained 12 821 participants from the baseline round (PC0). In addition, a further 212 participants were enrolled as an addition to the cohort referred to as PC12N. In mid-August 2016, the subsequent PC round (PC24) was started. By end 2016 (6 088 (38%) of the scheduled follow-up assessment visits were completed.

Grants awarded: PopArt

The PopART Research Collective, comprised of a selected few PopART staff and representatives from PopART implementing partners (Department of Health, City of Cape Town, Kheth'Impilo and ANOVA health Institute), received 2 was awarded an amount of for the Decision-Maker Led Implementation Research Grant awards offered by the Centre for Evidence-based Health Care, Stellenbosch University. The research study "Promoting uptake of ART at CD4 counts greater than 500 – lessons from three facilities in Metro and Rural Sub-districts, Western Cape Province, South Africa" received R140 000 is led by Neshaan Peton, Graeme Hoddinott, Constance Mubekapi-Musadaidzwa, Gabriela Carolus, Kelly Abrahams, Portia Hendricks and Rheiner Mbaezue. The second research study, "The effect of adherence clubs on quality of clinic care for

HIV+ patients on antiretroviral treatment in the Cape Winelands District”, is led by Colette Gunst, Peter Bock, Rory Holtman, Rosa Sloom and Nelis Grobbelaar, and received R106 000.

DTTC Social Science Component (Supporting All 3 Research Focus Areas)

Social science is a key competency supporting research priorities at DTTC. In 2016, the social team increased its internal collaborations from what had been principally an HPTN 071 (PopART) focus. Key ongoing contributions to HPTN 071 (PopART) are (a) annual observations and qualitative discussions about implementation process lessons, (b) a qualitative cohort of 96 families for in-depth documentation of the experiences of people living in study communities – including successful completion of a three-month module about mobility, migration, and transience, and (c) implementing the HPTN 071a ancillary study on HIV-related stigma – survey rounds are in 2014, 2015, and 2017 so the team prioritised data cleaning and baseline analyses. The team’s contribution to DTTC’s strategic agenda was expanded in 2016 to include the evaluation of another ancillary study on young people’s (aged 10-24) access to HIV-related services in the PopART for Young people (P-ART-Y) study. For the first time in 2016 the social science team made a major non-HPTN 071 (PopART) contribution by implementing the formative/feasibility evaluation at two sites – Cape Town and Pietermaritzburg – in advance of the TB CHAMP trial. Further, the team implemented an evaluation of the acceptability – including palatability – of the new fixed dose combination child-friendly formulation of TB treatment. The team are also collaborators on a pilot study on the combined impact of alcohol use and ART on cognitive functioning and brain function with the Department of Psychiatry, Stellenbosch University – 60 study participants enrolled and baseline assessment complete, six-month follow-ups are ongoing. Finally, the team were hired by ANOVA Health to retrospectively document lessons learnt about transitioning from paper-based registers to electronic data capture of TB data into the TIER.Net system at the clinical-level at three pilot clinics in the Cape Winelands. Two social scientists were awarded their Masters-level degrees in 2016 – Gabriela Carolus, MA in Sociology, Stellenbosch University and Kelly Abrahams, MPH, University of Cork. In total, the team contributed to six papers, two oral presentations, and five poster presentations at international conferences in 2016. The team looks forward to the successful completion of the P-ART-Y study and continuing to expand its internal collaborations in 2017.

Overall Training Activities and Capacity Building at DTTC: 2016

The TB Clinical Forum 2016, hosted by DTTC at the Stellenbosch University FMHS and organized by the City of Cape Town officials was held monthly between February and November 2016 with the objective of creating an interactive platform for academic researchers and government official in health services. Experts from the FMHS and City presented a broad range of relevant scientific research topics. An average of 50 participants attended these lively CPD-accredited interactional meetings on Friday afternoons, facilitating dialogue between service providers for TB and HIV care, and researchers at DTTC and the medical faculty. Four speakers from DTTC presented during 2016.

The DTTC Academic Meetings 2016, held fortnightly at the FMHS targeted academic researchers to engage in ground-breaking research initiatives. Speakers from local and abroad were invited to present their area of research in a broad range of relevant topics. Five international and 5 internal speakers presented during 2016, with broad ranging relevant topics.

TB training for government health workers in Swaziland, March 2016 conducted by Simon Schaaf, Helena Rabie, Robert Gie and Anna Mandalakas.

Motivational talk by Lewis Pugh April 29 2016 “Achieving the Impossible” was held at Tygerberg Campus, Stellenbosch University, as part of the PopART Protocol Refresher Training for CHiPs. Lewis Pugh, a United Nations Patron of the Oceans talked on “achieving the impossible”, the challenges that come with it and how to translate this into your daily work. All DTTC personnel were invited to attend this inspirational presentation.

Positive Leadership, Positive Change (HIV, Gender, and Disability) Workshop July 13-15, 2016: Facilitated by Stellenbosch University held at Protea Hotel, Tygervalley. The workshop equipped staff members with being mindful and developing awareness of fellow colleagues that may be affected by gender and disability discrimination. It was attended by the PopART Intervention team.

TB and HIV Occupational Health Policy for Health Care Workers Workshop August 11-12, 2016: Facilitated by the Western Cape Government Department of Health and PEPFAR held at the Sun International Hotel, Johannesburg. The workshop equipped managers with changes to be implemented at the site level in the office and in the field in regards to ensuring staff members are abiding by TB infection control and HIV occupational health policies. It was attended by the PopART Intervention team.

The 10th International Child TB Training Course, September 25-30, 2016 was held at the Goudini Spa Resort, Worcester. Simon Schaaf and Anneke Hesseling were the conveners with James Seddon, clinical lecturer, from the Imperial College, London, invited as the keynote speaker. This year the course was extended by an extra day for the first time to 4 full days to include more focus on MDR-TB. There were 48 participants from 14 countries, including 14 South African participants of which 10 were sponsored through the NRF Knowledge, Interchange & Collaboration (KIC) funding secured this year. This year DTTC paediatric clinician, Sue Purchase attended. Elin Svensson and Thomas Dorlo from Uppsala University, Sweden, were invited to visit as observers. The course is Stellenbosch University accredited. Good reviews were received from participants.

DTTC supported the submission of 19 **provider-led Operational Research studies to the Centre for Evidence-based Health Care (CEBHC)**. Teams from 6 studies were invited to submit full proposals.

FSTRF DMC Regional Training November 14 -18, 2016: hosted by DTTC at the Faculty of Medicines and Health Sciences was facilitated by FHI's, Mary Wojcik-Cross and Stephanie Neyman for 80 participants from South Africa and other African countries.

Social Science Writing Retreat at Fynbos Estate in Malmesbury, December 12-15, 2016: The social science graduate research team (15 pre-masters to PhD students) attended this writing retreat at Fynbos Estate. The retreat was facilitated by Dr Lindsey Reynolds and gave researchers and new writers the opportunity to talk through manuscript concepts and to consult with Lindsey and Graeme Hoddinott regarding their ideas and article structure.

Advocacy and Community Engagement

The DTTC Community Advisory Board (CAB)

The establishment of a DTTC-CAB with a TB focus was initiated in June 2015 and was officially launched in November 2015, when the first general meeting was held at the Brooklyn Chest Hospital site. The CAB members joined other IMPAACT/ACTG CABs in their first development and capacity building event at the **IMPAACT/ACTG CAB Retreat at Goudini Spa, Rawsonville, Western Cape, November 18-20, 2015.**

Kathy Hinson and Rhonda White of FHI 360 hosted a workshop January 30 to February 1, 2016 in Franschhoek on **General CAB development, structure, functions and sustainability – for IMPAACT/ACTG CABs and CLOs**

The formulation of a **DTTC-CAB Constitution and an SOP** was achieved during the development workshops in February and March 2016, followed by the adoption of these documents in April 2016. This was followed by training facilitated by Reverend David Galetta entitled, **"The roles and responsibilities of CAB members"** on May 21, 2016 and **"Leadership and team dynamics"**, June 18, 2016. **Research protocol training was conducted by PIs and/or paediatric TB study coordinators** on 21 May 2016 for TB CHAMP, 18 June 2016 for SHINE and 23 July 2016 for P1101.

Monthly General Meetings were conducted throughout the year in 2016 and monthly Steering Committee meetings started in addition to these, after the election and appointment of a 7-member steering committee in September 2016.

Other DTTC CAB activities included:

- **IMPAACT Annual Meeting in Washington June 10-17 2016** – attended by the CLO
- CAB members and the CLO attended: **6th International Peace Lecture**; Desmond & Leah Tutu Legacy Foundation at the Artscape Theatre

- **CAB 2017 Strategic Planning Workshop November 25-26 2016**, at FHMS, Tygerberg. Dr Musonda Simwinga from Zambia facilitated the workshop
- **IMPAACT/ACTG CAB Retreat was held at Goudini Spa, December 2- 4 2016** (10 DTTC CAB members attended).
- CAB members attended the **Annual DTTC Dissemination Meeting 2016 at Kirstenbosch, December 9 2016**.
- CAB members participated in a **team-building activity on the red open-top bus city sight-seeing tour December 10 2016** from the Waterfront to Hout Bay.

The HPTN 071 (PopART) CAB

Each clinic has a Health Committee that links it with its community. The PopART CAB was established in 2013 with representatives from the 9 sites in which PopART is being conducted. These representatives (2 from each site) were chosen from these Health Committee's members and they work as volunteers in making sure that health-related issues within their communities and the clinics are addressed properly. The CAB is the link between the communities and the PopART researchers and has a constitution with rules and guidelines as to how to conduct their meetings. The PopART CAB meets once a month where various study related issues are discussed.

The CAB helps the researchers in making sure that community-related issues are addressed and that misunderstandings between the community and the researchers are dealt with in a professional way. The CAB takes initiative in setting up these meetings. The CAB also helps in reviewing community related study material like informed consent documents and study questionnaires. In return, DTTC offers trainings for these members to develop them. These are some of the trainings that have been given to the CAB by Pop ART.

- From 2013, Pop ART has been represented by a Community member in the HPTN Annual meetings held in DC
- GCP training
- Basic HIV knowledge
- Minute and record-keeping
- Protocol Review (Community section) done by FHI360 representatives at Franschoek in 2016
- Basic Counselling
- Cancer screening tips

THE HPTN071 (PopART) P-ART-Y Community Advisory Board (P-ART-Y -CAB)

The establishment of a study-specific CAB to focus on the interests of 15-24 year olds in the P-ART-Y study was recommended by the HPTN 071 (PopART) CAB and held its first members meeting in July 2016 at the Desmond Tutu TB Centre seminar room. The P-ART-Y CAB members are all aged 15-24 years old and all live in the HPTN 071 (PopART) study communities. The CAB has monthly meetings on Saturdays.

The drafting of a **P-ART-Y CAB Constitution and 2017 Work Plan** was completed in November 2016 in a workshop facilitated by P-ART-Y project manager and DTTC graduate researcher Constance Mubekapi-Musadaidzwa. **Monthly General Meetings** were conducted between July and December 2016.

The P-ART-Y CAB has **two main functions**:

1. To advise researchers about how best to implement the P-ART-Y evaluation survey, and
2. To support the community-level delivery of optimisations of the PopART intervention package for young.

Other P-ART-Y CAB activities included:

- **P-ART-Y Study Advisory Group meeting, 12-13 July 2016, Lusaka, Zambia** – attended by four members of the P-ART-Y CAB
- Supporting **17 P-ART-Y “Futures’ Spaces” events hosted in PopART intervention communities** – attended by over 350 young people

World TB Day March 24, 2016, the Paediatric team joined the **“Louder Than TB”** campaign launched by the TB Alliance, New York and the team joined multiple global partners in the **“Unite to End TB”** email signature campaign of the World Health Organization.

World TB Day March 24, 2016: COMAPP teams worked in collaboration with Department of Health, Department of Social Development and Department of Education to implement community events that raised awareness and provided education on TB. Vukani (local community newspaper in Nyanga) featured an article “Schools seek means to improve results” on 17 March 2016, describing a TB event which was a collaboration between the COMAPP Nyanga HCT team and New Eisleben High School.

MSF Stakeholder meeting October 14, 2016 – The meeting was held at Isivivane Centre – Khayelitsha. Rodd Gerstenhaber (Project Coordinator – MSF Khayelitsha) chaired the meeting. Representatives from the following organisations were also present: ANOVA, Kheth’Impilo, TBHIVCARE, City of Cape Town and Western Cape Department of Health. Members from the PopART Intervention team who attended: Jerry Molaolwa – PopART Intervention District Manager

The Christian Catholic Apostolic Church in Zion November 12, 2016, Bishop MM Mpande requested a speaker to present information on TB. DTTC clinician, Sue Purchase from the paediatric TB team, volunteered and led an interactive session with the community.

On World AIDS Day, 1 December 2016, the PopART Intervention team from two sites participated in two events on the day in Khayelitsha and Strand. Medecins Sans Frontiers (MSF) Khayelitsha coordinated the event which was held at OR Tambo Hall, Khayelitsha for the community as an awareness and outreach programme. The event held at Anointed Church in Strand was to raise awareness, prevention and show support to children affected and living with HIV/AIDS. DTTC offered HIV testing services for the community. A total of 48 people were tested for HIV. 26 of them were females, and 22 were males.

Representatives from TBHIVCARE; CHiP Supervisors (PopART Intervention), and the community of Nomzamo attended.

Annual DTTC Dissemination meeting, December 9, 2016 – The meeting was held at Kirstenbosch Botanical Gardens. Jerry Molaolwa from PopART Intervention and Nomtha Mandla from PopART Population Cohort were the MC’s for the meeting.

The opening address, delivered by Anneke Hesseling, Director of the Desmond Tutu TB Centre, focussed on the 2016 challenges, opportunities and thanksgiving. Three guest speakers, James Kruger (Western Cape Department of Health), Virginia de Azevedo (City of Cape Town Health Directorate) and Godfrey Mbulelo Tabata (Chairperson of the DTTC Community Advisory Board, spoke about **“The Impact of TB and HIV research in the Western Cape”**, **“The first 1 000 days of life: what does this mean for children in Cape Town”**, and **“Community Perspectives on TB”** respectively. Thereafter personnel from the DTTC studies HPTN071 (POPART), COMAPP, Paediatric TB and Operational Research shared highlights and experiences of 2016.

DTTC staff, senior personnel from Stellenbosch University FMHS, personnel of City/Province, members of the DTTC affiliated Community Advisory Board structures and members of the media were in attendance. All enjoyed a meal together afterwards in the Moyo Restaurant.

Conferences

Local Conferences

21st International AIDS Conference, Durban, July 18-22 2016: Various DTTC researchers from all research pillars attended this conference. The conference provided a special opportunity for early career researchers to attend this high profile event and learn from leading experts.

Posters Presented at the 21st International AIDS Conference

- Anthony Garcia-Prats presented on the Safety and tolerability of levofloxacin in HIV-infected and –uninfected children treated for multidrug-resistant TB during the session,

- Paediatric MDR-TB and Clinical Epidemiology on 17 July 2016
- The Pre-Conference TB Plenary on Saturday 16 July 2016 was chaired by Anneke Hesselning
- The TB focused meetings preceded the main AIDS conference and were held on the weekend prior, July 16-17, 2016. The Paediatric TB seminar on Saturday 16 July 2016 was chaired by Anneke Hesselning. Tony Garcia Prats of the paediatric team presented while two enrolled nurses, Melvina Stollie and Klassina Zimri attended
- Leandie September, Margaret van Niekerk, Sue-Ann Meehan. Working towards increasing the number of HIV-infected people who know their status in Cape Town South Africa. Learning from two innovative community-based HIV counselling and testing strategies!"
- Vuyiswa Ndudana, Margaret van Niekerk, Sue-Ann Meehan. Describing demographic and clinical characteristics of HIV positive clients who link to care from 5 Community-based HIV Counselling and Testing sites in Cape Town, South Africa

HPTN071 (PopART):

- Thomas¹, G. Hoddinott¹, J. Seeley^{2,3}, V. Bond^{2,4}, G. Carolus¹, M. Simuyaba⁴, J. Hargreaves⁵, L. Viljoen¹, On behalf of the HPTN 071 (PopART) Study Team Talking sex and interpreting HIV risk in South Africa and Zambia: an analysis of the influence of colloquial discourse on conceptualisations of sex, HIV-related risk and stigma
- Harper¹, S. Krishnaratne², H. Mathema³, D. Milimo⁴, P. Lilliston⁵, G. Hoddinott³, T. Mainga⁴, M. Moyo⁴, A. Schaap⁴, V. Bond^{2,4}, J. Hargreaves⁶, A. Stangle⁵, On behalf of the HPTN071 (PopART) Study Team. High levels of self-reported personal accomplishment amongst three cadres of healthcare workers: baseline findings from the first round of the HPTN 071 (PopART) stigma ancillary study
- H. Myburgh¹, G. Hoddinott¹, M. Theart¹, N. Grobbelaar², L. Viljoen¹, on behalf of the HPTN 071 Study Team. Discrepancies between 'my address', 'where I live', and 'where you might find me' – qualitative lessons for HIV data capture in expanding HIV clinic services to community based services
- S. Nomsenge¹, A. Thomas¹, G. Hoddinott¹, G. Carolus¹, V. Bond^{2,3}, On behalf of HPTN 071 (PopART) Study Team. Taking on faith: a narrative analysis of discussions about HIV used by participants' platforms for contesting faith in 9 high HIV-burden communities in the Western Cape, South Africa

International Conferences

- **CROI 2016 Boston, USA, 22-25 February 2016:** The Conference on Retroviruses and Opportunistic Infections (CROI) was held in Boston, USA with colleagues from HPTN 071 (PopART) representing oral presentations and oral presentations. Dr Peter Bock represented HPTN 071 (PopART) of Desmond Tutu TB Centre, Stellenbosch University
- **HPTN/IMPAACT Annual Meeting in Arlington, Virginia (USA) 10-18 June 2016:** Graeme Hoddinott attended this workshop, including the HPTN Community Engagement Working Group pre-meeting. Paediatric personnel in attendance were Anne-Marie Demers, Frieda Verheye-Dua, Simon Schaaf, Tony Garcia-Prats, Gwynneth Hendricks and Anneke Hesselning (via SKYPE)
- **IMPAACT Paediatric MDR-TB Landscape Meeting in Arlington Virginia (USA) 17 June 2016:** attended by Graeme Hoddinott, Simon Schaaf, Tony Garcia Prats, Gwynneth Hendricks, Frieda Verheye-Dua and Anneke Hesselning via webex
- **World Health Organisation Conference, Geneva 9-14 July 2016:** Prof. Simon Schaaf participated
- **Public Health Conference in Kuching, Malaysia, 11-14 July 2016:** Margaret van Niekerk, Heather Draper, Rory Dunbar, Sue-Ann Meehan presented: "Communicable and non-communicable disease burden at community-based HIV counselling and testing sites, Cape Town, South Africa"

- 47th Conference on Lung Health, Liverpool, 26-29 October 2016: Graeme Hoddinott attended and reported on the findings of the SHINE trials' palatability and acceptability of a new fixed dose combination, paediatric-friendly formulation of drug susceptible TB treatment. Six paediatric staff members attended

Scientific Meetings And Workshops Attended By DTTC Staff

HPTN 071 (PopART) Annual Meeting held at Franschoek Hotel, 1-4 February 2016: The annual meeting brought together +120 colleagues who work for HPTN 071 (PopART) from all across the world from Desmond Tutu TB Centre, Stellenbosch University, the London School of Hygiene and Tropical Medicine, Imperial College, ZAMBART (Zambia AIDS Related TB Project), HPTN (HIV Prevention Trials Network), HPTN CORE at FHI 360 (Family Health International), the Western Cape Government Department of Health, the City of Cape Town Health Directorate, OGAC (Office of Global AIDS Coordinator), CDC, USAID, UNAIDS, WHO, and PEPFAR implementing partners. The meeting discussed the annual progress of the HIV trial, successes, challenges and strategies to improve.

CDC Audit for PopART and COMAPP, 16 -18 March 2016: Joan Rangwaga and Michelle Smith from the Centre for Disease Control (CDC) Pretoria visited DTTC, Stellenbosch University to review financial management, human resources, payroll, procurement, audits, internal controls, and the overall structure of the organisation. Overall the audit went very well and they were happy with the financial management of the grant.

WC DOH Strategic Planning Workshop, 17 March 2016: Anneke Hesseling, Simon Schaaf and Pren Naidoo participated

TB Trial Consortium (TBTC) meeting in Atlanta, USA, 7 April 2016: Anneke Hesseling and Anne-Marie Demers attended

National workshop to discuss the revised HIV testing services policy, Dept of Health and CDC 7 April 2016: Held in Pretoria and attended by PopART Intervention staff (Yvonne Saunders & Elizabeth Batist). Workshop was held to discuss the revised HIV testing services policy. One of the new changes was around the HIV testing services algorithm.

Shandukani Site visit in Hillbrow, 7 April 2016: _Anneke Hesseling visited the site, which concentrates on Paediatric HIV and is led by Lee Fairlie. This site forms part of the TB Champ study. This site will also collaborate with DTTC on the CDC Study 35 and OptiRif Kids studies in 2017. Anneke and Simon Schaaf undertook to make 3-4 sponsorships available to this study Shandukani and Matlosana site clinicians to attend the Child TB Training Course from 25- 30 September 2016. The aim is to promote collaboration and skills exchange between our site and those in Hillbrow, Klerksdorp and Pietermaritzburg.

City Award Ceremony at the Cape Town Civic Centre 15 April 2016: Anneke Hesseling attended and DTTC studies such as COMAPP and PopART were acknowledged.

Annual ACTG/IMPAACT DSMB meeting, 2 May 2016: Anneke Hesseling attended for the A5300/P2003 MDR preventive therapy trial ("Phoenix") at the Hyatt Regency Hotel in Johannesburg.

Workshop with ANOVA Health Institute to discuss innovations in using Geographic Information Systems (GIS) for ART delivery 10 May 2016: Graeme Hoddinott, Hanlie Myburgh, and Mark Theart met with ANOVA Health colleagues, Dr Helen de Klerk (UWC), and Dr Allison Ruark. The various potential uses for GIS in optimizing ART delivery were articulated and discussed. A plan was drafted to submit this discussion as an abstract to upcoming local public health conferences.

Metro District 90 90 90 Steering committee meeting, 10 May 2016: The steering committee meeting is a forum for collective sharing of ideas with the aim of achieving the 90/90/90 targets for HIV and TB by 2020, in the WC Metro district. This group also provides direction to the sub-structures & sub-districts within the WC Metro District and offers technical support for the implementation of the 90/90/90 strategy. The Principle Investigator and Project Manager

attend the meeting and presented the COMAPP work plan.

Planning discussion about future collaborations for social science in the Karoo with Prof. Cheryl Walker and Dr Thomas Cousins (Department of Sociology and Social Anthropology, SUN) 10 May 2016: Professor Walker has been awarded a SARCHI Chair to support mixed-method social science about health and development in the rural Karoo. This meeting served as a starting point for discussing potential points of collaboration with DTTC, including post-graduate students and linked to DTTC's existing involvement in the new degree programme on Transdisciplinary Health and Development Studies (between the Department of Sociology and Social Anthropology and the Division of Community Health).

Workshop session for regulatory officers, Pretoria, 11 May 2016: Frieda Verheye-Dua visited the MCC offices in Pretoria

Rural Research Days hosted by Ukwanda in Worcester, 19-20 May 2016: Various PopART staff attended and the following presentations were presented:

- Hanlie Myburgh (DTTC) presented an oral on addresses captured at a facility in the Cape Winelands compared to actual residence
- Sheldon Hendricks: The uptake of condoms as part of a combination prevention package in HPTN 071 (PopART) South Africa
- Sandra Grunewald: Collaboration with supporting partners to link and retain HIV+ children into HIV care in Wellington, Western Cape Province, South Africa
- Jerry Molaolwa: Lessons learned with the use of a handheld Electronic Data Capture (EDC) device during clinical trials
- Peter Bock: Update and early research findings for POPART
- Fortunate Ndaba et al: Lessons learned about Phlebotomy and HIV rapid testing in the Population Cohort: Nurses perspectives from South Africa

Poster Presentations:

- Francionette Esau: Lessons learned on household TB screening, TB diagnosis, and the initiation of TB treatment in HPTN 071 (PopART) Intervention South Africa

Analysis workshop on the influence of space on Healthworkers' perceptions about HIV-related stigma in health facilities with Dr Virginia Bond in Tulbagh, 23-27 May 2016: Graeme Hoddinott and Sinazo Nomsenge (DTTC) met with Dr Bond to analyse data collected in 21 health facilities between November 2015 and May 2016. A final draft of a poster titled for the AIDS 2016 Conference (Durban 18-22 July) was produced and circulated to co-authors. Progress was also made towards drafting a paper outline on these data.

"Reaching 90-90-90 in South Africa Part III Best Practices & Innovations in Linkage, Treatment and Viral Suppression", 31 May -1 June 2016: This closed meeting was an opportunity for national, provincial, district and development partners to showcase innovations, best practices and lessons learned that have assisted in partners achieving the 90-90-90 goals in South Africa. The meeting was hosted by NDOH and PEPFAR. The project manager and a COMAPP professional nurse attended this meeting. PopART Intervention staff, Bliya Yang & Kerry Nel who presented on the progress of the PopART trial and lessons learned.

Meeting with Dr Anne Stangl (International Center for Research on Women) in Baltimore, USA, 7-9 June 2016: Dr Stangl is a co-investigator (along with Dr James Hargreaves (London School of Hygiene and Tropical Medicine), Dr Virginia Bond (ZAMBART) and Graeme Hoddinott (DTTC)) on HPTN 071a, an ancillary study to HPTN 071 (PopART) evaluating associations between HIV-related stigma and the implementation of the 'Universal Test and Treat' strategy for HIV prevention. Graeme Hoddinott discussed planned study outputs from baseline data collection (July 2014 – April 2015) as well as refining the design for qualitative data collection (see qualitative-cohort below).

HPTN Annual Network Meeting, 10-15 June 2016: Held in Washington DC attended by PopART staff (Dr Peter Bock, Bliya Yang, Graeme Hoddinott, Nozi Makola, , Nomtha Mandla, and a community member Daniel Mpongoshe). The annual meeting discussed HPTN 071 (PopART)'s progress and strategies to improve retention in the Population Cohort and strategies to improve the delivery of the Intervention.

Initial discussion about future collaborations for social science/implementation evaluation between DTTC and TB/HIV Care with Anna Versfeld, 23 June 2016: Anna Versfeld has recently been appointed to lead social science implementation evaluations with TB/HIV Care. This meeting served as a starting point for discussing potential points of collaboration with DTTC in moving this agenda forward.

Revision of WHO Interim guidance on Bedaquiline and Delamanid update (Geneva), 28-29 June 2016: Anneke Hesseling participated as paediatric TB expert.

HIV Testing Service Policy Orientation Workshop 12-13 July 2016: Facilitated by the Western Cape Government Department of Health and PEPFAR held at the Fountains Hotel, Cape Town. The new policy is now aligned to the WHO guidelines and the 90-90-90 goals. The following were discussed at the workshop: change in HIV testing algorithm, emphasis on couples counselling, emphasis on children being tested, and offering a holistic care package when providing HIV testing services which include screening for non-communicable diseases. Attended by the PopART Intervention team: Jacque Hlalukana, District Manager, Zimasa Gcwabe, Nurse Site Manager.

PopART Intervention Adolescents Study Advisory Group Workshop 12-13 July 2016: Facilitated by ZAMBART (Zambia AIDS Related TB Project) and DTTC held in Lusaka, Zambia. The workshop identified youth specific interventions required to increase the uptake of the PopART Intervention in Round 3 of the HIV trial. The workshop was attended by members from the Ministry of Health in Zambia, the Western Cape Government Department of Health, the City of Cape Town Health Directorate, UNICEF, USAID, CDC, and PEPFAR implementing partners, civil societies, and adolescents from both Zambia and South Africa. It was attended by the PopART Intervention team.

PopART for Youth (P-ART-Y) Study Advisory Group (SAG) meeting in Lusaka, 12-13 July 2016: The study advisory group meeting was well attended by various stakeholders from the department of health in Zambia and South Africa, implementing partners, academic institutions and civil society organizations. Four members of the South African Adolescent Community Advisory Board (ACAB) also attended the meeting and gave their inputs to discussions around optimizing the existing PopART intervention for adolescents. The meeting was well received by attendees and the working groups developed several strategies for implementing adolescent focused study optimizations that will commence in November 2016. These outcomes were documented in a SAG report and distributes to all meeting attendees.

TB Think Tank National TB Strategic planning meeting 13 July 2016: Anneke Hesseling participated via webex and Pren Naidoo travelled to Johannesburg for the TB Think Tank National TB Strategic planning meeting: 2017- 2021.

The TB Think Tank meeting, 17 July 2016: attended by Anneke Hesseling and the Social Science team met with the team from THINK in Pietermaritzburg to evaluate their initial experiences in doing the PHOENIX pilot work.

PACK Child TB clinical working group meeting 22 July 2016: Karen du Preez and Anthony Garcia-Prats attended at the UCT Lung Institute.

Western Cape PEPFAR Partners Meeting, 1-2 August 2016: The meeting invite was received from the PEPFAR Liaison Officer. All PEPFAR Partners were to present on their projects and the 2015/16 work plan to the Western Cape Provincial District Manager. The Project Manager attended the meeting and presented the COMAPP work plan.

Stellenbosch University Academic Day, 11 September 2016: The following PopART Intervention staff members presented on research posters:

- Francionette Esau *et al*: Lessons learned with the implementation of household TB screening, diagnosis, and initiation of TB treatment in HPTN 071 (PopART) Intervention South Africa
- Sandra Grunewald *et al*: Collaboration with supporting partners to link and retain HIV+ children into HIV care in Wellington, Western Cape Province, South Africa

- Jerry Molaolwa *et al*: Lessons learned with the use of a handheld Electronic Data Capture Device (EDC) during clinical trials

COMAPP staff poster presentations:

- Leandie September, Margaret van Niekerk, Sue-Ann Meehan entitled: "Working towards increasing the number of HIV-infected people who know their status in Cape Town South Africa. Learning from two innovative community-based HIV counselling and testing strategies!"
- Vuyiswa Ndudana, Margaret van Niekerk, Sue-Ann Meehan entitled: "Describing demographic and clinical characteristics of HIV positive clients who link to care from 5 Community-based HIV Counselling and Testing sites in Cape Town, South Africa"

Evidence for HIV Prevention in Southern Africa (EHPSA) workshop to develop Stakeholder Engagement Plan for PopART for Youth (P-ART-Y) study 19-22 September 2016: Graeme Hoddinott and Constance Mubekapi-Musadaidzwa (DTTC) met with EHPSA facilitators and collaborators from ZAMBART (Dr Kwame Shanaube and Dr Musonda Simwinga) in Johannesburg to develop the study stakeholder engagement plan. After the meeting, EHPSA indicated that they were very impressed with the resultant plan and would like to use it as a model (with our participation) for other projects EHPSA supports.

The 10th International Child TB Training Course, 25-30 September 2016 was held at the Goudini Spa Resort, Worcester. Simon Schaaf and Anneke Hesseling were the convenors with James Seddon, a clinical lecturer, from the Imperial College, London, invited as the keynote speaker. This year the course was extended by an extra day for the first time to 4 full days to include more focus on MDR-TB. There were 48 participants from 14 countries, including 14 South African participants of which 10 were sponsored through the NRF Knowledge, Interchange & Collaboration (KIC) funding secured this year. This year DTTC paediatric clinician, Sue Purchase attended. Elin Svensson and Thomas Dorlo from Uppsala University, Sweden, were invited to visit as observers. The course is Stellenbosch University accredited. Good reviews were received from participants.

Western Cape Provincial Health Research Committee (PHRC) in conjunction with the Directorate: Health Impact Assessment (HIA) hosted the 2016 Provincial Research Day on 4 November 2016 with the theme for this year being, "The First 1000 Days". Paediatric clinicians, Lienkie du Plessis and Adrie Bekker were invited to present. Lienki du Plessis presented the KDH Audit and Adrie Bekker presented her Infant PK work

PopART for Young people (P-ART-Y), 6-11 November 2016: The Adolescent CHAMPIONS responsible for the values clarification component of the P-ART-Y study travelled to Lusaka, Zambia, to meet with their counterparts at ZAMBART – the institution delivering the sister component of the P-ART-Y and HPTN 071 (PopART) studies. This was an opportunity to exchange training material and learn from each other. Each country was able to deliver their training material. In addition, the Adolescent CHAMPIONS were taken on a door-to-door testing visit in the Zambian communities. This provided insight for the Adolescent CHAMPIONS on the experiences of CHiPs delivering the PopART intervention package to adolescents in Zambia.

World Health Organization Paediatric Antiretroviral Drug Optimization (PADO) meeting Geneva 6-8 December 2016: Tony Garcia-Prats attended to promote paediatric TB focus.

MMC revitalisation workshop 12-14 December 2016 – The workshop was held at Lord Charles Hotel, Somerset West. The National Department of Health (NDOH) and Western Cape Department of Health (DOH) facilitated the workshop. The purpose of the workshop was to capacitate the Provincial and district Medical Male Circumcision (MMC) personnel with skills and knowledge on how to: 1) Improve the quality of MMC service delivery, 2) Effectively facilitate and coordinate demand creation activities for MMC, 3) Manage MMC service delivery performance in facilities and adequately report such performance on a monthly basis, 4) Collectively (both province and districts) improve the robustness of the FY16/17 and FY 17/18 MMC provincial micro plans so that they are completed correctly, are effective, measurable, and aligned to the provincial business plans and quarterly performance monitoring requirements.

Cape Town Metro "90-90-90" steering committee meeting, 13 December 2016: Sue-Ann Meehan attended. This committee coordinates the Metro's response to the HIV 90-90-90 target, set by UNAIDS.

Media Coverage During 2016

DTTC featured in 2 printed media articles, 1 radio interview and 1 television broadcast through contributions by Anneke Hesseling, Tony Garcia-Prats and Pren Naidoo:

Afternoon Express - SABC 3 - 23 March 2016 16:52 - Duration: 00:06:13
AVE: R 99 466.67 - Audience: 531 487 39427392
Text - Playback Allocated to: Faculty of Medicine and Health Sciences
Desmond Tutu TB Centre's Dr Pren Naidoo talks about this month's World TB Day.
Afternoonexpress.co.za- Afternoon Express - 23 Mar 2016 - No Byline
<http://www.afternoonexpress.co.za/guests/dr-pren-naidoo-/1606>
AVE: R 3 709.86 39428269
Text Allocated to: Faculty of Medicine and Health Sciences

Cape Argus (AM Edition) - p.2 - 24 Mar 2016 - Sipokazi Fokazi Health Writer
Sipokazi.Fokazi@Inl.Co.Za AVE: R 38 873.43 - Circ: 30 484 39431590
JPG - PDF - Text Allocated to: Faculty of Medicine and Health Sciences, Research, Management Dosage study to boost TB treatment

Star - p.13 - 24 Mar 2016 - Vuyo Mkize Vuyo.Mkize@Inl.Cosza
AVE: R 41 816.93 - Circ: 84 772 39432426
JPG - PDF - Text Allocated to: Faculty of Medicine and Health Sciences, Research Shorter, sweeter plan for TB children

Cape Talk - 24 Mar 20:30 with Gugu Mhlungu and Sizwe Dhlomo

Visitors During 2016

Paediatrician, Dr Vera Golla, from Germany arrived at DTTC August, 3 2015 and completed a publication under the mentorship of Simon Schaaf and Anneke Hesseling. She returned to Germany on 31 March 2016.

Dr Lindsey Reynolds, Brown University, USA visited the PopART team from 11-15 2016.

Ab Schaap, Statistician and Data Manager of ZAMBART and PopART from Zambia and Sian Filloyd, Statistician from the London School of Hygiene & Tropical Medicine, visited the PopART team from 8-12 February 2016.

Dutch undergraduate medical student, **Ndidi Obihara, from Radboud University, Netherlands,** arrived on 18 January 2016 and stayed until 15 April 2016 for a mentorship programme under the leadership of Simon Schaaf and Anneke Hesseling.

The paediatric team hosted **Leander Grode and Julia Knaul from VPM, Germany, on** 15 March 2016.

CDC Financial and administrative Audit visit: March 16-17 2016. 2 Delegates from CDC (Michelle Smith and Joan Rangwaga) visited SU to audit the Grant GH000320. Overall positive feedback.

Visit from FHI360/HPTN Core Communications team, 30 March 2016: Eric Miller and Kevin Bokoch from FHI360 in Durham, North Carolina, USA visited PopART in the field and shadowed the teams in the sites to see what additional communication documents are needed.

Visit from SCHARP, 30 March-1 April 2016: SCHARP (Statistical Centre for HIV and AIDS Research and Prevention) from Seattle, Washington, USA visited the HPTN 071 (PopART) team. The team was here to assist with data enquires in the field and provide support for trouble shooting.

The paediatric team received the paediatric HIV/TB expert team from the Karolinska Institute, Sweden, 13 April 2016 at BCH and Elisabetta Walters and the Diagnostics team hosted them at G-Ground, Tygerberg Hospital (TBH), 14 April 2016.

Visitors from CDC and USAID visit to HPTN 071 (PopART) Intervention South Africa, 9 May 2016: Dr Nancy Knight, CDC Country Director, South Africa, Steve Smith, US Health Attache, and Kerry Pelzman, USAID Health Director, South Africa visited community SA16 to see the progress of an Arm A site (ART irrespective of CD4 count) and the ART adherence clubs. The visit was facilitated by Professor Nulda Beyers, Principal Investigator.

Elana Roberts, TB Alliance, met with Anneke Hesseling at the BCH PK unit to find out more about paediatric TB formulations and other needs on 11 May 2016.

Rosemary Reyes of Otsuka visited the PK Unit from 10-13 May 2016 with the Otsuka 232/233 study team.

Dr Jyothi Chabilall, the new Doctoral Head of Faculty, met with Masters and PhD students at DTTC on 19 May 2016.

CDC Close-out and Quarterly site Visit from 25-26 May 2016: COMAPP was visited by the CDC Activity manager (Ms Hilda Maringa), CDC Close-out officer (Ms Jane Shaba), Branch Chief CDC (Mr Cole Gbolahan) and Headquarters visitor from CDC Atlanta (Mr Hussain Baseer). The meeting encompassed all the relevant information for a successful close-out of Grant No: GH000320.

US Congress visit to HPTN 071 (PopART) 31 May 2016: A group of 25 delegates from the United States (Congress, Senators, Representatives, PEPFAR, and USAID) lead by Senator Lamar Alexander who sits on the committee for OGAC (the Office of Global AIDS Coordinator) visited the HPTN 071 (PopART) study team. PopART staff (Dr Kerry Nel, Bliya Yang, Nomtha Mandla, and Constance Mubekapi-Musadaidzwa) presented on the progress of the PopART trial and had a demonstration of what the field staff do daily out in the communities. There were testimonies from community members of the impact of PopART within their communities.

Dr Roosa Sloot, post-doctoral student from the Netherlands, joined the Centre from July 2016 for approximately 2 years.

Prof. Frank Cobelens, clinician and TB epidemiologist from The Netherlands, visited the paediatric PK Unit at BCH on 13 July 2016.

Professor Rada Savic, Mathematical modeller and pharmacologist visiting from the UCSF, presented 'Optimizing TB treatment in children using pharmacokinetic-pharmacodynamic modelling' at the CTU Academic meeting on 21 July 2016.

Mhleli Masango from the Shandukani site visited DTTC offices and the site offices with Laing from the Social Science Team 11 August 2016.

Leander Grode and Julia Knaul of VPM, Germany, visited the Centre on 23 August 2016.

Abeda Williams, Johnson and Johnson visited Anneke Hesseling on 6 September 2016.

Helmuth Reuter and Eric DeCloedt, Pharmacokinetic Unit and Rene Jansen, TASK Pharmacy visited DTTC on 7 September 2016.

Dr. Kwame Shanaube (P-ART-Y study Primary Investigator in Zambia) and Conred Jeni (P-ART-Y Study coordinator in Zambia) visited Cape Town to attend the EHPSA technical forum and to meet with the P-ART-Y team to discuss future spaces events and plan for the Arm C survey in 2017, 19-22 September 2016.

James Seddon, Imperial College London, visit the Centre and the paediatric group, after the Goudini course, October 2016.

Dr Watsamon Nattawan and Dr Nattawan Thepnarong, Chulalongkorn University, King Chulalongkorn Hospital, Bangkok, Thailand attended the Goudini course and visited the CTU for

3 months as guests of FAM-Cru from October 2016.

Dr. Elin Svensson from Uppsala University visited the Centre on 14 October 2016 to present at the Academic Meeting, " Bedaquiline's pharmacokinetics, extrapolation to children and a little bit of exposure-response", and also spent 2 days at the 10th International Child TB Training Course.

USAID ANOVA Visit – PEPFAR USAID visited HPTN 071 (PopART) Intervention for a field visit, 20-21 October 2016: HPTN Leadership and Operations Centre (HPTN LOC)/Family Health International (FHI360) Visit to HPTN 071 (PopART) Intervention Visitor: Sam Griffiths – HPTN LOC/FHI360: Durham, North Carolina, United States of America.

Akbar Shahkolahi and Zurayda Hendricks from ACTG (USA) visited the PK Unit at BCH on 27 October 2016.

Office of Global AIDS Coordinator (OGAC) Visit to HPTN 071 (PopART) Intervention Visitors October 31, 2016: Mike Gilbreath – NIAID; Nareen Aboud – OGAC; Steve Smith – US Health Attaché; Saira Qureshi – OGAC; Jacqueline Burgess – PEPFAR CDC Visit to a PopART Intervention community, Dalevale. The visitors went to Dalevale to see CHIPs conduct home-based HIV counselling and testing and linkage to HIV care. Visitors: Hilda Maringa - Public Health Specialist, Youth Lead Prevention Center for Disease Control & Prevention South Africa, Michelle Smith - Center for Disease Control, Saira Qureshi - Interagency Collaborative for Program Improvement (ICPI) Technical advisor

Zambart (Zambia AIDS Related TB Project) Visit from 2-4 November 2016 to HPTN 071 (PopART) Intervention – Delft South, Luvuyo and Ikhwezi. Benchmarking and comparisons between ZAMBART and PopART. Visitors: Stable Besa; Ephraim Sakala.

Dr Musonda Simwinga from ZAMBART in Lusaka, Zambia, 23-27 November 2016: the P-ART-Y study team to observe the P-ART-Y Futures' Spaces events and provide feedback on their continued improvement and to facilitate the DTTC Community Advisory Board Strategic Workshop, 25-26 November 2016.

Families Matter Program (FMP) was visited by the COMAPP CDC Activity Manager (Hilda Maringa) and two delegates from the National office for Social Development in November 2016. The purpose of the visit was to discuss handover of equipment to DSD, who will implement FMP in South Africa and an introductory meeting with the local NGO in Nyanga who was the partner organisation delivering the Families Matter Program.

The paediatric team hosted visitors on 21 November 2016 from Otsuka Inc., led by Dr Jeff Hafkin, for the Otsuka 232 and 233 trials.

The IMPAACT Lab team, December 9, 2016: visited Anne-Marie Demers and Anneke Hesseling at the BCH paediatric PK Unit.

Staff appointments

Table 1 Table of new staff appointments January to December 2016

Person Name	Employee Number	Hire Date	Study/CP Number	Study/CP Number	Study/CP Number	Study/CP Number	Study/CP Name		
Isaacs, Jovan	16242386	01-Jan-16	100%	54593			PopART FHI 360		
Naidoo, P	15463087	01-Jan-16	100%	54593			ORAP		
Mubekapi-Musadaidzwa, C	20574274	01-Jan-16	90%	54593	10%	54526	PopART FHI 360/Stigma		
V Nohiya	20484526	01-Feb-16	100%	54593			PopART FHI 360		
SM Ntloko	18772692	01-Feb-16	100%	54522			PopART CDC		
Khaille, PA	20656130	01-Feb-16	100%	54522			PopART CDC		
Mzakwe, M	20492703	01-Feb-16	100%	54593			PopART FHI 360		
Kiva, A	20666357	01-Feb-16	100%	54593			PopART FHI 360		
Zono, H	20667094	01-Feb-16	100%	54593			PopART FHI 360		
Petse, NJ	20666691	01-Feb-16	100%	54593			PopART FHI 360		
Mbina, E	20666403	01-Feb-16	100%	54593			PopART FHI 360		
Mgemane, YS	20666721	01-Feb-16	100%	54593			PopART FHI 360		
Ndaba, F	14738015	01-Mar-16	100%	54593			PopART FHI 360		
Mdingi, C	20672179	01-Mar-16	40%	54593	60%	54526	PopART FHI 360/Stigma		
Mdedetyana,LS	20672187	01-Mar-16	20%	54593	20%	55987	60%	54526	PopART FHI 360/BMRC/Stigma
Brown, R	16233530	01-Mar-16	20%	54593	60%	55987	20%	54526	PopART FHI 360/BMRC/Stigma
De Villiers, L	15427617	01-Mar-16	20%	54593	20%	55987	60%	54526	PopART FHI 360/BMRC/Stigma
Hlalukana, J	20919174	01-Apr-16	100%	54522			PopART CDC		
Mac Pherson, J	21092397	01-May-16	100%	55811			Paediatrics		
Arendse, JJ	16787490	01-May-16	100%	54594			Paediatrics		
Plaatjies, RE	21097550	01-May-16	100%	54593			PopART FHI 360		
Awoniyi, D	16215915	01-May-16	100%	54593			PopART FHI 360		
Diani, N	21098247	01-May-16	100%	54522			PopART CDC		
Sayers, R	20493622	01-Jun-16	100%	54593			PopART FHI 360		
Mohononi, MN	21252637	01-Jun-16	100%	54593			PopART FHI 360		
Jooste, AL	17003164	01-Jun-16	100%	54593			PopART FHI 360		
Hlomendini, LD	16795199	01-Jun-16	100%	54522			PopART CDC		
Wolmarans, JJ	21253285	01-Jun-16	100%	54473			COMAPP		
Jokani, B	21245029	01-Jun-16	100%	29434			Paediatrics		
Saul, R	21362807	01-Jul-16	100%	55811			Paediatrics		
Mbamba, A	17391660	01-Jul-16	70%	54593	10%	55852	20%	54526	PopART FHI 360/BMRC/Stigma
Batist, E	17436877	01-Jul-16	100%	55987			Re-appointment, Paediatrics		
Fork, N	18832016	01-Jul-16	100%	54593			PopART FHI 360		
Gebenge, K	19839375	01-Jul-16	100%	54593			PopART FHI 360		
Yalezo, S	21365334	01-Jul-16	100%	54473			COMAPP		
Kay, N	21395594	01-Aug-16	100%	55811			Paediatrics		
Gwaxulu, L	19633033	01-Aug-16	100%	55986			Re-appointment, Paediatrics		
Bonene, N	19701055	01-Aug-16	100%	54593			PopART FHI 360		
Jantjies, M	14496038	01-Aug-16	100%	54593			PopART FHI 360		
Zono, H	20667094	01-Aug-16	100%	54593			Re-appointment - PopART FHI 360		
Klaas, A	19590490	01-Aug-16	100%	54522			Re-appointment - PopART FHI 360		
Nkalitshana,NA	18897509	01-Aug-16	100%	54522			Re-appointment - PopART FHI 360		
Jackson, E	21395632	01-Aug-16	100%	54593			PopART FHI 360		
Sishuba-Zulu, M	14686414	01-Aug-16	100%	54522			PopART CDC		
Te Roller, A	13476823	01-Aug-16	100%	54522			PopART CDC		
Mahlaba, P	21399131	01-Aug-16	100%	54522			PopART CDC		
Madabane, P	21399077	01-Aug-16	100%	54522			PopART CDC		
Ntsimbi, N	21398569	01-Aug-16	100%	54522			PopART CDC		
Gebenga, K	21399190	01-Aug-16	100%	54522			PopART CDC		
Moatglidi, T	21398968	01-Aug-16	100%	54522			PopART CDC		
Tom, A	21396035	01-Aug-16	100%	54522			PopART CDC		
Sopapaza, N	21398992	01-Aug-16	100%	54522			PopART CDC		
Kunju, Z	21399042	01-Aug-16	100%	54522			PopART CDC		
Siboto, T	19452306	01-Aug-16	100%	54522			PopART CDC		
Mbolekwa, P	21395676	01-Aug-16	100%	55811			Paediatrics		
Gamka, N	15844714	01-Oct-16	100%	54593			Re-appointment - PopART FHI 360		
Mlاندezo, N	21467315	01-Oct-16	100%	54593			PopART FHI 360		
Niekerk, A	18769993	01-Oct-16	50%	55807	40%	55987	10%	55981	Paediatrics
Julius, RL	21467358	01-Oct-16	100%	54473			COMAPP		
Maker, S	19703414	01-Dec-16	35%	55807	40%	55978	25%	55981	Re-appointment - Paediatrics
Scholtz, A	15197700	01-Dec-16						Re-appointment - PopART FHI 360	
Jooste, A	17003164	01-Dec-16	100%	54593					
Van Deventer, A	15794172	01-Dec-16	100%	54593					
Esau, F	19265867	01-Dec-16	100%	54522				Re-appointment PopART CDC	
Moalolwa, J	18690475	01-Dec-16	100%	54522				Re-appointment PopART CDC	
Saunders, Y	20536194	01-Dec-16	100%	54522				Re-appointment PopART CDC	
Heneke, P	16386337	01-Dec-16	100%	54522				Re-appointment PopART CDC	
Van Rensburg, G	17989256	01-Dec-16	100%	55852				Re-appointment P-A-R-T-Y PopART	
Mabenge, L	21514720	01-Dec-16	100%	54593				PopART FHI 360	
Adriaanse, MM	21514712	01-Dec-16	100%	54522				PopART CDC	
Vusani, AM	18780784	01-Dec-16	100%	54522				PopART CDC	
Velani, P	16173376	01-Dec-16	100%	54522				PopART CDC	
Mankayi, S	18772730	01-Dec-16	100%	54522				PopART CDC	
Posile, N	20957572	01-Dec-16	100%	54522				PopART CDC	
Ngalo, BM	21514747	01-Dec-16	100%	54522				PopART CDC	
Mashicolo, L	21514755	01-Dec-16	100%	54522				PopART CDC	
Khau, V	21514763	01-Dec-16	100%	54522				PopART CDC	
Nganase, N	21514739	01-Dec-16	100%	54522				PopART CDC	
Koeli, M	21501610	01-Dec-16	70%	54593	20%	54526	10%	55852	
Pullen, L	15858472	01-Dec-16	70%	54593	20%	54526	10%	55852	
Herandien, T	21451303	01-Dec-16	70%	54593	20%	54526	10%	55852	
Nyangwa, T	21501726	01-Dec-16	70%	54593	20%	54526	10%	55852	
Galada, L	21501459	01-Dec-16	100%	55852					
Ntsabo, T	18724906	12-Dec-16	100%	54593				PopART FHI 360	

Staff Capacity building

The DTTC supported a total of 188 staff members in capacity building during 2016. The broad categories of training include skills training (145 staff), leadership training (26 staff), short courses (13 staff) and formal qualifications (3 staff). As per DTTC policy Good Clinical Practice training was attended by 25 new staff members and 66 staff members received refresher GCP training. As part of the safety and security portfolio, 25 staff members who either transport patients, staff or travel for study purposes in informal areas, attended an advanced driving course. All attendees completed the course successfully. Figure 3 below depicts other training courses attended by DTTC staff. Both HPTN071 (PopART) costpoints funded by the National Institutes of Health and the Centre of Disease Control, respectively supported the majority (75%) of this capacity building financially. In addition, 171 staff members attended SETA training courses hosted by Stellenbosch University.

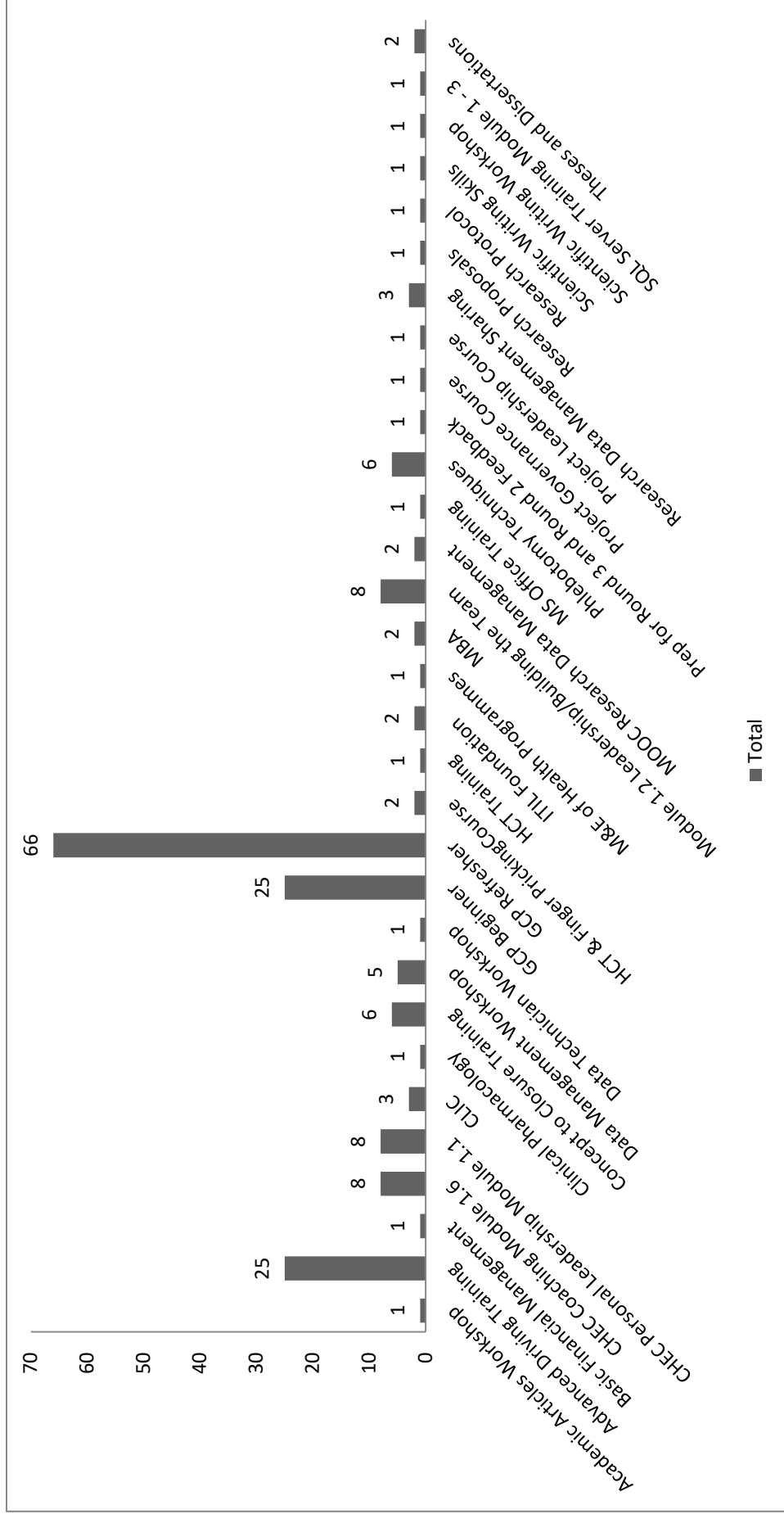


Figure 4 Staff capacity building by course completed

DTTC Governance

DTTC Executive Committee (ExCo)

The DTTC is governed by its Governing Board, as per its constitution. A new governing board was elected in February 2017, chaired by Professor Andrew Whitelaw, Department Medical Microbiology and NHLS, Tygerberg; vice chair: Professor Wolfgang Preiser: Division Head: Medical Virology.

The daily governance of the DTTC is fulfilled by the ExCo. All members of the ExCo committee play an active role in the management of DTTC, making key decisions to ensure the vision and mission of DTTC are maintained and expanded. Members also form part of the scientific strategy team and are responsible for driving the research agenda at DTTC forward, in line with the 3 DTTC research pillars. The role of this team is to provide scientific input into research ideas put forward to the team and collaborate on potential research proposals.

The DTTC ExCo meets every 2 weeks. In addition, there is a dedicated 2 hour scientific strategy meeting convened once a month for the ExCo and additional *ad hoc* member to discuss and plan ongoing and future research priorities and strategies.

Table 2 .DTTC Executive Committee Roles and Responsibilities

NAME	ROLE	RESPONSIBILITY
Prof. Anneke Hesselning	DTTC Director and chair of DTTC ExCo	DTTC director; director: paediatric TB studies
Dr Tony Garcia-Pratts	Medical director of the Desmond Tutu TB Centre Brooklyn Chest Hospital Paediatric Pharmacokinetics Unit Principle investigator IMPAACT TB Scientific committee mentored investigator Co-investigator in the newly funded Desmond Tutu TB Centre IMPAACT CRS (site 31790)	Responsible for supervising the clinical care of participants and effective implementation of ongoing trials, as well as supervising the site staff of 15 and overseeing the general functioning of the research unit. Leading two large observational cohort studies evaluating the pharmacokinetics and safety of the second-line TB medications in children. Supporting/Co-supervising two and master's students.
Dr Marieke van der Zalm	Clinical Researcher Paediatric studies Principle investigator Career-development grant of the EDCTP	Lead Clinician of the SHINE study, which is a multi-centre TB treatment shortening study with the DTTC being the only South African site. The Principle investigator assumes overall responsibility and accountability for the efficient planning, implementation and evaluation of the project, ensuring contractual obligations to all stakeholders within the regulations of Stellenbosch University

r Frieda Verheye-Dua	Regulatory Coordinator	Coordination of all IMPAACT related activities, with extensive quality assurance and regulatory oversight of all clinical trials conducted under the IMPAACT trial network auspices. Ensures that general and study-specific regulatory-related processes for NIH-funded and other clinical paediatric studies comply with the standard operating procedures (SOPs) as well as the requirements of ethics committees and sponsors, specifically the NIH-trials networks (IMPAACT) and other relevant trials. Interacts extensively with local academic and non-academic stakeholders, and at a very high level with international stakeholders' including the NIH, international regulatory agencies, and international trial networks and investigators.
Prof. Simon Schaaf	Lead investigator Paediatric studies	MDR-TB clinical care and research; core member of IMPAACR CRS, clinical and scientific advisor
Dr Pren Naidoo	Principle investigator Operational Research	Principle investigator on PROVE-IT LPA study and completing PhD on impact assessment of molecular diagnostic tests for TB. Supporting/Co-supervising PhD and master's students. Undertaking analysis of 10-year national ETR dataset and supporting other researchers, including post-docs working on the dataset. Representing DTTC in national TB/HIV implementation science initiatives and the national TB Strategic Think Tank. (Co-chair of one of the working groups).
Sue Ann Meehan	Principal investigator HIV prevention project (funded by PEPFAR/CDC)	The Principle investigator assumes overall responsibility and accountability for the efficient planning, implementation and evaluation of the project, ensuring contractual obligations to all stakeholders within the regulations of Stellenbosch University. Current registered PhD student at SU.
Dr Peter Bock	Co-PI: HPTN 071 / PopART trial	The Principle investigator assumes overall responsibility and accountability for the efficient planning, implementation and evaluation of the project, ensuring contractual obligations to all stakeholders within the regulations of Stellenbosch University. Staff component of approximately 400 employees. Supporting/Co-supervising PhD and master's students. Current registered PhD student at SU.
Graeme Hoddinott	Senior Researcher Lead Social Scientist, DTTC Co-investigator Social science HPTN 071 PopART trial	The Principle investigator assumes overall responsibility and accountability for the efficient planning, implementation and evaluation of the project, ensuring contractual obligations to all stakeholders within the regulations of Stellenbosch University. Academic member of the Transdisciplinary Health and Development Studies postgraduate degree programme hosted between the Faculties of Medicine and humanities. Current registered PhD student in at UKZN.
Sterna Brand	Human Resources Manager	The HR Manager oversees HR functions at the centre and manages HR processes and procedures within the centre.

		The HR manager also oversees performance management and compliance and the development and retention of human capital.
Theo Smith	Logistics Manager	The Logistics Manager provides logistical support to the centre's central administrative hub, peripheral research sites and overall centre logistics. Duties include management of the following: overseeing vehicle fleet management and reporting, office space and rental agreements, on and off-site storage facilities, fixed asset management, purchase requisition authorisation and assets verification, quotations and tender management and overseeing the non-trial insurance portfolio of the centre.
Anelet James	Operations Manager	The Operations Manager provides operational, financial, administrative and technical support to the centre and its research and support staff. Core responsibilities include financial management, supporting manager centre operations and sample repository management. Current registered MBA student USB.

Financial Information

The information below will be updated once the audited financial statements for financial year ending 31 December 2016 are released by Stellenbosch University.

The DTTC received over R7,6 million in new grant funding in 2016, in addition to existing major awards with annual disbursements. The major funding stream for this year remained US Federal Funding mainly supporting the HPTN071(PopART) trial (Table 1). Table 1 below indicates the various countries currently supporting our research. All funding streams increased from 2015 to 2016 indicating a confidence in our research output by our various funders (see Appendix III for detail). A comparison between income of 2015 and income of 2016 by funding body for grant funding over/under R1 million is shown in Figures 2 and 3. Capital Expenditure remained relatively stable at approximately R1 million for each year.

Table 3 Source of funding for Research at DTTC in 2015 and 2016

Source Country	DTTC Income 2016	DTTC Income 2015
Asia, Industry	R 1 060 133,47	R 205 744,06
Europe	R 145 965,94	R 19 464,40
South Africa	R 3 654 044,89	R 1 867 506,59
UK	R 5 923 460,72	R 6 894 904,45
US Federal	R 103 081 938,28	R 76 897 242,97
US Other	R 2 449 800,23	R 353 651,74
Grand Total	R 116 315 343,53	R 86 238 514,21

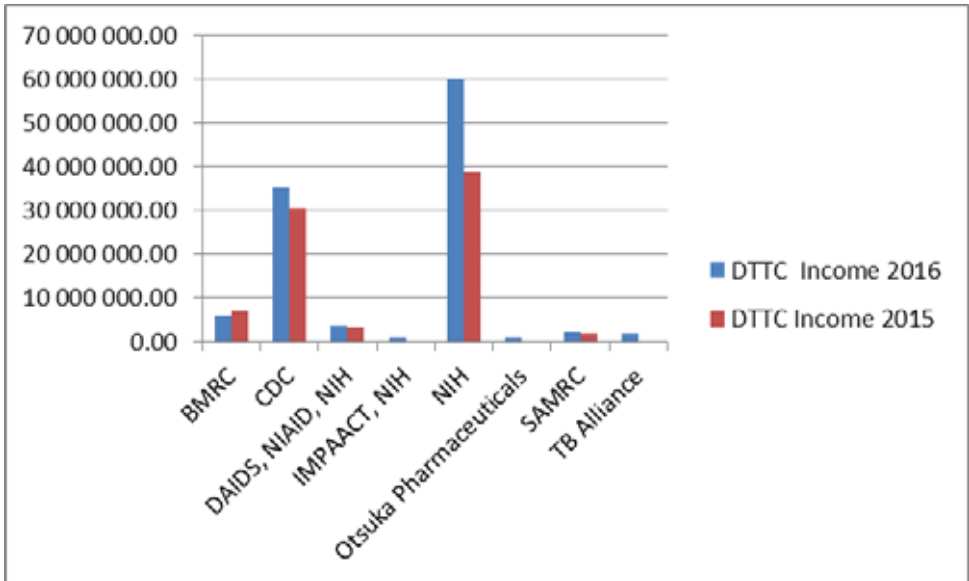


Figure 5. DTTC Income for 2015 vs 2016 (Funding over R1 000 000)

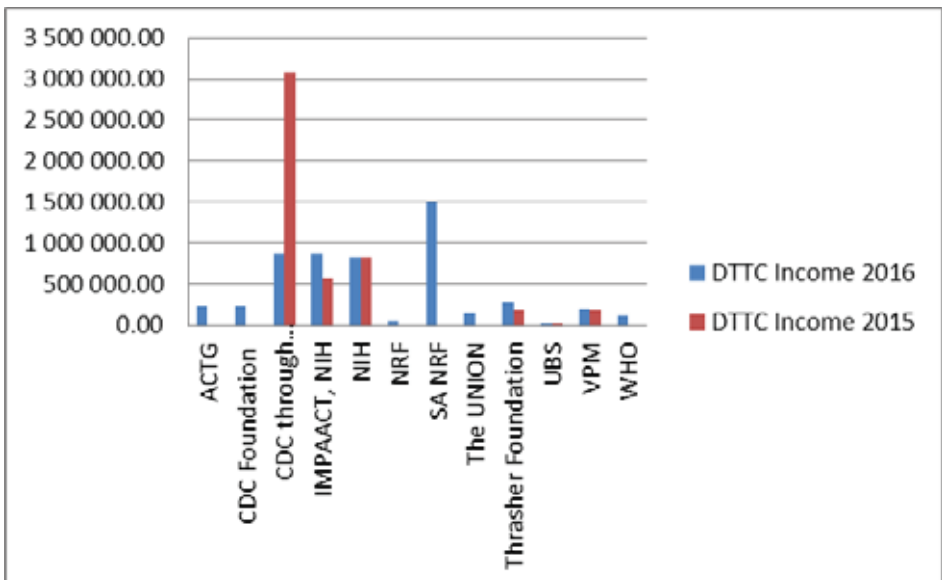


Figure 6 DTTC Income for 2015 vs 2016 (Funding under R1 000 000)

Risk Management

In the light of dynamic political, economic and environmental changes both globally and locally, the DTTC Exo acknowledges that a Risk Management Plan is required to identify and mitigate against any factors or changes that places on-going research activities and operations at risk. Therefore, a detailed risk assessment will be conducted and management plan developed. Upon approval of this plan by the DTTC governing board the results of the assessment and the plan will be included in our 2017 Summary Report.

Acknowledgements & Funders



Currently Registered Trainees: Master's Degree				
Name of trainee	Current position	Degree	Supervisor	Research Topic
Megan Palmer, MD, FCP	Research paediatrician	MPH (UCT)	Robert Gie, Anneke Hesselning	Validity of chest radiographic reading methods in children with suspected TB
Heidi van Deventer, MD	Research medical officer	MSc Clin Epid (SU)	Anneke Hesselning	Effect of TB on risk of atopy in children
Celeste de Vaal, MD, DCH	Research medical officer	MPhil Bioethics (SU)	Lyn Horn	Ethics of postmortem studies and notifiable diseases including TB
Louvina van der Laan, MD	Research medical officer	MPhil Clin Pharm (UCT)	Anneke Hesselning	MDR-TB in HIV-infected children: drug, drug interactions and safety
Jana Winckler, MD	Research medical officer	MPhil Clinical Pharm (SU)	Tony Garcia-Prats	Pharmacokinetics and safety of high-dose INH in children with MDR-TB
Catherine Wiseman, MD	Research medical officer	MPH (UCT)	Anneke Hesselning	Effect of HIV exposure on risk of TB infection in infants in high-burden communities
Anelet James, MSc Microbiology	DTTC operations manager	MBA (USB)	TBA	TBA 2017
Elizabeth Batist, MPh	Study coordinator, TB-CHAMP	MPhil in HIV management (SU)	Frieda Verheye-Dua	HIV-related stigma among HIV-positive men who have sex with men
Thando Wonxie, PGD.	Research Intern	MPhil in HIV management (SU)	Dr C Clive	Health Care workers' experiences on HIV testing
Chulumanco Mdingi, BA Hons.	Research Intern	MA (NMMU)	Jenna Larsen	Vulnerabilities of small scale citrus farmers in Ngqushwa
Rosemary, Brown, BA (Hons)	Social science research officer	MSocSc (UKZN)	Nicholas Munro	Participation in an early intervention programme, social support and parental stress in parents of deaf children
Jabulile, Baleni, BPsych	Social science research officer	Mphil Transdisciplinary Public health and development studies (SU)	TBA	Incarceration and HIV/TB service access
Thomas, Angilique, BA (Hons)	Social science research officer	Master's Politics (UWC)	Dr Cherrel Africa	The role of faith-based organisations on reducing crime and violence on the Cape Flats
Lubabalo, Mdedetyana, BA(Hons)	Social science research officer	Master's Anthropology (UWC)	Dr Sashimi Mfecane	Medical Circumcision: tradition or transformation
Gabriela Carolus, BA (Hons)	Social science research officer	Master's Sociology (SU)	Thomas Cousins	Politics and performance of a literacy intervention in Cape Town: School libraries and the new subjection of volunteerism
Christopher Mahwire, MD	Medical officer, DOH	MSc Epid (SU)	Pren Naidoo	Has the use of Xpert [®] MTB/RIF diagnostic assay improved MDR-TB treatment success rates in KwaZulu-Natal?

Marcel Kanyinda Kitnge	Student	MSc Epid (SU)	Pren Naidoo	Did the introduction of an Xpert MTB/RIF-based algorithm increase the proportion of bacteriologically confirmed PTB cases in "Cape Town: An Interrupted Time Series Design?"
Lenny Naidoo, MD	Senior TB Medical Officer, CoCT	MSc Clin Epid (SU)	Pren Naidoo Anneke Hesselning Simon Schaaf	Operational implementation of MDR-TB prevention in a community-based clinical trial
Dawood da Costa	TB Medical Officer, CoCT	MSc Epid (SU)	Simon Schaaf Anneke Hesselning	Operational implementation of bedaquiline for MDR-TB treatment in routine programmes of Cape Town
Sue Purchase, MD, DCH	Research Medical Officer	MSc Epid (SU)	Simon Schaaf Anneke Hesselning	Operational implementation of treatment of MDR-TB prevention in a community-based clinical trial
Currently registered PhDs				
Adrie Bekker, MD, FCP	Neonatologist, Research fellow	PhD (SU)	Anneke Hesselning Simon Schaaf	Prevention and treatment of maternal and infant TB in the HIV era
Elisabetta Walters, MD, MMed	Research paediatrician	PhD (SU)	Anneke Hesselning Robert Gie	Novel approaches to diagnosis of TB in children
Peter Bock, MBChB (UCT), MRCP (UK), MRCGP (UK) MPH (UCT)	Specialist Family Physician Co-PI: PopArt	PhD (SU)	Nulda Beyers, Sarah Fidler (Imperial College)	The impact of POPART intervention on the mortality and AIDS-related morbidity amongst HIV-positive adults in South Africa
Nomtha Mandla, Physio	Project manager: PopArt	PHD (SU)	Lungiswa Nkonki	Recruitment, participation and retention of research participants in the HPTN 071 Population Cohort, South Africa
Florian Marx, MD*	Research fellow	PhD (SU)	Nulda Beyers Ted Cohen	Mathematical modelling to project the impact of interventions targeted to individuals previously treated for TB on the trajectory of the TB epidemic in high-burden settings
Sue-Ann Meehan, MA (Research Psychology)	Senior researcher, CoMAP PI	PhD (SU)	Nulda Beyers Ronelle Burger	The contribution of a community based HIV counseling and testing initiative in working towards increasing access to HIV counseling and testing in Cape Town, South Africa.
Graeme Hoddinott, MSocSc	Lead social scientist	PhD, University of KwaZulu-Natal	Mary Van Der Riet Peter Rule	Toward a conceptual model of 'the act'; an exercise in theory-generation in the problematic space of school-based HIV prevention through behavior change intervention
Martina Mchenga, MPhil	PhD student	PhD (SU)	Ronelle Burger	Vulnerable households and health: evidence from surveys in South Africa and Malawi
Rory Dunbar, MSc	Senior data manager	PhD (SU)	Nulda Beyers Pren Naidoo	Operational modelling to optimise the impact of Xpert MTB Rif on TB and MDR-TB yield and costs
Pren Naidoo, MD, MBA	Senior researcher, lead operational researcher	PhD (SU)	Nulda Beyers	Evaluating the impact of an Xpert® MTB/RIF-based TB diagnostic algorithm in a routine operational setting in Cape Town
Lario Viljoen, MA	Social science researcher	PhD (SU)	Lindsey Reynolds	Young women's sexual decision-making in the context of earlier

				ART-access
Sinazo, Nomsenge, MA	Social science research officer	PhD (RU)	Professor Monty Roodt	Relative impact of NGO-delivered/partnered school interventions to improve learning outcomes in the Eastern Cape
Karen du Preez	Research paediatrician	Planned registration Q1 2017	Anneke Hesselning Pren Naidoo	Epidemiology of TB in children in South Africa
Anthony Garcia-Prats, MD, Msc	Paediatric PI BCH PK Unit Medical Director	PhD (SU)	Anneke Hesselning Simon Schaaf	Optimising and operationalising MDR-TB treatment in children
Anne-Marie Demers, MD	Medical Microbiologist	PhD (SU)	Anneke Hesselning Andrew Whitelaw (NHLS)	Use of routine microbiology data in paediatric TB trials
Muhammad Osman, MD, Msc	Senior manager and medical officer, CoCT	Planned registration Q1 2017	Anneke Hesselning Pren Naidoo	Understanding TB associated mortality from routine data – incidence, predictors and mitigating factors
Post docs current				
Marieke van der Zalm		Postdoc (SU)	Anneke Hesselning	Lung function and respiratory pathogens in children with suspected TB
Mareli Claassens		Postdoc (SU)	Nulda Beyers	Impact of HIV on TB outcomes and mortality
Jody Boffa		Postdoc (SU)	Anneke Hesselning Tony Garcia-Prats	Epidemiological comparison of MDR-TB in Cape Town and rural KwaZulu-Natal
Rosa Sloot		Postdoc (SU)	Pren Naidoo	Epidemiology – HPTN071(PopART)

DTTC Financial Information 2015 & 2016

Complete DTTC Cost Centre Information	Source	2016					2015				
		Opening Balance	DTTC Income 2016	Total Expenditure	Capital Purchases	Net surplus/shortfall	Opening Balance	DTTC Income 2015	Total Expenditure	Capital Purchases	Net surplus/shortfall
TBTC parent grant, CDC	CDC through Veterans Affairs subcontract	R 2 703 934.28	R 861 704.46	R 1 874 734.97	R -	R 1 690 903.77	R 3 073 303.00	R 2 684 405.69	R -	R 2 703 934.28	
TBSC and P1108 and P2003 protocol chair (Hessel)	IMPA/ACT, NIH	R 7 773.81	R 676 225.27	R 724 669.98	R -	R -40 670.90	R 498 397.12	R 454 187.34	R -	R 7 773.81	
Kidcare 2	URC	R 46 751.76	R 547.66	R 63 804.52	R -	R -16 505.10	R 19 464.40	R 629 776.23	R -	R 46 751.76	
MDR PK 1	NIH, NICHD	R 105 211.91	R 3 142 415.70	R 3 066 193.86	R -	R -181 433.75	R 3 486 135.20	R 4 052 505.96	R 2 969.25	R 105 211.91	
Osuka 232/233	Osuka Pharmaceuticals	R -51 086.07	R 1 060 133.47	R 613 630.95	R -	R 395 416.45	R 205 744.06	R 154 755.05	R -	R -51 086.07	
DTTC CTU CRS	DAIDS, NIAID, NIH	R 159 237.15	R 3 762 983.76	R 3 805 622.72	R 326 536.74	R 116 598.19	R 3 286 833.73	R -	R -	R 3 380 432.74	
PK DBS	Thrasher Fund	R -30 776.87	R 267 975.82	R 277 080.57	R -	R -39 881.62	R 173 421.03	R 207 778.20	R -	R -30 776.87	
TB CHAMP (SHIP, SAMRC)	SAMRC	R 2 647 606.95	R 2 094 226.91	R 1 878 960.49	R -	R 2 862 873.37	R 1 867 506.59	R 500 593.58	R -	R 2 647 606.95	
TB CHAMP (parent grant)	BMRC	R 4 772 206.26	R 3 769 460.05	R 777 271.49	R -	R 7 764 394.82	R 6 413 703.92	R 1 641 497.66	R 43 166.45	R 4 772 206.26	
SHINE	BMRC	R -60 189.91	R 2 154 000.67	R 2 550 801.17	R 8 819.22	R -456 990.41	R 481 200.53	R 541 390.44	R -	R -60 189.91	
IMPA/ACT/TBSL	NIH	R -	R -	R -	R -	R -	R -	R -	R -	R -	
VPM	VPM	R -541 989.02	R 196 627.48	R 443 828.87	R -	R -789 190.41	R 180 230.71	R 722 219.73	R -	R -541 989.02	
IMPA/ACT protocol-specific funds	NIH	R 1 881.60	R 815 279.12	R 598 319.53	R -	R 218 841.19	R 815 279.12	R 598 319.53	R 82 273.37	R 216 959.59	
MDR PK 2	NIH, NICHD	R 177 642.63	R 4 397 169.07	R 4 412 275.77	R 100 825.67	R 162 535.93	R 1 220 720.16	R 1 043 077.53	R 5 767.30	R 177 642.63	
IMPA/ACT P1106 co-chair support (Bekker)	IMPA/ACT, NIH	R 19 853.99	R 79 865.12	R 7 196.56	R -	R 92 522.55	R 24 173.19	R 4 319.20	R -	R 19 853.99	
IMPA/ACT P2005 co-chair support (Garcia-Prats)	IMPA/ACT, NIH	R -15 043.56	R 105 566.31	R 105 017.42	R -	R -14 494.67	R 47 658.38	R 62 701.94	R -	R -15 043.56	
General Research Fund	Diverse income	R -3 363.76	R -2 114.47	R -116 714.13	R -54 884.06	R 111 235.90	R 28 734.88	R 85 148.47	R 54 884.06	R -3 363.76	
NAV-KOMP	Stellenbosch university	R 127 734.34	R -	R 124 348.03	R 124 178.29	R 3 386.31	R -	R -127 734.34	R -	R 127 734.34	
HPTN071(PopART) Research Trial	NIH	R -1 235 907.02	R 47 224 749.14	R 41 763 166.42	R 307 068.18	R 4 225 675.70	R -	R 31 627 252.62	R 32 863 159.64	R -1 235 907.02	
HPTN071(PopART) Laboratory	NIH	R -1 139 786.46	R 4 413.96	R 1 908 760.15	R 199 662.00	R -3 044 132.65	R -	R 1 139 786.46	R -	R -1 139 786.46	
HPTN071(PopART) Research Trial Intervention	CDC	R 460 329.00	R 35 196 143.68	R 35 396 787.11	R 81 572.52	R 259 685.57	R 280 327.20	R 30 462 728.55	R 205 755.09	R 460 329.00	
HPTN071(PopART) Research Trial Stigma Study	NIH	R -153 248.93	R 2 845 975.47	R 2 913 709.51	R 2 086.50	R -220 982.97	R 194 129.72	R 2 354 761.90	R 261 037.32	R -153 248.93	
HPTN071(PopART) Research Trial P-ART-Y	NIH	R -	R 2 377 157.43	R 1 964 753.27	R 98 369.91	R 412 404.16	R -	R -	R -	R -	
ACTG AM Demers	ACTG	R -	R 126 057.40	R 142 942.70	R -	R -16 885.30	R -	R -	R -	R -	
SARCHI Chair operational costs	SA NRF	R -	R 522 000.00	R 541 813.32	R -	R -19 813.32	R -	R -	R -	R -	
SARCHI Chair - salaries	SA NRF	R -	R 977 817.98	R 1 174 297.70	R -	R -196 479.72	R -	R -	R -	R -	
DTTC ACTG PIF (A5300)	IMPA/ACT, NIH	R -91 375.17	R 1 146 739.29	R 1 073 950.98	R -	R -18 586.86	R -	R -	R -	R -91 375.17	
Study 35 TBTC	CDC Foundation	R -	R 223 034.21	R 206 709.74	R -	R 16 324.47	R -	R -	R -	R -	
ACTG Chair AC Hesseling	ACTG	R -	R 96 458.89	R 102 899.73	R -	R -6 440.84	R -	R -	R -	R -	
OpHrif Kids	TB Alliance	R -	R 1 863 830.13	R 325 684.93	R -	R 1 538 145.20	R -	R -	R -	R -	
CHILD TB FACILITATORS GUIDE CONSULTANCY	The UNION	R -	R 145 418.28	R 128 638.30	R -	R 16 779.98	R -	R -	R -	R -	
WHO consultancy agreement	WHO	R -	R -	R -	R -	R -	R -	R -	R -	R -	
NRF KIC Funding - Goudini course	NRF	R -	R 60 000.00	R 57 513.93	R -	R 2 486.07	R -	R -	R -	R -	
WHO FDC in Children	WHO	R -	R 121 366.80	R 70 440.33	R -	R 50 926.47	R -	R -	R -	R -	

**The Microsoft Excel Workbook can be shared electronically

PSYCHIATRY

Head of Department Prof. Soraya Seedat

Summary of activities

As in 2015, the year 2016 was a very active and productive year for the Department of Psychiatry, both on the clinical service delivery and academic fronts.

Six registrars passed the MMed Part examination I this year: Dr Natalie Beath (distinctions in Neuroanatomy and Neurophysiology, Dr Anthea Payne (distinctions in Neuroanatomy and Special Psychology), Dr Zanele Menze, Dr Herman Franken, Dr Luzuko Magula and Dr Marcel Paulse.



Prof. Soraya Seedat

The following successfully passed their FC Psych Part II examination: Dr Graeme Michie and Dr Charnotte Gabriels. In addition, Dr Yewande Oshodi, a supernumerary registrar from Nigeria, passed the Certificate in Child and Adolescent Psychiatry subspecialist examination.

Four staff members in the Department, among them two consultant psychiatrists, were awarded PhDs: Prof. Bonginkosi Chiliza, David Rosenstein, Dr Stefan du Plessis and Dr Ulla Botha.

Prof. Bonginkosi Chiliza was appointed as Associate Professor of Psychiatry with effect from 1 June 2016. He was subsequently appointed as HOD of Psychiatry at the University of KwaZulu-Natal as from 1 February 2017. His departure is a significant loss to our department, but we wish him all of the best in his current position and his career going forward.

In addition to the previously appointed senior registrar in a clinical training position in neuro-psychiatry, a part-time consultant in liaison psychiatry and a supernumerary registrar joined our department in 2016.

Resources

Posts (Full-time)	Number	Filled
Head of Department	1	1
Heads of Clinical Units	2	2
Specialists	3 (2 adult + 1 C&A)	3
Registrars	8	8
Medical Officers	0 (2 unfunded)	0
Senior registrars	1 (C&A) + 1 (Adult)	2
Posts (Sessional)		
Medical officer	1 sessional (C&A)	1
Part-time posts	0	0
Locum posts	0	0
Full-time equivalents	0	0
Number of beds (usable)	42 (+4 seclusion beds)	(48 + 4 seclusion beds)

Output:

Outpatient visits		
	2015	2016
J.LG Adults	1 116	1 387
Liaison/Emergency Psychiatry - Adults	1 648	1 401
F.LG - C&A	2 421	2 577
Total Outpatient visits	5 185	5 365
Admissions		
DG Adults	169	232
D.LG -Adults	210	239
G.LG - C&A	139	201
Total admissions	518	672
Theatre procedures:		
ECT	30 (5pts)	62 (8 pts)
The Department also delivers a full clinical service at Stikland Hospital and shared input at Lentegeur Hospital, for which the statistics are not included here. (Statistics for Clinical Psychology are also not included here).		

Comments on Output

The number of admissions to Adult Psychiatry wards increased significantly over the last year. An increased inpatient turnover is usually associated with a decreased length of stay for most patients. This may reflect improved patient case management, but could also be interpreted as potentially more premature discharges and an increased need for more inpatient beds in our catchment area. In Adult Psychiatry outpatient numbers also increased whilst the number of liaison psychiatry referrals decreased slightly.

The Child and Adolescent Psychiatry Unit experienced a significant increase in admissions, and at the same time continued to experience high average length of stay owing to persistent challenges in discharging children from unsatisfactory social circumstances. The number of Outpatient visits and liaison-psychiatry (including psychiatric emergency) referrals also increased.

The Child and Adolescent Psychiatry service continues to provide outreach and support to specialist mental health services in the relevant rural and metro catchment areas, as well as in-service training where requested to children's services and district and school health services. CPD for general psychiatrists, other medical specialists, psychologists and educators is also provided where possible. Intensive support services are provided to selected children's homes that admit and manage children or adolescents with challenging behaviour.

A Child and Adolescent Forensic Psychiatry service continues to provide services from Valkenberg Hospital and is staffed by a visiting consultant from Tygerberg Hospital, two child and adolescent psychiatrists from the private sector and five clinical psychologists from the private sector, all of whom work sessions for Valkenberg Hospital. The aim of the service is to provide the Department of Justice with criminal capacity/forensic psychiatry assessments of children in conflict with the law.

Part 2 Faculty of Health Sciences

Infrastructure development – upgrading, new equipment, etc. (highlights)

Because of financial constraints, most of the anticipated infrastructure development was put on hold during 2016. Future plans include the swop of the adult (J.LG) and Child and Adolescent (F.LG) Outpatient departments following appropriate renovation of J.LG and the provision of washroom facilities for the registrar sleep-over facility in ward DG.

The promised renovation of the Child and Adolescent Psychiatry Outpatient Unit was carried out and while there remain a few areas in need of further maintenance, the overall effect on staff and patients has been extremely positive.

Community outreach programmes/community services and interaction.

The Mental Health Information Centre (MHIC)

The Mental Health Information Centre of Southern Africa, directed by Janine Roos since 2011, continued awareness activities during 2016. In this report we give feedback of some of these activities.

The MHIC aims to be in touch with the whole community of Southern Africa by means of a call/e-mail centre, website and Facebook. Via the website and call centre, with a 24-hour turnaround period, the MHIC provides information on mental health/disorders and do referrals by means of their database of mental health professionals.

MHIC brochures on anxiety and mood disorders, schizophrenia and dementia were translated into isiXhosa.

In March 2016 we organised several radio talks and ran a campaign on our Facebook page to create awareness about brain health, brain disorders and the newest brain research for Brain Awareness Week. We also visited high schools in the area and organised talks for learners about substances and the brain. Talks were also done at anxiety and depression support groups to raise awareness of our work.

The MHIC and Dr Stefan du Plessis gained funding from the International Brain Research Organization (IBRO) to organise and host workshops in 2017 for school learners, undergraduate students and postgraduate students to further research interest in the field of psychiatry.

We worked with psychologists and psychiatrists from the Department of Psychiatry as well as the FMHS Media and Marketing Department on articles about mental disorders and gained a fair amount of exposure in radio and written media to create awareness about these illnesses. During 2016 the MHIC was invited to do staff wellness talks at the Department of Public Works as well as the Mediclinic Milnerton.

The MHIC partnered with other mental health stakeholders during Mental Health Awareness month in a combined Mental Health Awareness campaign.

Research

International Study on Student Health and Wellness (ongoing).

Awareness Activities 2016

14-21 February	Teen Suicide Prevention Week
16-22 March	Brain Awareness Week
26 May	Bipolar Awareness Day
26 June-1 July	Substance Abuse Awareness Week
10 July	Panic Awareness Day
25 July	National Schizophrenia Day
21 September	World Alzheimer's Day
1-31 October	Mental Health Awareness Month (10 October World Mental Day)

Via the MHIC, the Department of Psychiatry maintains contact with consumer support groups

such as the South African Depression and Anxiety Group (SADAG), Cape Mental Health, SA Federation for Mental Health, the Postnatal Depression Support Group, the Centre for Public Mental Health, as well as different support groups run by members of the public. Other important partners are the Department of Health, professional organisations such as the SA Society of Psychiatrists, the SA Medical Association, the Medical Research Council, the Health Professionals Council of SA and the pharmaceutical industry.

Partnerships

National:

The Department of Psychiatry has several provincial and national partnerships, including representation on professional bodies such as the South African Society of Psychiatrists where psychiatrists hold executive positions (e.g. on the Board, Council, Senate). In addition, the Department has received research grant funding from the National Research Foundation and the Medical Research Council. In 2016, the Harry Crossley Foundation committed to support Stellenbosch University's (SU) newly-instituted part-time MPhil in Infant Mental Health. The foundation's commitment is for three bursaries of R35 000 (R105k in total) each in year one and to six students in 2018 (R210k). The Harry Crossley Foundation is one of SU's biggest donors and has contributed to postgraduate bursary programmes and research at the University for the past 22 years. This is the first time that the Foundation is supporting a part-time programme at SU.

Private:

The Department secured two fellowships from the Discovery Foundation in 2016 to support academic scholarship of clinicians in 2017: Dr Michel Parker received a subspecialist training award to specialise in Old Age Psychiatry while Dr Eileen Thomas received an Academic Fellowship award to pursue her PhD.

International:

The Department is active in a number of international academic societies and organisations (e.g. Society of Neuroscientists of Africa, International Society of Psychiatric Genetics, The World Federation of Societies of Biological Psychiatry, International Society of Traumatic Stress Studies, etc.) and has multiple African and international research collaborations (e.g. Europe, USA).

Achievements w.r.t research activities and research outputs:

Journal Articles (subsidised)

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DONALD A, FOUCHE J, ROOS A, KOEN N, HOWELLS M, RILEY P, WOODS P, ZAR H, NARR L, STEIN D. Alcohol exposure in utero is associated with decreased gray matter volumes in neonates. *METABOLIC BRAIN DISEASE* 2016; 31:81-91.

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Journal Articles (Non-subsidised)

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Masters completed

OSHODI YO. Immediate and Long-Term Mental Health Outcomes in Adolescent Female Rape Survivors. MPhil, 2016. 16 pp.

Teaching and Training (under, postgraduate and elective students)

Number of MMed students currently registered:	22
Number of MPhil students:	3
Number if Part 1s completed:	6
Number of FC Psych Part II successful candidates:	2
MMed Degrees Completed:	0
Masters Degrees Completed:	1

Three registrars were nominated to attend the Cipla Neuroscience Forum at the Arabella Hotel in March 2017: Drs. Beath, Michie and Payne.

PhD's

The total number of registered PhD students in 2016 was 21 with 1 student registering for first time in 2016. PhDs obtained: 2

Special achievements and other highlights

New Staff Appointed During 2016

Tygerberg Hospital appointments: Dr Graham de Bever joined the Child and Adolescent Psychiatry Outpatient team as a sessional medical officer.

Joint Appointments

Psychiatrists:

Dr Kerry Ann Louw

Dr Lina Groenewald

Psychologists:

Clayton Arendse, Tanya Morris, Clinton Arendse, Clive Abrahams

Registrars

Dr Anthea Payne; Dr Luzuko Magula; Dr Mohammed Paruk; Dr Mohamed Jebril Benelmokthar

Specialist Registrars: Dr T. du Plessis

Research Staff

SARChI

Jolynne Mokaya; Malizo Ngxono

MRC Unit: Edrich Rall

FASER: Shumaya Uithaler, Karen Martin

SHARED ROOTS

Chanelle Buckle; Nandi Magwaca; Nicole Schuitmaker

Administrative staff

Lize Folscher; Mary Pienaar; Samantha Eaves

Extraordinary Appointments

Prof. Oye Gureje: Extraordinary Professor

Prof. Pamela Naidoo: Extraordinary Professor

Willem Odendaal: Lecturer Extraordinary

Achievements and Highlights

Prof. Soraya Seedat

- Appointed as a Distinguished Professor with effect from 1 January 2016
- Vice-rector awards for researchers: Prof. Seedat performed according to the criteria for the Vice-rector: Research, Innovation and Postgraduate Studies research fund
- Prof. Soraya Seedat (performed according to publication units – 6.81 as well as number of publications – 22)
- Vice-rector Award as one of the SU researchers who have made the biggest contribution to DHET accredited scientific publications (2014 output year)

Other notable achievements

- Appointed as an evaluator of an expert committee of the Medicines Control Council: Clinical Trials Committee for the period 26 November 2015 to 25 November 2017
- Appointed as member of the Senate Research Ethics Committee Subcommittee C for the period 1 January 2016 to 31 December 2017
- Appointed as a full member of the Organisation for Women in Science for the Developing World (OWSD) for the South African National Chapter
- Elected to the ISTSS (International Society for Traumatic Stress Studies) board
- Member of the Global Diversity Task Force of the International Society of Psychiatric Genetics representing South Africa

Prof. Dana Niehaus

Grandfathered by the HPCSA as an Old Age Psychiatrist

Prof. Bonga Chilliza

- Received his PhD in Psychiatry at the March 2016 graduation ceremony. Promoted to Associate Professor in June 2016
- South African Society of Psychiatrists: President Elect
- Appointed as Executive Head of Department at the University of KwaZulu-Natal with effect from 1 February 2017

Prof. Christine Lochner

- Successful with her application to NRF in terms of their Competitive Programme for Rated Researchers
- Awarded the Biological Psychiatry Established Researcher Career Award

- Appointed as an associate member of the Organisation for Women in Science for the Developing World (OWSD) for the South African National Chapter

Dr Anusha Lachman

- Approval of the Mphil Infant Mental Health Degree – first of its kind to offer regulated training in Infant Mental Health on the African Continent, and open to a diverse student population of allied professionals. Intake for 2017 has been enthusiastic and supported by the Harry Crossly Foundation special grant to support the development of an innovative new degree that promotes Maternal and Infant well-being in keeping with the International 1st 1 000 days of life initiative
- South African Society of Psychiatrists: Secretary

Dr Sian Hemmings

- Promoted to Associate Professor with effect from January 2016
- Dr Hemmings was one of ten awarded a best poster presentation at the World Federation of Biological Psychiatry Congress, held in Athens, Greece (14-18 June)
- NRF rating application successful – rated C2

Dr Annerine Roos

- She also obtained her Honours degree in Theology in December 2015
- Received the 2016 Poster Grant Award from the Trichotillomania Learning Centre; work approved for presentation at the 2016 TLC Annual Conference, April 15-17 at the Dallas/Addison Marriott Quorum in Dallas, TX
- Publication in JAMA Psychiatry: Refining the Understanding of the Effects of Prenatal Methamphetamine and Tobacco Exposure on the Developing Brain (Annerine Roos, Kirsten Ann Donald)

Dr Debbie Alexander

Dr Debbie Alexander appointed as a member of the medical commission of the South African Sports Confederation and Olympic Committee (SASCOC). Dr Alexander is co-ordinating the activities of the psychology group and facilitation of psychological interventions for OPEX athletes.

Dr Leigh van den Heuvel

Awarded a three-year MRC self-initiated early career research grant to undertake her PhD project nested within SHARED ROOTS.

Dr Sharain Suliman

A second year of funding from the Claude Leon Foundation has been granted from 1 February 2016 to 31 January 2017. The value of the Fellowship is R235 000 per annum.

Dr Eileen Thomas

Discovery Foundation for an Academic Award in the amount of R800 000.

Dr Sihle Nhlabathi

Discovery Foundation Academic Award in the amount of R25 000.

Dr Zanele Menze

Discovery Foundation Academic Award in the amount of R25 000.

Jani Bekker

Awarded a SAMRC National Health Scholarship

Janine Roos of the Mental Health Information Centre (MHIC)

Awarded an International Brain Research Organization (IBRO) Global Advocacy Seed Grant of €5 000. This grant will be utilised during Brain Awareness Week of 2017. The MHIC will team up with Dr Stefan du Plessis to bring his science to a group of school learners, a group of undergraduate students and a group of postgraduate students.

Lindi Martin

Claude Leon Foundation Postdoctoral Fellowship for 2017-2018.

Tanya van de Water

Interhub meeting for collaborative hubs in Sao Paulo, Brazil, for PAM-D

Susanne Young

- After working closely with the company, she conducted her PhD research for 3 years (rehabilitation clinic Momentum Mental Healthcare SA), she has been offered a position as head of research. Amongst several duties this will entail the setting up and running of a new research department within the company – she has accepted the (part-time) position
- 2016 South African Research Chairs Initiative of the Department of Science and Technology Departmental bursary (1 year)
- 2016 UCLA/South Africa Chronic Mental Disorders Research Training Programme Scholar (track B)

Carisa Siemen

First prize for poster at European Conference on FASD 2016 at the University in London in September 2016

Belinda Joubert

Third prize for poster at European Conference on FASD 2016 at the University in London in September 2016

Khethelo Xulu

Khethelo was awarded an Early Career Investigator Award from the International Society of Psychiatric Genetics to attend the World Congress of Psychiatric Genetics – he was awarded \$1000

International Speakers/Visitors

December 2015: Neuro-Psychiatric Association of Poland – Prof. Bartosz Loza. International Neuro-Psychiatric Conference “Contemporary Neuro-Psychiatry: To Repair what Evolution made Wrong”. Participants: Prof. Seedat, Prof. Carr, Prof. Pienaar, Dr Asmal, Dr Van den Heuvel, Prof. Lochner.

August 2016: Talk by visiting academic from Faculdade de Ciências da Saúde-Universidade Federal da Grande Dourados (FCS/UFGD), Brazil – Professor Elisabete Castelon Konkiewitz; Title: “A Neurodevelopmental Model for The Origin of Depression Amongst People Living with HIV: Convergence of Social and Neuroimmunological Mechanisms.”

August 2016: Talk by Prof. Juan Carlos Arango-Lasprilla; Title: *Cognitive rehabilitation in Individuals with Traumatic Brain Injury*; Title: *The profession of Neuropsychology in South Africa: Results from a National Survey*

November 2016: Professors Andreas Meyer-Landenberg (Mannheim, Germany) and Wolfgang Gaebel (Dusseldorf, Germany) visited the department on November 17 to present pre-congress state-of-the-art lectures.

CARDIOTHORACIC SURGERY

Head of Department
Prof. J.T. Janson

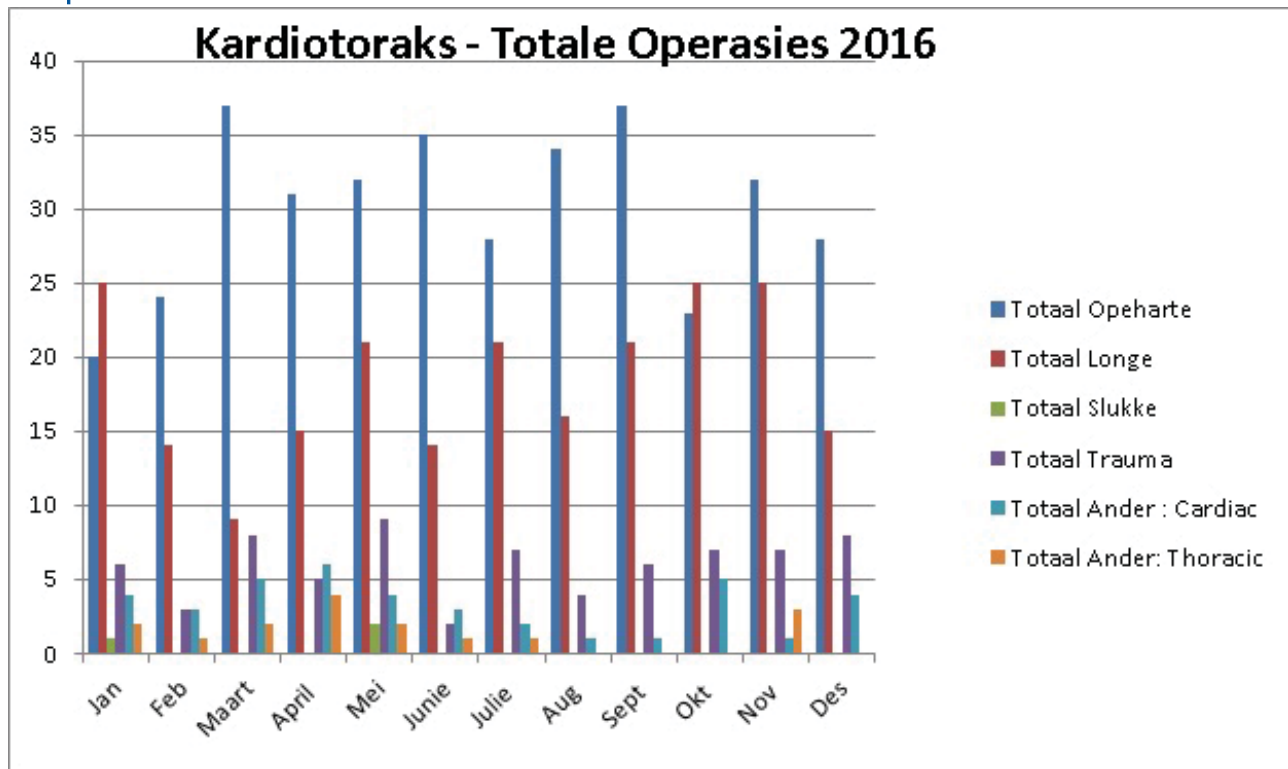
Summary of activities

Provision of a Cardiothoracic Surgical Service of outstanding quality.
Training of registrars and auxiliary personnel

Resources

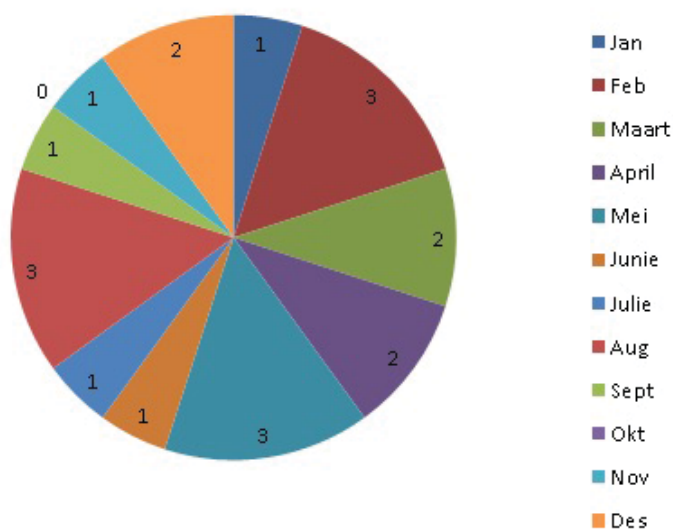
Posts (Full-time)	Number	Filled
Sisters	26	23
Staff nurses	12	12
Nurse	12	10
Administrative	3	3
Domestic	7	7
Theatre	6	6
Perfusion	3	3
Registrars	4	4
Specialists	3,5	2,5

Output



Kardiotoraks - Mortaliteit 2016

Totaal: 20



Outpatient consultations:	1 400
Multidisciplinary team meetings:	140
Admissions: Ward	974
ICU	349
Open Heart Surgery:	361
Thoracic Surgery:	221
Endoscopy:	3
Major Trauma:	72
Other Cases:	55
Red Cross:	45
Mortality:	
Cardiac	12
Lungs	6
Trauma	2

Comment on output

Number of cases has basically remained stable since 2015. Mortality has remained stable at 3,3%. This is a product of an experienced team with mostly senior surgeons and registrars. Trauma cases have increased by 44%, and this has placed a burden on an already overstretched service.

The team is working at their maximum output, and output can only be increased with:

- increased staff allocation
 - filling of vacant posts
 - creation of new posts – medical officer, technologist, extra consultant, more nursing staff
- infrastructure improvement
 - increased allocation of ICU and ward beds
 - extra theatre lists
 - refurbishment and modernisation of unit

Staff morale is constantly under pressure due to high workload and difficult working conditions.

Part 2 Faculty of Health Sciences

Infrastructure development – upgrading, new equipment, etc. (highlights)

New instrument set for video assisted thoracoscopic surgery. First VATS lobectomy at Tygerberg Hospital
New cardiac output monitors for ICU
New infusion pumps for ICU
Planning for monitoring upgrade in ICU
Planning for re-introduction of paediatric cardiac surgery
Planning for minimally invasive cardiac surgery equipment

Community outreach programmes/community services and interaction.

Due to workload and personnel shortage, no outreach programmes could be done.

Partnerships

National:

Local congresses was attended and presentations delivered

Private:

There was good interdepartmental relationship between Tygerberg and Panorama / Kuils River private hospitals, with private specialists taking part in training and cases at Tygerberg Hospital and Tygerberg staff having training opportunities in private

International:

AATS congress attended, presentation delivered and Centre of Excellence in mitral valve surgery visited
EACTS congress attended

Achievements w.r.t research activities and research outputs:

A PhD study was completed with subsequent journal article

Teaching and Training (under-, postgraduate and elective students)

Three postgraduate trainees completed their fellowship exams successfully
Forty undergraduate lectures were presented
Fifty postgraduate training sessions (accredited for CPD)
Elective students rotated in department
Bi-weekly to monthly lecture to nursing staff

NEUROSURGERY

Head of Department
Prof. A.J. Vlok

Summary of activities

Training

undergraduate (see yearbook) and postgraduate according to yearbook and academic programmes.

Service delivery

OPD and theatre, and management of ICU and wards

Resources

12-bed High Care/ICU environment. Thirty-two (32) general beds

Four (4) theatre slates per week. First Friday per month only 3,5 slates.

Posts (Full-time)	Number	Filled
Consultant	3	3
Registrar	7 (2x supernumerary)	7 (2x supernumerary)
Posts (sessional – how many hours worked per week)		
Sessional	12 sessions	8

Output

Outpatients seen: 3 234

Elective surgeries performed: >400

Comment on output

The number for 2015 was 3 267 (thus 33 less in 2016). Numbers are not a sustainable figure as the amount of surgeries required far exceed the capacity.

Surgical waiting list is in excess of 700 currently.

Part 2

Faculty of Health Sciences

Infrastructure development – upgrading, new equipment, etc.

Self-initiated and funded project lead to redesigned and revamped ICU and High Care.

All wards were painted with new blinds – all self-funded and initiated.

Community outreach programmes/community services and interaction.

Outreach to Central Hospital in Namibia every three (3) months (Prof. A.J. Vlok), lectures to UNAM students there and GP seminars at times.

Partnerships

International:

Research with Skane University Hospital and Lund University from Sweden regarding traumatic brain injury.

Achievements w.r.t research activities and research outputs:

Number of publications from the department/division

1 – British Journal of Neurosurgery – Prof. A.J. Vlok, I. Walker

2 – International Spine Journal – Prof. A.J. Vlok, Dr A. Kamat

Textbooks and contributions to textbooks

1 – Chapter in Oxford Trauma Handbook (Head Injury) by Prof. A.J. Vlok

Teaching and Training (undergraduate-, postgraduate- and elective students)

Student lectures every Wednesday from 07:00 – 08:00 (undergraduates)

Postgraduate academic programme every Wednesday and Friday

Elective students, both local and international, always accommodated to capacity

Special achievements and other highlights

Sunskill clinical skills training laboratory created by Prof. A.J. Vlok opened on 31 July 2016. More than 80 workshops were done in the first year. Full simulation of theatre environment.

Capital value in excess of R130 000 000.

- Prof. Vlok Keynote lecture at faculty Academic Year Day in August 2016
 - Registrar Dr Ameya Kamat was a prize winner at the annual Neurosurgery Congress for best presentation
 - Prof. Vlok was an invited speaker at the CNS (Congress of Neurological Surgeons USA) in September 2016, the South African Spine Society meeting in May 2016, the South African Neurosurgical Society meeting together with all the African Neurosurgical societies and at the AO Masters' and Basic courses in the year 2016
 - Dr A. Gretschel completes fellowship in interventional neurovascular surgery
 - Establishment of neuro interventional service by Dr Gretschel in collaboration with the Department of Radiology
 - Dr D. Roytowski completes advanced skull base course
-

OPHTHALMOLOGY

Head of Department
Professor David Meyer

Summary of activities

The dedicated work of all the committed staff of the Division of Ophthalmology is reflected in this annual report. They have throughout the year under conditions of increasingly high patient loads rendered an exceptional tertiary service to the patients in our drainage area and beyond.

During 2016, **27 819** patients visited our Outpatient Department (3 406 or 14% more than in 2015), maintaining the status as the busiest Surgical Outpatient Clinic in the hospital. One thousand and thirty-four (**1 034**) patients attended for refraction, and **1 005** sets of spectacles were dispensed (38 pairs for children). During 201 **789**(957 in 2015) premature babies were screened for retinopathy of prematurity (ROP) of whom 4 required treatment (two laser and two intravitreal Avastin). Tygerberg Academic Hospital offers a state-of-the-art, world class ROP screening and intervention service to our neonatologists.

Patient admissions to our wards (D7, D4 and G4) totalled **2 988** (3 052 in 2015).

Surgical cases totalled **2 762** operations (3 052 in 2015) divided into **993** day surgery cases (similar to 2015), and **1 936** general ophthalmic cases. Trauma still contributes markedly to our general ophthalmic surgical load especially as emergency operations. Long waiting times to surgery of many of our trauma cases impact negatively on patient outcomes. The numbers of day surgery cases is primarily driven by intravitreal injections of Avastin for diabetic retinopathy cases. Ophthalmic laser procedures totalled **887** (somewhat fewer than in 2015).

During outreach efforts **34** additional operations and **137** consultations were performed in Namibia. Cataract outreach projects included **159** cataract operations and **496** consultations.

The increase in the service delivery is remarkable given the stable number of doctors and the 25% reduction in Outpatient nursing staff in the second half of 2016. The service delivery took place in parallel with a very active academic and research programme. Sincere gratitude is expressed to every single dedicated staff member.

Resources

Posts (Full-time)	Number	Filled
CONSULTANTS	4 + 5/8	4 + 5/8
OPTOMETRIST	1	1
ULTRASONOGRAPHER	1	1
MEDICAL OFFICERS	3	3
REGISTRARS	7 + 4 Supernumerary	7 + 4 Supernumerary
Posts (sessional – how many hours worked per week)		
SPECIALIST	3	12

Output

Outpatient visits **Total: 27 819**

Sub-Specialist Clinics serving Ophthalmology:

1. Medical Retina
2. Surgical Retina
3. Pediatric Ophthalmology
4. Oculoplastics
5. Cornea and anterior segment
5. Refraction (1034 *refraction* clinic visits)

Admissions: D4=47 G4=204 D7=2785 Total: **2 988**

Theatre procedures:	
General ophthalmic	1 936
Day surgery	993
Total	2 988

ROP Screening	789
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Laser procedures	
Yag laser	238
Argon laser	598
Diode laser	51
ROP laser	2
Total	889

Comment on output

During 2016, **27 819** patients attended our Outpatient Department, making it the busiest Surgical Clinic in the hospital. During the year 789 premature baby screenings were performed on 383 babies for retinopathy of prematurity (ROP) of whom 4 required treatment. This service has now stabilised and makes a significant contribution to the quality of our hospital's neonatal service.

Patient admissions to our wards (D7, D4 and G4) totalled **29 88** – similar to the previous year. Surgical cases totalled **2 762** operations divided into **993** day surgery cases and the rest general ophthalmic cases. These numbers were slightly less than the previous year, but the complexity of cases has increased. Trauma still contributes significantly to our general ophthalmic cases.

The central academic hospitals cannot continue to render the required ophthalmic services to an ever increasing population. The establishment of secondary eye care units outside of these academic complexes and in our drainage area still remains the only acceptable long-term solution for the provision of optimal eye care to the communities. The Metro-wide primary screening service delivered by two optometric service providing companies is commended. Increased screening is however followed by an increased demand for secondary and tertiary services. The secondary services are still not optimal in the Western Cape Province.

Province furthermore needs to consider creating a single tertiary/quaternary dedicated eye hospital to serve the whole province whilst continuing the support of the two secondary service centres at the two main teaching complexes.

Part 2

Faculty of Health Sciences

Infrastructure development – upgrading, new equipment, etc. (highlights)

A state-of-the-art ophthalmic operating microscope was purchased by Tygerberg Hospital and installed in 2014, and a second one in 2016. These acquisitions, together with the teaching and video facilities, this equipment will enhance not only patient care, but also teaching and training. During 2015-2016, significant new equipment and furniture was acquired and installed funded by a grant from the Western Cape Provincial Administration.

Community outreach programmes/community services and interaction.

The Division's main outreach programme focusses on the country of Namibia. This initiative is driven by Prof. Meyer. It has been a 15-year initiative focussing on assisting the specialists in Namibia to manage difficult ophthalmic cases and performing surgery on these patients. In 2016, he visited Windhoek twice; consulting 137 patients and operating on 34 cases.

Our collaboration with the Northern Cape Province continued and our registrars assisted with cataract outreach efforts in that province – 20 cataract operations in De Aar and 34 in Alexander Bay, with 76 patients consulted. Cape Metro outreach included 105 cataracts operated and 420 patients consulted at Eerste River Hospital in 2016.

We have also developed volunteer service agreements with organisations such as *Meals on Wheels* and *City Mission* (delivery of food parcels to our OPD Clinic patients), *Helen Keller Society* (low vision aids) and *Vida Trumpelman Prosthetists* (prostheses to patients who had lost eyes).

Partnerships

National:

1. Academically and clinically the divisions of Ophthalmology at Groote Schuur, Red Cross and Tygerberg Academic Hospitals co-operate in combined meetings on a quarterly basis via the Ophthalmological Society of South Africa and by exchanging lecturers. A positive and cordial relationship exists between the two institutions. Biannual paediatric ophthalmology/strabismus seminars were held and well attended.
2. This division trains one registrar at a time for the National Defence Force at 2 Military Hospital. This collaboration has existed successfully for about 25 years. A new registrar commenced training in 2016.
3. Two fully sponsored registrars from the Northern Cape Province completed their training in December 2015 and was replaced by a single registrar fully funded from the same province in 2016.

Private:

1. The Cape Eye Hospital forms part of our postgraduate accredited teaching platform. It renders academic as well as technical support with instrumentation and training (e.g. Excimer Laser refractive surgery and lamellar corneal transplant surgery) not readily available to our registrars at Tygerberg Academic Hospital.
2. Tygervalley Eye and Laser Centre has also agreed to allow registrars/consultants from the Faculty of Health Sciences to do observerships. This is especially valuable as they have access to the only Femtosecond laser in the Western Cape.

International:

The first supernumerary registrar from an African country fully sponsored by the Namibian Department of Health and Social Welfare returned early in 2012 as a fully qualified ophthalmologist to serve the country of Namibia. Two more such fully sponsored registrars from Namibia joined us in 2014 and 2015 respectively and have continued training in 2016.

Achievements w.r.t research activities and research outputs:

Journal Articles (subsidised)

ABU-AMERO KK, AL HAGR A, ALMOMANI MO, AZAD TA, ALORAINY IA, OYSTRECK DT, BOSLEY TM. HOXA1 Mutations are Not commonly Associated with Non-Syndromic Deafness. *CANADIAN JOURNAL OF NEUROLOGICAL SCIENCES* 2014; **41**:448-451.

ABU-AMERO KK, KHAN AO, OYSTRECK DT, KONDKAR A, BOSLEY TM. The genetics of nonsyndromic bilateral Duane retraction syndrome. *Journal of AAPOS: the official publication of the American Association for Pediatric Ophthalmology and Strabismus / American Association for Pediatric Ophthalmology and Strabismus* 2016; **20**(5):396-400.

ABU-AMERO KK, KONDKAR A, OTAIBI A, ALORAINY IA, KHAN AO, HELLANI A M, OYSTRECK DT, BOSLEY TM. Partial Duplication of Chromosome 19 Associated with Syndromic Duane Retraction Syndrome. *OPHTHALMIC GENETICS* 2015; **36**(1):14-20.

AREVALO JF, LASAVE A F, WU L, MAIA M, DIAZ-LLOPIS M, ALEZZANDRINI A, BRITTO M. Intravitreal Bevacizumab for proliferative diabetic retinopathy – Results from the Pan-American Collaborative Retina Study Group (PACORES) at 24 Months of Follow-up. *RETINA – THE JOURNAL OF RETINAL AND VITREOUS DISEASES* 2017; **0**(0):1-10.

AUNG T, OZAKI M, MIZOGUCHI T, ALLINGHAM RR, LI Z, HARIPRIYA A, NAKANO S, UEBE S, HARDER MJ, CHAN ASY, LEE MC, BURDON K P, RAUTENBACH RM, ZISKIND A, ET AL . A common variant mapping to CACNA1A is associated with susceptibility to exfoliation syndrome. *NATURE GENETICS* 2015; **47**(4):387-396.

BOSLEY TM, SALIH MA, ALKHALIDI H, OYSTRECK DT, EL KHASHAB H Y, KONDKAR A, ABU-AMERO KK. Duane retraction syndrome in a patient with Duchenne muscular dystrophy. *OPHTHALMIC GENETICS* 2016; **37**(3):276-280.

GERBER WM, MEYER D, SMIT DP. Ocular and Cerebrospinal fluid penetration of antiretroviral agents. *JOURNAL OF OCULAR PHARMACOLOGY AND THERAPEUTICS* 2016; **32**(7):476-481.

GOODMAN MB, ZISKIND A. Fundus auto fluorescence and spectral domain ocular coherence tomography in the early detection of chloroquine retinopathy. *African Vision and Eye Health (Formerly South African Optometrist)* 2015; **74**(1):1-5.

KHAN AO, ALMUTLAQ M, OYSTRECK DT, ENGLE EC, ABU-AMERO KK, BOSLEY TM. Retinal Dysfunction in Patients with Congenital Fibrosis of the Extraocular Muscles Type 2. *OPHTHALMIC GENETICS* 2016; **37**(2):130-136.

NAVARRO R M, MACHADO LM, MAIA JR O, WU L, FARAH ME, MAGALHAES JR O, AREVALO JF, MAIA M. Small-Gauge Pars Plana Vitrectomy for the Management of Symptomatic Posterior Vitreous Detachment after Phacoemulsification and multifocal intraocular lens implantation: A Pilot Study from the Pan-American Collaborative Retina Study Group. *Journal of Ophthalmology* 2015; **2015**(1596910):1-7.

ROIG-REVERT MJ, LLEO-PEREZ A, ZANON-MORENO V, VIVAR-LLOPIS B, MARIN-MONTIEL J, DOLZ-MARCO R, ALONSO-MUNOZ L, ALBERT-FORT M, LOPEZ-GALVEZ MI, GALARRETA-MIRA D, GARCIA-ESPARZA M F, AREVALO JF, ET AL. Enhanced Oxidative Stress and Other Potential biomarkers for Retinopathy in Type 2 Diabetics: Beneficial Effects of the Nutraceutical Supplements. *Biomed Research International* 2015; **2015**(408180):1-12.

RUSSO A, MAPHAM WE, TURANO R, COSTAGLIOLA C, MORESCALCHI F, SCARONI N, SEMERARO F. Comparison of smartphone Ophthalmoscopy with Slit-Lamp Biomicroscopy for Grading Vertical Cup to Disc ratio. *JOURNAL OF GLAUCOMA* 2016; **25**(9):777-781.

SMIT DP, ESTERHUIZEN T, MEYER D. The Prevalence of Intraocular Tuberculosis in HIV-positive and HIV-negative Patients in South Africa using a Revised Classification System. *OCULAR IMMUNOLOGY AND INFLAMMATION* 2017; **00**(00):1-8.

SMIT DP, MEYER D. Classification of Intraocular Tuberculosis: A South African Perspective. *OCULAR IMMUNOLOGY AND INFLAMMATION* 2017; **00**(00):1-3.

VAN DEN HEEVER HJV, MEYER D. The intraocular pressure-lowering properties of intravenous paracetamol. *Clinical Ophthalmology* 2016; **10**:1283-1289.

VAN DER LAAN LE, SCHAAF HS, SOLOMONS RS, WILLEMSE M, MOHAMED N, BABOOLAL SO, HESSELING AC, VAN TOORN R, GARCIA-PRATS AJ. Probable Levofloxacin-Associated Secondary Intracranial Hypertension in a Child with Multidrug-Resistant Tuberculosis. *PEDIATRIC INFECTIOUS DISEASE JOURNAL* 2016; **35**(6):706-708.

VISSER E, FREEMAN N, COOK C, MYER L. Retinopathy of prematurity screening criteria and workload implications at Tygerberg Children's Hospital, South Africa: A cross-sectional study. *SAMJ SOUTH AFRICAN MEDICAL JOURNAL* 2016; **106**(6):602-606.

Teaching and Training (under, postgraduate and elective students)

1. Four MMed students are supernumerary students. One from the SA Defence Force, one from the Northern Cape Province and two from Namibia. These students are under contract to return to their respective employers for service as specialists. Their contribution to clinical service delivery is however invaluable to the Division.
2. Two MMed students graduated in 2016 – Drs Willem Gerber and Andre Haarhoff.

3. Currently there are three registered PhD students in the Division. Two are international students.
4. The increased number of MBChB students needing exposure to clinical ophthalmology in their student intern years, poses new challenges. New and innovative clinical teaching and training methods are being developed and applied.

Special achievements and other highlights

Dr William Mapham, a registrar in the Division, has developed a cell phone app to be used in clinical referrals between rural health professionals and teaching hospitals. This app called "VULA" was validated during his MMed research and was rolled out to several disciplines nationally and across the African continent. He has received wide national and international recognition for this initiative.

PLASTIC SURGERY

Head of Department
Dr Zühlke

Summary of activities

Providing a comprehensive plastic surgery service to the community with speciality units:

Craniofacial unit

Cleft lip and palate unit

Centre of excellence for microsurgery

Established and consolidated multidisciplinary teams (breast and head & neck reconstruction)

Resources

Posts (Full time)	Number	Filled
specialists	2	1
registrars	4	4
Posts (sessional – how many hours worked per week)		
2 sessional specialist posts	4 + 2 hours per week	4 + 2
	25 hours per week filled with specialists as support for absent full-time specialist	25 hours per week filled with specialists as support for absent full-time specialist

Output

Outpatient visits:	3 998
Special Clinics: cleft lip and palate:	185
Admissions:	1 237
Theatre procedures:	370
	elective cases
Koeberg Theatre cases under local anaesthesia:	422
Consults (excluding outpatient visits)	922
On call cases done under local anaesthetic	113
On call cases done under general anaesthetic	142

Part 2

Faculty of Health Sciences

Partnerships

National:

Smile Foundation (NGO):

1. Smile week November 2016. Over 40 patients were operated during that week.
2. Smile operating list every Friday. This is an externally funded extra theatre list where mostly cleft lip and palate but also other paediatric plastic surgery patients are operated

Private:

International:

World Craniofacial Foundation:

Ear reconstruction and craniofacial workshop with Prof Salyer and Prof Yamada from the WCF at TBH in April 2016

Achievements w.r.t research activities and research outputs:

Number of publications from the department/division 2:

The Blood Supply of the Breast Revisited.

van Deventer PV, Graewe FR.

Plast Reconstr Surg. 2016 May;137(5):1388-97. doi: 10.1097/PRS.0000000000002048. Review. PMID: 27119914

The windblown hand and its surgical management.

Neser C, Graewe FR, Carter SL.

J Plast Surg Hand Surg. 2016 Jun;50(3):142-5. doi: 10.3109/2000656X.2015.1137922. Epub 2016 Feb 16. No abstract available.

PMID: 2688185

Teaching and Training (under, postgraduate and elective students)

1. Teaching under graduate students in lectures, lecture rounds
2. Continuous postgraduate training of 4 registrars in plastic surgery
3. Teaching elective students from Stellenbosch University and abroad

Special achievements and other highlights

1. Convenor for CMSA final exam Plastic Surgery 2016
 2. 2016 APRSSA congress: runner up most innovative paper
Dr Mahoko: The reverse fibula osteocutaneous flap: A novel flap for complex midfoot reconstructions
-

Head of Department
Prof. A. van der Merwe

Summary of Activities

The Division of Urology still delivers outstanding service despite the restrictions on theatre time, beds (especially in the intensive care unit), modern equipment and infrastructure. Tygerberg Academic Hospital and Stellenbosch University (SU) is one of the only divisions in the world that provide a complete Urology service, i.e. adult and childhood urology, kidney transplants and women's urology. We still offer a leading role in SA with kidney stones, minimal renal transplant harvesting and enjoy the positive effects of the 2015 penis transplant with many visitors and fellows who want to join us.

Resources

Posts (full-time)	Number	Filled
Associate Professor Principal Specialist	1	1
Specialist	3	3
Registrar (Number only)	6	6
Medical Officer	2	2
Supernumerary	2	2
Number of beds (usable):	32	

Output

Outpatients:

C6A West	1 964
C6A East	3 214
Total	5 178

Specialist clinics: (data for ED clinic, biopsy clinic not available)

Oncology	1 371
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Admissions (data for Jan/Feb 2016 not provided)

Ward D6	923
Ward D4	50
Ward G4 (Paediatrics)	1 (previous 127 indicating a data error)
Total	974

Theatre procedures

Main theatre	890
Cystoscopy theatre	2 655
Day theatre	231
Shock wave lithotripsy	76
Total	3 346

Comment on Output

The number of outpatients remains disproportionately large compared to the number of admissions and theatre cases due to the lack of theatre time and beds, which means that a large number of patients who actually need hospitalisation and surgical procedures do not receive it and are medically treated or followed up only until complications develop. The absence of an Intern for several years has already manifested itself in the poor referrals from the primary healthcare clinics. Kidney transplant data is not available and forms part of the vascular surgery data (G theatre).

Part 2 Faculty of Medicine and Health Sciences

Infrastructure development – upgrading, new equipment, etc. (highlights)

No new development or upgrading has occurred in 2016. We took over an old ultrasound machine from the Department of Radiology. It helps a lot.

Community outreach programmes / community service and interaction.

Division of Urology is responsible for the vasectomy service coordinated by the Family Planning Unit at Tygerberg Hospital and the Association for Voluntary Sterilization of South Africa (AVSSA), and vasectomies are performed at KBH. This service performs the vast majority of vasectomies done in the Western Cape. The limited amount of consultants and large workload in TBH is currently preventing an effective outreach service.

Partnerships

National:

Webinars with UCT broadcasting to all the academic units in SA

Private sector:

Dr Hans Rabe (Panorama Hospital) teach brachytherapy, Dr MLS de Kock (N1 City Hospital) help with Registrar exam prepping.

International:

Dr Wayne Hellstrom teach us at TBH do perform penile implants

Dr Dedan Opondo (Kenya) complete his training as a Urologist with us.

Achievements wrt research activities and research outputs

Number of publications from the department/division

Textbooks and contributions to textbooks.

Journal articles:	4
Lectures at international congresses:	5
Lectures at national congresses:	7
Chapters in books:	1

Special achievements and other highlights

Dr P.V. Spies and Dr L. Vlok wins both registrar prizes for research at the Bi-annual Urology congress.

Dr Dedan Opondo and Dr Theresa Meintjes both pass their final Urology exams.

Dr Theresa Meintjes win the CMSA gold medal in Urology – a major achievement.

Prof. Andre van der Merwe is Organizing Secretary of the World Congress of EndoUrology at the CTICC in November 2106 leading a small LOC team. This congress had a record number of registrations (2 300) and made the biggest profit in the history of the EndoUrology Society.

Head of Department Xikombiso Mbhenyane



Xikombiso Mbhenyane

Summary of activities

Service delivery

Dietetics at Tygerberg Academic Hospital consists of three firms in order to cover all aspects of nutritional care and to render a comprehensive nutrition service to all areas in the hospital. They are:

Firm 1

Cardiology, Surgery, Diabetes Mellitus and Endocrinology, Internal Medicine, Orthopaedics, Dermatology, Neurology, Gynaecology, Paediatrics, Ophthalmology, Neurosurgery, Surgical Intensive Care Unit, Enteral Nutrition.

Firm 2

Nephrology, Respiratory Intensive Care unit, Oncology, Paediatrics (all aspects), Enteral Nutrition, Resus and Psychiatry.

Firm 3:

Internal Medicine, Burns, Eating Disorders.

This firm is also responsible for the management of the Tube Feed Production Unit and the Milk Kitchen.

The Milk Kitchen provides infant formulae for infants from birth up to 1 year of age. The Milk Kitchen is also responsible for pasteurising and distributing donor expressed breast milk (DEBM) to the neonate wards in cases where the mother is not able to provide own EBM. The Milk Kitchen has five operators responsible for the hygienic preparation and handling of milk formulae and DEBM.

The Tube Feed Production Unit is a highly specialised area where all tube feeds and supplemental drinks are hygienically prepared and distributed. Staff members consist of six specially trained operators. Our department is fully responsible for the administrative and management of the ordering system MODS 2 (the ordering system for tube feeds).

Firm 4: Food Services

Food Services handle the menu planning for normal and special diets, quantity and quality control, and the monitoring of the meal-ordering-and-diet system (MODS).

There is also a nutrition service in one private ward.

Total Parenteral Nutrition team

The Adult Total Parenteral Nutrition (TPN) team consists of a nutrition support sister, three dietitians and a medical practitioner who assist with the TPN prescriptions. Support is provided by a pharmacist for the TPN orders. The Paediatric TPN team consists of one paediatrician and a dietitian, who are assisted by a pharmacist.

Clinics

There is a general on-call service to all clinics in the hospital, for both adult and paediatric patients.

Specialised clinics

The specialised clinics are the Eating Disorders, Nephrology, Diabetic (Paediatric), Abdominal Surgery and Oncology clinics. Consultations on cystic fibrosis and biliary atresia are also done for Paediatric Outpatients.

Health and Lifestyle Clinic (H&L):

Tuesday: Overweight/Bariatric Clinic

Thursday: Diabetes Mellitus

Individual Clinic: Tuesday/Thursday

HIV Clinic:

Adult and Paediatric

Resources

Posts in Tygerberg Academic Hospital: Dietetic and other		
Posts (Full time)	Number	Filled
Assistant Director	1	1
Chief Dietitian	5 in principle	4
<i>Production Dietitian</i>		
Grade I	13 in principle	8
Grade II		1
Grade III		1
Community-service Dietitian	1	1
Contract posts/locum	2	2
Chief Professional Nurse	2 in principle	1
Typist/Admin Clerk	2	2
Supervisor: Tube feed room	1	1
Supervisor: Milk Kitchen	5	4
Operators: Tube feed room	2	2
: Milk Kitchen	3	3

Output

Inpatients	
Number of patients follow-up	13 725
Total number of contacts :	
Initial Ass & Follow-up	44 808
Total number of contacts :	
Weekends & PH	2 840
Tube feeds	11 521
Supplementary drinks	13 151
Outpatients	
H&L clinic – Diabetes (new)	67
H&L clinic – Diabetes (follow-ups)	37
H&L clinic – Weight loss (new)	72
H&L clinic – Weight loss (follow-ups)	41
H&L clinic – Individual	27
H&L clinic – Bariatric	26
On-call (adults)	1 627
On-call (paediatric)	465
HIV clinic (adults)	39
Food Services	
Special diets	139 798
Full diets	280 390
TPN	
New referrals	190
Total TPN Patients	278
TPN Nursing Consultations	6 717
Total Ward Rounds	500
Nutrition Support: Nasogastric Tube feeds	
New referrals	120
Total Patients	171
Patient consultations	3 190
Nutrition Support: Pegs, Mickeys+Gastrostomies	
PEG ¹ patients	323
PEG patients consultations	2 143

Comment on output:

The Milk Kitchen was transferred to the Department of Human Nutrition starting April 2016. Nursing provided assistance over a six-month period, until end of September 2016, as part of the agreed upon hand-over period. As of 1 October 2016, the Department of Human took over responsibility of the Milk Kitchen (including the Donor Human Milk Bank). No additional resources in terms of physical or human resources were allocated to the Department with additional responsibilities that come with running the Milk Kitchen. The responsibility of running the Milk Kitchen proved to be challenging. There were incidences of personnel shortages, with one day in July where none of the operators reported for duty. Nursing personnel assisted to prepare feeds in order to ensure that the infants received their required feeds. Following this incident, the working hours of the operators were adjusted (from 07:00 – 19:00 to 07:00 – 16:00) to ensure more personnel on duty on a daily basis.

The Milk Kitchen still uses exclusively powdered infant formulae which require reconstitution. A motivation to use ready-to-use (RTU) feeds was compiled and presented to hospital management. Although a final decision has been made by management with regard to the introduction of RTU formulae, the current severe budgetary constraints is considered as the primary obstacle.

A Human Milk Bank Committee was established in October 2016 following the draft Human Milk Bank legislation that was published at the end of 2015. TBH obtained a new pasteurizer in April 2016, allowing Tygerberg Hospital (TBH) to once again pasteurise donor EBM. Considerable work is still required to recruit donors and to establish a fully functional Human Milk Bank.

Members of the Department of Human Nutrition continue to provide support in the development of guidelines on both provincial and national level. The national nutrition guidelines for renal disease and adult and paediatric TPN have been finalised and circulated nationally. Members of the Department were involved in these guidelines.

Members of the Department are further involved with the provincial menus, ration scales and the NTP guidelines, as well as the tube feed guidelines. The ASD of the Department of Human Nutrition was also nominated to represent the Western Cape on the National Tender Committee to review the specifications of the RT9 tender (Enteral feeds for infants, children and adults).

Teaching and Training (under, postgraduate and elective students)

Undergraduate Teaching and Training

Undergraduate Dietetics comprises three fields of speciality: clinical nutrition, food-service management and community nutrition. In addition, student do research in any of the three areas. Training of the undergraduate dietetics is spread in various platforms in the province including TBH. The report will only cover the activities that take place at TBH.

Table 3: Undergraduate enrolment for 2016 compared with 2015

Programme	Enrolment		Graduates	
	2015	2016	2015	2016
BSc Dietetics total	126 (60%)	139 (66,5%)	24	31
Elective Students*	7	6	Not applicable	
M Nutr (Structured)	64	58	7	19
M Nutr (Research)	5	5	1	0
PhD	6	7	2	0
Total	208	209	34	50

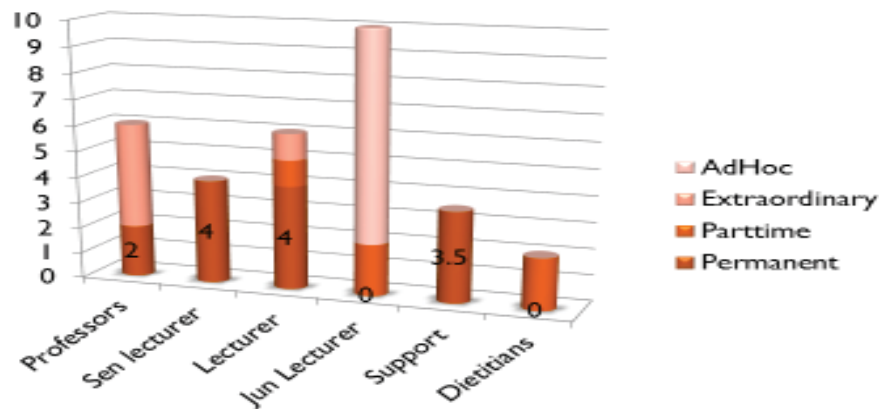
±35 first-entering students are selected annually for BSc Dietetics, ±15 new Master's students and PhD selection is according to supervisory capacity. *Elective students are international placed for a short time including at TBH.

Academic Staffing at the Division of Human Nutrition (Faculty of Medicine & Health Sciences)

The figure below shows staffing numbers of full-time permanent including all other staffing categories. Adhoc and part-time are clinical supervisors in facilities where we place students.



Staffing quantity



Undergraduate training the Academic Division

Undergraduate Dietetics comprises three fields of speciality: clinical nutrition, food service management and community nutrition. I summarise the training and service delivery activities of the Division according to the three subdivisions including patient numbers during the training.

Clinical Nutrition Firm

I have listed the activities by hospital used for training. Four full-time academics and four clinical coordinators are involved in clinical nutrition training in the sites listed below.

a. Tygerberg Hospital

In the majority of times, the hospital dietitians are present when the SU staff attend student presentations. The opportunities are being used as an update and training for students and staff alike.

2016 Statistics during student training

Total number of direct patient consultations	626
Total number of patients followed up	1 042
Total number of patient contacts (incl. group talks, individual patient screening)	42 259

b. Paarl Hospital

In the majority of times, the hospital dietitians is present when the SU staff attend student presentations. The opportunities are being used as an update and training for students and staff alike.

2016 Statistics during student training

Total number of direct patient consultations	28
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c. Ceres Hospital

The hospital dietitians are usually not present when the SU staff attend student presentations or host discussions.

2016 Statistics during student training

Total number of direct patient consultations	129
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d. Brewelskloof Hospital, Worcester

The hospital dietitians are usually not present when the SU staff attend student presentations or host discussions.

2016 Statistics during student training

Total number of direct patient consultations	122
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e. Worcester Hospital

The hospital dietitians are usually not present when the SU staff attend student presentations or host discussions.

2016 Statistics during student training

Total number of direct patient consultations	51
Total number of patients screened	465
Total number of patient contacts (incl. group talks)	132

f. Caledon Hospital

The hospital dietitians are usually not present when the SU staff host student presentations or ward rounds.

2016 Statistics during student training

Total number of direct patient consultations	224
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Food Service Management

The activities involve student placement in food service units in various settings including the Tygerberg Academic, Worcester, Brewelskloof and Caledon hospitals. There is no direct patient contact but they work with diets for various patients with normal and special modifications. In some instances they work with dietitians while in the rural platform they are with the university clinical coordinators. Service to patients is indirect.

a. Tygerberg Academic Hospital

Five rotations during the year – 5 days per rotation overall. There is student integration in the process: theoretical - fourth-year students develop skills in managing large scale food production with a focus on therapeutic diets. As part of service learning the students provide training, do hygiene audits and complete client satisfaction surveys. Hospital dietitian is present and students work under supervision of a dietitian.

Total Time spent at the platform: 35 hours per group = 175 hours per year at TBH

b. Worcester and Hermanus – Ukwanda rotations

Five rotations during the year – 5 days per rotation. Students are supervised by the Clinical coordinators during the hygiene audits and food wastage studies, academic facilitators will accompany students on some visits to the community-based food service units especially for the purpose of orientation, but other visits are usually unsupervised. There is student integration in the process: theoretical – fourth-year students develop skills in utilising knowledge and skills in managing large scale food production in a community setting: ECD centres, rehab centres, soup kitchen, old age homes, etc. This varies between rotations.

c. Brewelskloof- and Caledon hospital

As part of service learning the students provide training, do hygiene audits, evaluate and adapt menus, meals and recipes, any need identified by the partners. Also, hygiene audits, food wastage studies and client satisfaction surveys are being performed at Worcester, Brewelskloof and Caledon hospitals. **Dietician is present and students work under supervision.**

Time spent at the platform: 35 hours per group (1 week) = 175 hours per year.

Community Nutrition Firm

Most of the activities are based in the Primary Health Care facilities, Bishop Lavis in particular, Worcester and Hermanus. The total time spent in Bishop Lavis, Stikland and St. Joseph is estimated at 60 580 hours by 6 staff and more than 30 students per year. The estimated patient numbers is 400 per year based on 2016 statistics. Most of the time the Clinical supervisors or staff are not accompanied by the Western Cape Government employee. In addition, we are at Bishop Lavis daily with 2 staff, 5 hours per week for 48 weeks in a year. There is no dietitian full-time at Bishop Lavis.

Conclusion of Undergraduate Training

Service delivery in the Division is not conducted by the staff on joint posts, but collectively by staff members who, in their training and education portfolio, must engage with students on site. This summary does not include training of undergraduate students taking place in other

Institutions of Government like Education, Social Development facilities, etc., which are sometimes used by the firms as well as non-governmental organisations (NGOs) and private hospitals.

Postgraduate training

The enrolment and graduation outputs have been included in the table above. During 2016, the Division embarked on re-curriculation of Master of Human Nutrition to create three programmes, namely Master of Therapeutic Nutrition, Master of Public Health Nutrition and Master of Food and Nutrition Security.

The division graduated 19 students whose topics are listed below.

Masters completed and graduated 2016

1. BOSHOFF CY. *Perceptions of adolescents from the Sterkspruit area (Eastern Cape) regarding the underlying factors that have an impact on their right to adequate food.* Master of Nutrition, 2016. 152 pp. Supervisor: MARAIS ML. Co-supervisor: DRIMIE SE.
2. CHIKOTO LL. *The relationship between household food gardens and household food security in an urban area in Harare, Zimbabwe: A right to food perspective.* Master of Nutrition, 2016. 144 pp. Supervisor: MCLACHLAN MH. Co-supervisor: Zanamwe L.
3. COURTENAY A. *Breastfeeding self-efficacy and the duration of exclusive breastfeeding in HIV-infected and uninfected mothers.* Master of Nutrition, 2016. 158 pp. Supervisor: VAN NIEKERK E. Co-supervisor: MacDougall C.
4. DE HAAS JC. *Unintentional weight loss in older adults: Nutrition-related knowledge, perceptions and practices of nursing staff working in long-term care facilities in the Cape Metropole.* Master of Nutrition, 2016. 146 pp. Supervisor: MARAIS ML. Co-supervisor: Van Zyl E.
5. DU TOIT A. *Fistuloclysis: A feasible option for the nutritional management of adult intestinal failure patients in South Africa.* Master of Nutrition, 2016. 158 pp. Supervisor: BLAAUW R. Co-supervisor: Boutall A.
6. FERGUSON JK. *Risk factors in the development of severe acute malnutrition in vulnerable children under five years of age living in Region B and surrounding referral areas of the City of Johannesburg, South Africa.* Master of Nutrition, 2016. 204 pp. Supervisor: VAN NIEKERK E. Co-supervisor: Steenkamp L.
7. FOUCHÉ C. *Breastmilk composition of HIV-infected mothers receiving antiretroviral therapy who gave birth to premature infants.* Master of Nutrition, 2016. 178 pp. Supervisor: VAN NIEKERK E. Co-supervisor: DU PLESSIS LM, DELPORT S.
8. JENKINGS TC. *Determinants of the realisation of the right to adequate food of children (1 - 5 years old) and their primary caregivers living in rural and urban areas in one region of the Cacadu District in the Eastern Cape.* Master of Nutrition, 2016. 158 pp. Supervisor: MARAIS ML. Co-supervisor: Lessing E.
9. JOOSTE M. *The prevalence, knowledge and reasons for carbohydrate, protein, creatine and glutamine use among first team rugby players in premier rugby schools in the Western Cape Province.* Master of Nutrition, 2016. 158 pp. Supervisor: POTGIETER S. Co-supervisor: Havemann-Nel L.
10. MAIDMENT CM. *An investigation of possible contributing risk factors related to diet and lifestyle which may cause hypertension in male employees of Hotazel manganese mines (Northern Cape Province, South Africa).* Master of Nutrition, 2016. 143 pp. Supervisor: HERSELMAN MG. Co-supervisor: MARAIS ML.
11. MOENS M. *Prevalence of risk of malnutrition in hospitalised adult patients in a tertiary hospital setting in South Africa.* Master of Nutrition, 2016. 243 pp. Supervisor: BLAAUW R. Co-supervisor: VISSER J.
12. NAPANJE MC. *Exploring the status of the School health and Nutrition Programme in Government Schools in Lusaka District, Zambia.* Master of Nutrition, 2016. 115 pp. Supervisor: DU PLESSIS LM. Co-supervisor: MARAIS ML.
13. NKOMANI S. *Assessing the extent and effectiveness of diabetes self- management education in public health care institutions in Harare, Zimbabwe.* Master of Nutrition, 2016. 187 pp. Supervisor: BLAAUW R. Co-supervisor: Rusakaniko S.

14. OGACHI S. *Factors that influence dietary diversity of school feeding programs in slums of Nairobi, Kenya: a perspective of school principals/teachers in charge*. Master of Nutrition, 2016. 133 pp. Supervisor: LOMBADIETITIANS MJ. Co-supervisor: MARAIS ML.
15. PADAYACHEE M. *A systematic review of the efficacy and safety of Saccharomyces boulardii in the treatment of acute gastroenteritis in the paediatric population*. Master of Nutrition, 2016. 117 pp. Supervisor: BLAAUW R. Co-supervisor: VISSER J.
16. RIBEIRO NP. *A prospective, cross-over randomized controlled trial to determine whether end stage renal disease patients receiving chronic renal replacement therapy at Charlotte Maxeke Johannesburg Academic Hospital are more likely to have an improved lipid profile after including plant sterols as part of their dietary intake for eight weeks*. Master of Nutrition, 2016. 125 pp. Supervisor: POTGIETER S. Co-supervisor: Naicker S.
17. SAMUELS S. *Field testing of the revised Paediatric Food-Based Dietary Guidelines among mothers/caregivers of children aged 12â€³36 months in the Stellenbosch Municipality in the Western Cape province, South Africa*. Master of Nutrition, 2016. 159 pp. Supervisor: DU PLESSIS LM. Co-supervisor: DANIELS LC.
18. SNYMAN S. *The role of selected duty-bearers in realising the right to water of children (0-24) months in Colesberg, Northern Cape, during the nutritional management of diarrhoea in primary health care institutions*. Master of Nutrition, 2016. 123 pp. Supervisor: KOEN N. Co-supervisor: MARAIS ML.
19. VAN NIEKERK M. *The effect of an enriched nutritional supplement on growth and Inflammatory markers in underweight HIV-positive children aged 24-72 months*. Master of Nutrition, 2016. 181 pp. Supervisor: LABADARIOS D. Co-supervisor: DU PLESSIS LM.

Achievements w.r.t research activities and research outputs:

The achievements are summarised in the table below and the details are provided under the subsections.

Table 2: Summary of Research outputs

Journal Articles (subsidised)	22
Chapters in Books/books	6
Poster presentations (national/International)	11
Oral presentations (national/International)	11
Published abstracts (national & international)	8
Other material published in accredited/ non-accredited journals/patents	2
Ongoing research projects	10

Journal Articles (subsidised)

1. AWOTIWON OF, PILLAY-VAN WYK V, DHANSAY MA, DAY C, BRADSHAW D. Diarrhoea in children under five years of age in South Africa (1997 - 2014). *Tropical Medicine and International Health* 2016; **21**(9):1060-1070.
2. DU PLESSIS LM, HERSELMAN MG, MCLACHLAN MH, NEL JH. Selected facets of nutrition during the first 1 000 days of life in vulnerable South African communities. *South African Journal of Child Health* 2016; **10**(1):37-42.
3. DU PLESSIS LM, PEER N, HONIKMAN S, ENGLISH R. Breastfeeding in South Africa: are we making progress? *South African Health Review* 2016; **2016**(0):109-123.
4. FOUCHE C, VAN NIEKERK E, DU PLESSIS LM. Differences in breast milk composition of HIV-infected and HIV-uninfected mothers of premature infants: Effects of antiretroviral therapy. *Breastfeeding Medicine* 2016; **11**(9):455-460.
5. FREETH R, DRIMIE SE. Participatory Scenario Planning: From Scenario 'Stakeholders' to Scenario 'Owners'. *Environment: science and policy for sustainable development* 2016; **58**(4):32-43.
6. HENJUM S, KJELLEVOLD M, ULAK M, CHANDYO RK, SHRESTHA PS, FROYLAND L, STRYDOM EE, DHANSAY MA, STRAND TA. Iodine concentration in breastmilk and urine among lactating women of Bhaktapur, Nepal. *Nutrients* 2016; **8**:doi:3390 pg.1-11.
7. JOUBERT EM. A coordinated collaborative response to rehabilitation needs of persons with disabilities. *Physical Medicine and Rehabilitation Clinics of North America* 2015; **2**(7):1-7.
8. KOEN N, BLAAUW R, WENTZEL-VILJOEN E. Food and nutrition labelling: the past, present and the way forward. *South African Journal of Clinical Nutrition* 2016; **29**(1):13-21.

9. LABUSCHAGNE IL, VAN NIEKERK E. Diet and childhood asthma: review. *South African Family Practice* 2016; **58**(S1):S9-S11.
10. MARAIS ML, MCLACHLAN MH, EIDE WB. The NOMA track module on nutrition, human rights and governance: Part 1. Perceptions held by Master's students. *African Journal of Health Professions Education* 2016; **8**(2):152-159.
11. MARAIS ML, MCLACHLAN MH, EIDE WB. The NOMA track module on nutrition, human rights and governance: Part 2. A transnational curriculum using a human rights-based approach to foster key competencies in nutrition professionals. *African Journal of Health Professions Education* 2016; **8**(2):160-165.
12. MAVENGAHAMA S, DE CLERCQ WP, MCLACHLAN MH. Effect of soil amendments on yield of wild okra (*Corchorus olitorius*) in northern KwaZulu-Natal, South Africa. *South African Journal of Plant and Soil* 2016; **33**(2):153-156.
13. M'KAIBI FK, STEYN NP, OCHOLA S, DU PLESSIS LM. The relationship between agricultural biodiversity, dietary diversity, household food security, and stunting of children in rural Kenya. *Food Science and Nutrition* 2016; **1**(1):doi:10.1002/fsn3.387 p1-11.
14. MKHAWANI K, MOTADI SA, MABAPA NS, MBHENYANE XG, BLAAUW R. Effects of rising food prices on household food security on female-headed households in Runnymede Village, Mopani District, South Africa. *South African Journal of Clinical Nutrition* 2016; **29**(2):69-74.
15. MYERS NM, STRYDOM EE, SWEET J, SWEET C, SPOHRER R, DHANSAY MA, LIEBERMAN M. saltPAD: A new analytical tool for monitoring salt iodization in low resource settings. *Nano Biomedicine* 2016; **3**(5):1-9.
16. NIENABER A, DOLMAN RC, VAN GRAAN AE, BLAAUW R. Prevalence of glutamine deficiency in ICU patients: a cross-sectional analytical study. *Nutrition Journal* 2016; **15**(73):DOI 10.1186/s12937-016-0188-3 pg1-9.
17. SIBANDA NM, MBHENYANE XG, MUSHAPHI LF. Caregivers' interpretation of the growth chart and feeding practices of children under five years: A case of greater Tzaneen Municipality, South Africa. *Journal of Food and Nutrition Research* 2016; **4**(6):369-376.
18. PEREIRA L, DRIMIE SE. Governance arrangements for the future food system: Addressing complexity in South Africa. *Environment: science and policy for sustainable development* 2016; **58**(4):18-31.
19. PILLAY M, BESTER J, BLAAUW R, HARPER A, MSINDWANA AA, MULLER JV, PHILIPS LA. Allied health professional rural education: Stellenbosch University learners' experiences. *African Journal of Health Professions Education* 2016; **8**(2):169-173.
20. ROOMANEY RA, PILLAY-VAN WYK V, AWOTIWON A, DHANSAY MA, GROENEWALD P, JOUBERT JD, NGLAZI MD, NICOL E, BRADSHAW D. Epidemiology of lower respiratory infection and pneumonia in South Africa (1997-2015): a systematic review protocol. *BMJ Open* 2016; **6**(e012154):1-6.
21. VAN ZYL ZA, MASLIN K, DEAN T, BLAAUW R, VENTER C. The accuracy of dietary recall of infant feeding and food allergen data. *JOURNAL OF HUMAN NUTRITION AND DIETETICS* 2016; **29**:777-785.
22. VELDSMAN L, RICHADIETITIANSS GA, BLAAUW R. The dilemma of protein delivery in the intensive care unit. *NUTRITION* 2016; **32**:985-988.

Chapters in Books

1. DRIMIE SE, YOSEF S. Reducing risk, strengthening resilience: Social protection and nutrition. In: Gillespie S, Hodge J, Yosef S, Pandya-Lorch R (eds.) *Nourishing millions: stories of change in nutrition*, International Food Policy Research Institute, Washington, DC, USA, 2016: 65-72.
2. DU PLESSIS LM, NAUDE CE, SWART R. Nutrition During the First Thousand days of life, Part II. In: Temple NJ, Steyn NP (eds.) *Community Nutrition for Developing Countries*, AU Press, Athabasca University, Canada, Alberta, Canada, 2016: 1-493.
3. DU PLESSIS LM, NAUDE CE. Nutrition during the first thousand days of life, Part I. In: Temple NJ, Steyn NP (eds.) *Community Nutrition for Developing Countries*, AU Press, Athabasca University, Canada, Alberta, Canada, 2016: 1-493.
4. NISBETT N, WACH E, HADDAD L, REDDIN S, GATELLIER K, COVIC N, DRIMIE SE, HARRIS J, YOSEF S. Championing Nutrition: Effective Leadership for Action. In: Gillespie S, Hodge J, Pandya-Lorch R, Yosef S (eds.) *Nourishing millions: Stories of change in nutrition*, International Food Policy Research Institute, Washington, DC, USA, 2016: 163-174.

5. Book: Stefan DC, Harif M. Pediatric Cancer in Africa: A case-based guide to diagnosis and management. 2016
6. Chapter in Book: Kellerman, IM. Nutrition for children with cancer in Africa. 2016; p

Poster presentations (national & international)

1. Maidment C, Herselman MG, Marais, ML. *An investigation of possible contributing risk factors related to diet and lifestyle which may cause hypertension in male employees of Hotazel Manganese mines (Northern Cape Province, South Africa)*. World Nutrition Congress Cape Town, 2016. University of the Western Cape, South Africa, 30 August – 2 September 2016.
2. Ogachi S, Lombard M, Marais ML. *Dietary diversity of the school feeding program and factors influencing the program in the urban slums of Nairobi Kenya: A perspective of school principals/ teachers in charge*. World Nutrition Congress Cape Town, 2016. University of the Western Cape, South Africa, 30 August – 2 September 2016.
3. Snyman S, Koen N, Marais ML. *The role of selected duty-bearers in realising the right to water of children (0-24 MONTHS) in Colesberg, Northern Cape, during the nutritional management of diarrhoea in primary health care institutions*. World Nutrition Congress Cape Town, 2016. University of the Western Cape, South Africa, 30 August – 2 September 2016.
4. De Haas JC, Marais ML, van Zyl ML. *Nurses' challenges with managing unintentional weight loss in older adults in long-term care facilities (Cape Metropole)*. Nutrition Congress Somerset West, South Africa, 3 September 2016.
5. Du Toit A, Boutall AB, Blaauw R. *The use of fistuloclysis in an adult intestinal failure population in a South African tertiary hospital*. 38th ESPEN Congress Copenhagen, Denmark, 17 - 20 September 2016.
6. Stevensen C, Blaauw R, Fredericks E, Visser J, Roux S. *Nutrition intakes and the validity and reliability of dietary data in irritable bowel syndrome patients*. 38th ESPEN Congress, Copenhagen, Denmark, 17 – 20 September 2016.
7. Van Niekerk E, Kirsten G, Blaauw R. *Probiotics feeding tolerance and growth in HIV exposure*. Nutrition Congress, Somerset West, South Africa, 3 - 5 September 2016.
8. Philips L, Visser J, Blaauw R. *The Association between Tuberculosis and the Development of Insulin Resistance in adults with Pulmonary Tuberculosis*. Nutrition Congress, Somerset West, South Africa, 3 - 5 September 2016.
9. Fouché C, du Plessis L, van Niekerk E. *Differences in Breastmilk Composition of HIV-Infected and HIV-uninfected mothers of Premature Infants: Effects of Anti-Retroviral Therapy*. ISRHML Congress, Spier, Stellenbosch, South Africa, 3 - 5 September 2016.
10. Smit Y, Koen N, Kassier SM, Nel D. *Food choices of mothers with children attending primary schools in the Metro North Education District of the Western Cape Province, South Africa*. Nutrition Congress, Somerset West, South Africa, 3 - 5 September 2016.
11. Schiever JF, Visser J, Van der Merwe, M. *Evaluation of nutrition care to adult patients on HAART attending primary healthcare facilities in Mpumalanga*. Nutrition Congress, 3 – 5 September 2016, Somerset West, South Africa.

Oral Presentations (national & international)

1. Koornhof HE, Marais ML, du Plessis LM, Daniels LC. *Assessing food and nutrition security of Stellenbosch University (SU) main campus undergraduate students*. Nutrition Congress, Somerset West, South Africa, 3 September 2016.
2. Blaauw R. *The double-burden of Malnutrition*. 38th ESPEN Congress, Copenhagen, Denmark, 17 - 20 September 2016.
3. Blaauw R. *Lipids in parenteral nutrition: The South African perspective*. 12th Congress of the International Society for the Study of Fatty Acids and Lipids (ISSFAL). Stellenbosch, 5 - 9 September 2016.
4. Blaauw R, Erasmus N, Lenhoff A, Jamieson M, Zhang ZE. *Risk of malnutrition in hospitalized children*. Nutrition Congress, Somerset West, South Africa, 3 September 2016.
5. Blaauw R. *Malnutrition screening tools*. Nutrition Congress, Somerset West, South Africa, 3 - 5 September 2016.

6. Koen N, Blaauw R, Wentzel-Viljoen E. *The influence of nutrition labelling and logos on food purchasing behaviour in the City of Cape Town, Western Cape, South Africa.* Nutrition Congress, Somerset West, South Africa, 3 September 2016.
7. Winskill T, Kruger S, Blaauw R. *Dietary adherence amongst adults with type 2 Diabetes Mellitus: A South African urban population perspective.* Nutrition Congress, Somerset West, South Africa, 3 September 2016.
8. Du Plessis LM, McLachlan MH, Drimie SE. *Exploring stakeholder commitment and capacity to address infant and young child nutrition in the capital of the Breede Valley, Western Cape, South Africa.* Biennial Nutrition Congress, Cape Town, South Africa, 3 - 5 September 2016.
9. Tarumbwa C, Naude CE, du Plessis LM, Makura L. *Malnutrition-related morbidity and mortality in HIV-exposed infants of mothers enrolled in the PMTCT programme at a Namibian district hospital: the role of infant feeding practices.* Annual Academic Year Day, Faculty of Medicine and Health Sciences, 11 August 2016.
10. Visser, J. *Hospital malnutrition – are we winning the battle?* Nutrition Congress, Somerset West, South Africa, 3 - 5 September 2016.
11. Mabasa E, Mabapa NS, Jooste PL, Mbhenyane XG. *Iodine status of pregnant women and children aged 6 to 12 years feeding from the same food basket in Mopani district, South Africa.* Nutrition Congress, Somerset West, South Africa, October 2016.

Published abstracts (national & international)

1. Du Toit, Boutall AB, Blaauw R. *The use of fistuloclysis in an adult intestinal failure population in South African tertiary hospital.* 38th ESPEN Congress, Copenhagen, Denmark, 17 – 20 September 2016.
2. Stevensen C, Blaauw R, Fredericks E, Visser J, Roux S. *Nutrition intakes and the validity and reliability of dietary data in irritable bowel syndrome patients.* 38th ESPEN Congress, Copenhagen, Denmark, 17 – 20 September 2016.
3. Coutsoudis A, Adair LS, Kuhn L, Matare CR, Mbuya MN, Tavengwa NV, Ntozini R, Stoltzfus RJ, Humphrey JH, Berbari LS, Ochoa TJ, van Niekerk E. *Abstracts from the 18th International Society for Research in Human Milk and Lactation Conference.* Breastfeeding Medicine, March 2016.
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2. Mbhenyane XG. *The contribution of 'indigenous foods' to the elimination of hidden hunger and food insecurity: An illusion or innovation?* Inaugural lecture, 25 October 2016, Stellenbosch University. Editor: SU Language Centre, Printing: Sun Media. ISBN: 978-0-7972-1655. Copyright © 2016 Xikombiso Mbhenyane

Ongoing projects

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2. Blaauw R. *Plasma glutamine levels in relation to ICU patient outcome*. Ethics Approval number: N14/O8/114.
 3. Blaauw R, du Plessis LM, Daniels LC, Smit Y, van Niekerk E. *Investigating Nutrition and Physical Activity Behaviour of Adolescents in the School Environment*. Ethics Approval number: N16/O8/100.
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 7. Kimani IW, Beukes R. *Evaluation of the Supplementary Feeding programme targeted at moderately malnourished children aged 6 to 59 months in Baringo County, Kenya*. (Data collection completed. Thesis in first stage of writing)
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Head of Department
Sharon Ngemntu

Summary of activities

Overview of the OT Department:

- The OT Department continues to deliver a comprehensive service to in- and outpatients of all age groups, services that are in line with the provincial strategic goals, such as the 1 000 days project, health and wellness, etc.
- An extra R100 000 was allocated to procure mobility assistive devices and accessories for children with severe intellectual disabilities
- The OT budget was increased to allow purchasing of pre-fabricated splints for the entire OT Department in order to address service delivery issues in terms of provisioning of splints and wheelchairs. The first batch of pre-fabricated splints was purchased in December 2016
- Discussions regarding service reorganisation have continued within the department to migrate certain OT services currently provided to the next level of care. The purpose was to prioritise services appropriate for tertiary level of care. Information regarding service delivery challenges such as referral pathways, limited human- as well as physical resources at TBH OT and at different levels of care was submitted to the Allied Health Services Work Group. The referral of patients to the community is hindered by the fact that facilities at the next level of care are not adequately resourced. However, further engagement will be required with all stakeholders at the different levels of care as well as with the highest level leadership of health in the province
- TBH OTs continued to participate in different interest groups within the Metro. The purpose is to ensure development and progress as well as continuity of OT services
- Seating clinics were initiated to address the wheelchair waiting list and provide in-service training to clinicians in the seating of patients who have basic, intermediate and advance seating needs
- Neuro-referral pathways were developed through participation in the neuro interest group to enhance service delivery to patients with neurological conditions. A number of home programmes and information pamphlets were designed and issued to patients/carers during treatment sessions to promote compliance. Clinical and administrative protocols were also developed
- Participation and input was provided during tender meetings to ensure the procurement of appropriate, quality products and ultimately with the view to improve health outcomes regarding occupational therapy outcomes rendered
- The following tender meetings were attended and input provided:
 - Bandage and dressing tender WCDOH 19
 - Assistive devices-supplementary items
 - Splinting materials - WCDOH 009
 - Compression therapy (WCGCC07/1/2017)



Sharon Ngemntu

Departmental activities were guided by the following key objectives:

A. Improve early access to occupational therapy services:		
Target Group	Activity	Aim
Infants and Children	<p>1. Infant and Child Early Intervention Clinics (<1 years and between 1 and 3 years, respectively)</p> <p>2. Infant Mental Health Clinic (< 3 years) <i>Early intervention clinics once a month (ages 1-3 years), congenital hands clinics developmental clinic, school readiness groups for Gr R learners, Severe Acute Malnourished children multi-disciplinary team meetings:</i></p>	<p>To identify infants and children at risk for neurodevelopmental delays.</p> <p>Works with vulnerable mothers and infants (< 3 years) who are at risk for developing mental health issues.</p>
Adolescents	<p>Vocational assessment and placement of learners with special needs <i>Individual and group therapy Wheelchair and seating clinics for children 12 years and older Weekly psycho-educational and emotional groups for adolescents with chronic conditions, e.g. diabetes Mental health services offered through Child Psychiatry services</i></p>	To provide adolescents with assessment and intervention as well as training and work placement.
Adults	<p>1. Lymphedema Outpatient Clinic 2. Motor Neuron Outpatient Clinic 3. Adult Psychiatry Outpatient Services 4. Tygerberg Stroke Unit 5. Fibromyalgia group sessions 6. Work assessment</p>	To prevent secondary complications associated with chronic conditions; with the aim to reintegrate them to suitable environments (home, community and/or work).
All Ages	<p>1. Hand and Splinting Clinics 2. Burns and Pressure Garments Clinics 3. Wheelchair and Seating Clinics</p>	To prevent secondary complications, improve access to assistive devices and promote health and wellness.

B. Improvements in Occupational Therapy services:
<p>The following protocols and initiatives have been implemented. Examples of these include:</p> <ul style="list-style-type: none"> ➤ Catatonia protocol ➤ Psychosocial programme ➤ Severe Acute Malnutrition protocol ➤ Flexor tendon repair-early active mobilisation home programme ➤ Work practice group developed pamphlets that covered disability grants, patients' rights, disclosure and reasonable accommodation, UIF and COIDA

C. Measure and improve the outcome of occupational therapy services:
<p>During 2016, the Department monitored and evaluated the outcomes of OT services at Tygerberg Hospital. Patient load contributed to additional challenges of capturing and analysing data, Not all the outcome indicators were available from all areas within OT and could therefore not be collated. However, the following outcome indicators have been monitored:</p> <p>Output – 17 875 patient attendances recorded.</p> <p><i>Departmental Indicators</i></p> <p><i>Indicator 1</i> Patients referred to next level of care <i>In general, approximately 50%-60% of the Department refer to the next level of care. However, Surgery Workgroup refers 70-80% of the patients to next level of care.</i></p> <ul style="list-style-type: none"> • Limited resources in the community persists which can be contributed to the lack of skill and equipment and levels of care not clearly defined. There are many patients treated in the community, but because of a lack of resources they are referred to Tygerberg Hospital (TBH) for pressure garments, splints (even basic gutter splints) or just to adjust a splint. This continues to be a problem, which puts lots of strain on the TBH OT Department, as the patient- and work load increases constantly • <i>Another reason for the lower % overall is that the following services are currently followed up</i>

at tertiary level:

- Intermediate and advance seating
- Outpatient Adult and Child Psychiatry
- Perceptual and cognitive rehabilitation
- Child development

Indicator 2

*Surgery workgroup data indicate that only 170 patients are seen at the next level of care
Neuro-psych workgroup make splints, but they are referred back to Community Health Centre (CHC) for follow-up (no data available)*

Indicator 3:

The Number of Patients Who Received Assistive Devices/Assistive Technology

1. The Number of Patients Who Received Assistive Devices/Assistive Technology in 2016

- Data collated for the Situation Analysis and from the Occupation Performance Assistive Technology Committee (OPAT) indicate approximately 450 assistive devices were waitlisted for 300 patients
- **643 patients received assistive devices** that were manufactured in the OT Department (which include universal cuff, mittens, built up grips, etc. Assistive devices enable people with impairments and disabilities to do tasks and fulfil roles that they would otherwise not be able to do
- Data from the Routine Monthly Records (RMR) only indicate the number of devices waitlisted and issued and not the number of patients who received devices
- Patients (children and adults) were assessed and 3 434 Mobility Assistive Devices (including wheelchairs, buggies and various mobility assistive accessories such as back systems, tray tables, lap belts special pressure care items) were prescribed in 2016. These indicate an excessive increase of prescribed items as 2 183 items were prescribed in 2015. The number of Mobility Assistive Devices (MAD) and/or MAD accessories issued in 2016 was 1 211. Statistics indicate that 396 less items were issued in 2016 than 2015. Delays from procurement and suppliers were of the major reasons that more items were not available for issue. Which has now resulted into an extensive waiting list? This has great impact on the service, as patients cannot be referred to the next level of care and will need to be booked again to our specific seating clinics. Clinic diaries at this stage are booked into August already.
- **Splints:** 1 950 splints were issued in 2016; *Delays from procurement and suppliers (of specifically splinting material to manufacture) were the major reasons that more splints were not available for issue.* This has great impact on the service, as patients cannot be referred to the next level of care and will need to book again to our specific clinics. Considering that the Hands and Orthopaedics Clinics already see up to 30 patients a day as well as the day-to-day splinting that is facilitated in all the other clinical workgroups, like Neuro, Paediatrics, etc.
- **Pressure Garments:** 1 111 pressure garments were manufactured and issued in 2016. *Delays from procurement and suppliers were the major reasons that more items were not available for issue.*

In 2016 we experienced a shortage of stock of wrist braces and splinting material, and experienced problems with the "buy out item" of the pre-fabricated splints. This unfortunately resulted in us having to do many re-bookings. The severe shortage of splinting material impacted on therapists not being able to complete their tasks timeously. Measures taken as a last resort included borrowing material from Stellenbosch University as well as from Red Cross Children's Hospital, and at times combining two pieces of a thinner material to provide enough support (obviously not a good use of resource of the thinner material though, also time consuming).


Great delays in the acquisition of pressure garment material created a backlog of pressure garments that needed to be made, which had a great impact on the patient's treatment/functional outcomes.

Long waiting list for assistive devices and mobility devices impacts on rehabilitative outcomes and reflects poorly on service delivery.

Indicator 4: No of patients who have improved functional outcomes/participation post OT intervention: 90% + patients have improved functional outcomes.

Indicator 5: Number of patients who obtained a meaningful Vocational Goal (school/work)

- Number of patients who obtained a meaningful Vocational Goal (school/work) was 1 534
- Great effort is made both clinically and administratively to assist patients to return to work. Very time consuming to engage with employers to ensure return to work

 **Patient category seen at OT in 2016**

More than **75% of patients** are in category HO to H1

In conclusion, more than 4 915 items were issued in 2016 (+4 600 items in 2015)

D. Strengthen inter-sectoral collaboration with relevant stakeholders:

Key strategic partnerships continued in 2016 with the goal of promoting health, wellness, participation and social inclusion for persons with impairments and disabilities.

- Collaboration with the Voluntary Aid service
- Collaboration with a number of special needs centres and schools for specialised seating, such as St Joseph, Paarl School, Filia, Heideveld, Athlone School for the Blind, Sibongile, Sivenathi, Sivuyile, Oasis School, Alta du Toit, Little Angels, Senacio, Agape, Gabriella Centre, Zandvliet Centre, New Beginnings
- MND Support Group (Bellville)
- Collaboration with the South African Social Services Agency (SASSA) and Department of Social Development for the review of disability grant assessments
- Collaboration with various recruitment agencies for people with disabilities (AR Aviwe, Signa and ICAN)
- Collaboration with OTOH committee which is an interest group in the field of occupational health under the auspices of OTASA
- Collaboration with universities regarding student placements and training

Resources

Posts (Full-time)	Number	Filled
Head of Department	1	1
Occupational Therapy Supervisor	4	4
Occupational Therapy Clinicians	10	10 ➤ 1x unpaid leave from 1 August 2016 to 31 July 2017
Occupational Therapy Technicians (OTT and OTA)	4	4 x Permanent (1x seconded to PAWUSA)
Posts (sessional – how many hours worked per week)		
OTT	1	Permanent contract – A. Lucas
OT Locums (Paediatrics and Surgery, & Neuro) OT contract (Neuro)		3 (32 hours per week each)
Volunteers:		
OTs	3	3
Admin	1	1
General	19	19
Intern	3	3 Marvin Fortuin 01/01/2016 - 30/04/2016 Herschelle Williams (03/05/16 - 28/04/17 (Third one from CPUT for only five months

Output

Surgery (Amputation, burns, hands, orthopaedics, plastics, internal medicine, pressure garments, rheumatology, lymphedema)	7 519
Neurology	1 623
Neurosurgery	1 260
Adult Psychiatry	1 665
Child and Adolescent Unit	1 476
Paediatrics	3 825
Work assessment	507
Total 2016	17 875
Total 2015	16 802

Comment on output

- There has been an overall increase in the statistics of the department from 16 802 attendances in 2015 to 17 875 in 2016
- There has been a general increase in referrals from wards, clinics, surrounding health facilities and practitioners
- There has been a significant increase in attendance in Amputations, Burns, Paediatric (including Child Psychiatry), Neurology as well as Work Assessment

- There has been a steady increase in the amount of clients requiring assessments for disability benefit claims referred from private insurance companies, and this generates revenue for the hospital
- Patients are referred to the next level of care to reduce the number of patients followed up at TBH OT. However, as mentioned before, due to resource limitations, this remains a challenge
- Certain areas statistics indicate a decrease; however, this is due to human resource shortages, and patients not attending appointments as a result of socio-economic reasons
- Unit Managers and Clinicians have reported that certain area statistics are not an accurate reflection of the number of patients seen (especially in Adult Psychiatry and certain areas within the Surgery Workgroup), which indicates much lower numbers than was actually seen.

Part 2

Faculty of Health Sciences

Infrastructure development – upgrading, new equipment, etc.

- New equipment: Three foam cutters purchased from the essential equipment list (each costing R11 000), but one in the paed area could not be used because it came with only one blade
- Paediatrics inpatient area ordered wedges that are used for positioning
- Splinting Board in the Hands area – useful tool for patient education as well as for students and therapist training
- Restructuring of the Burns OT office and treatment room, which is now divided into different areas: ADL, Splinting, Sewing, table with chairs and activity section
- A donation of a splinting toolkit for the hands area. Assistive devices received from Pfizer: button hooks, peelers and key turners
- First pre-fabricated splints order was received and the Orthopaedic Department paid for repairs of the splinting pan
- New paper-based assessments have been implemented in the work assessment unit and the area restructured to create a more clinically professional environment
- The lack of an artisan in the OT Department and the absence of an OTA who have been seconded to PAWUSA head office, means that all the carpentry machinery in the workshop is not being utilised. The OTA oversaw all the manufacturing of the assistive devices for the department. However, this now no longer occurs and this have affected the OT departmental budget as these assistive devices now need to be ordered via tender and the costs are quite high. A wheelchair repair service in the OT Department had to be also terminated due to lack of human resource in the Work Assessment Unit

Community outreach programmes/community services and interaction.

- Community outreach at Ravensmead Community Health Centre (CHC). The purpose was to provide psycho education (providing health education and health promotion) for patients with mental health conditions in the community in collaboration with Sr Parker from Ravensmead CHC
- Outreach to the Bellville MND Support Group (to pts, carers and counsellors)
- The Surgery Workgroup collaborated with the health manager and OTs from clinics/hospital in Khayelitsha. The reason was to offer support, and discuss outreach training for the purposes of working together to strengthen the referral pathways between these facilities
- The Quality Assurance committee in the OT Department participated in the following events in order to reach out to various stakeholders in the community with the aim to showcase the OT profession and simultaneously promote and educate the public about pertinent health priorities;
 - OT Week (3-7 October 2016)
 - Mental Health Day (10/10/2016)
 - International Day for persons with disabilities (03/12/16)

Partnerships

National:

The Paediatric Workgroup's involvement in the SMILE project in D3 took place on 9 November 2016.

Local:

OTs at Tygerberg partnered with the WCRC therapists to initiate a project to evaluate and improve services at all levels of care for patients with amputations.

Surgery Unit OTs collaborated with TBH Physiotherapy Department, presenting an informal workshop on 12 February 2016, covering services offered by Physiotherapy at TBH for hand injury patients, type of referrals to Physiotherapy, exercises to prevent stiffness, and basic principles on mobilisation techniques. This information was then used to update the ROM protocol in the Unit.

International:

- Orientation of two international OT lecturers to the Paeds services
- Lymphatic Education Africa: Assisting in the planning of short courses in Lymphedema for government-based services in 2017. Training of additional two therapists (OTs at TBH) with funding received from Lymphatic Education Africa commenced in January 2017

Achievements w.r.t research activities and research outputs

The Harmonised Assessment Tool (HAT) has been developed as a Department of Social Development's initiative to streamline the process of disability grant applications. The validation of the tool was conducted by the two therapists in the Work Assessment Unit at TBH. After utilising the tool with clients, feedback on the ease and appropriateness of the tool and suggestions for further development and adaptations were given to the researchers.

A Buttle, the hands therapist, has chosen an area of research for her masters that will directly impact and benefit the area, zone II flexor tendon injuries and repairs – in collaboration with Dr Ikram (senior consultant in hands at TBH). This is an injury that has consistently poor outcomes post therapy, and thus the study will attempt to provide new and potentially better therapy protocol options to therapists in the area.

New assessments used in the department:

- Bush Francis Catatonia Rating scale
- WHODAS 2.0 assessment tool (12 point scale)

Number of publications from the department:

- L. Melton was interviewed by S. Delpont on the Management of Lipodema and it was published in the July 2016 issue; pg. 64 of the Rooi Rose magazine
- Currently busy with a staff rotation policy on the pilot study done in 2015 in the OT Department. This is done with the support of Prof. Soeker who is the HOD at UWC OT Department as part of the collaborative work (Communities of Practice). The ultimate purpose is to capacitate the work force as well as management to effectively address service delivery needs

Teaching and Training (under-, postgraduate and elective students)

Area	OT students 3 rd - and 4 th - year clinical block	Elective students – local and foreign	Preliminary students	Other
Neurology	8x 3 rd years (UWC and US)	1 local (UCT)	A total of 61 students • The OT staff (from different clinical areas)	31 Nursing students from CPUT, UWC, US and WCCN (including six Advance Psychiatry students received)
Work assessment	6x UWC IV year	1 elective from Canada		

Paediatrics	3x 4 th years: UWC and US 2x UWC 3 rd - year OT students		presented about the role of OT to Preliminary OT students at various times in the year: 31/03, 30/06, 14/07, 6 /10/16	training) 5 th - and 6 th -year medical students (11 students per rotation) in Child Psychiatry
Surgery	2x 4 th year US 4x 4 th year UWC 5x 3 rd year US 3x 3 rd year UWC	1 elective from UCT 2x Belgium elective 08/01/16- 04/03/16 and, 07/03/16- 01/04/16		
TOTALS	33	5		

- Second-year OT students' practicals (2 groups of 10 students each) took place on the following dates: 23/05/2016 – 26/05/2016
- A group of 35 3rd-year students from UWC visited the work assessment unit as part of a module requirement on 28 February 2017. They were informed about the services offered at TBH, and the role of OT in a Work Assessment Unit. A demonstration of the various assessment tools utilised when conducting a functional capacity evaluation was also done

Presentations/lectures/in-service training done in 2016, as follows:

- Orientation of first-year OT students (US) on the OT's role in a tertiary hospital setting, presented by E. Laminette on 29/03/2016
- OTT presented for UWC students on the OTT's role on 12/08/2016
- A. Noordien-Ebrahim (former OT in the Work assessment unit) presented a guest lecture to third-year OT students at UWC on "the role of OT in work assessment", on 30/09/16
- L. Howell presented at MOTH on 23/09/16 "A burns perspective on a burns hand injury". Inpatient paediatric therapist (A. van Zyl) presented on Attachment at the MOTH Forum on 23 September 2016
- OT in paediatrics presented on Model of Sensory Integration on 13/05/2016 to the Child Psychiatry multidisciplinary team meeting
- In 2016 OT staff did various clinical presentations to other OT staff in and outside Tygerberg Hospital, members of the multi-disciplinary team through journal clubs, in-service training and clinical discussions, etc., covering mental health topics, surgical, patients' rights, etc.
- Surgery journal club continued throughout the year, collaborating with the University of Stellenbosch Occupational Therapy Department with assistance from Susan de Klerk. The focus was based on relevant articles within the areas of hands, rheumatology, burns and lymphedema
- In-service training for OT staff arranged by T. Rix regarding product specific training via SHONAQUIP
- Clinical development and literature regarding patient care was developed or reviewed by different clinical areas

Special achievements and other highlights

The Work Practice Group committee, of which T. Gabriels is an active member, developed information pamphlets for clients affected by illness, injury or disability. The information focus is on clients' return to work after they were affected by injury, illness and/or disability. The pamphlets will be distributed to the OTs in the metro district.

Inpatient therapist (**Paeds**) completed advanced seating course, therefore improving service delivery for seating patients at tertiary level of care.

Even though the year was filled with lots of clinic, staffing and committee pressures, the Surgery Unit was able to achieve 50% of the strategic goals and this is a great accomplishment for the Department.

Barriers and challenges:

- The Department experienced severe human resource barriers due to resignation, staff transferring to other facilities, new appointments, leave, some of the posts not permanently filled, etc. All these had an impact on the OT services as follows; KMC groups had to be suspended, services were interrupted when a new person came, and new services could not be started if no continuity can be guaranteed. For example, there was no permanent OT working in the Burns Unit from April to September 2016. The patients were missing out on a valuable part of their comprehensive treatment during admission as the locum was only covering in the Burns Unit. Therefore quality and extent of patient treatment suffered as a result, and therapists forced to do the bare minimum in therapy sessions in order to manage all the referrals that are received, resulting in longer patient waiting times
 - Inadequate admin support staff allocated in the Department to do data capturing for data analysis required to measure intervention outcomes
 - No technical personnel available to manufacture assistive devices, resulting in long waiting list for assistive devices while waiting for the tender process to be finalised; no wheelchair repair services were available therefore patients are referred to the Western Cape Rehabilitation Centre (WCRC) for such services
 - The paediatric area (including Child Psychiatry) makes use of consumable stock and visual perceptual games as a treatment medium. However, most of these items cannot be ordered from the hospital stock list, and therefore makes it almost impossible to deliver an effective service
 - The Paediatric Sensory Integration (SI) area is still not accessible for patient treatment despite motivating since 2011 for the area to be renovated in order to be made an appropriate treatment area. It is therefore causing a significant gap in services offered in the Department as sensory integration should be offered at tertiary level service (TBH)
 - Storage space for mobility assistive devices is limited and therefore impacting on MAD ordering and the immediate issue of devices to patients, resulting in long patients' waiting list
 - Delays in procurement process affecting maintaining of adequate stock in the Department (wheelchairs, pressure garment material, consumables), therefore resorting to borrowing stock (e.g. splinting material and wrist braces) from the University of Stellenbosch and other hospitals, or to rebook patients. This had an impact on patient treatment/functional outcomes.
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PHYSIOTHERAPY

Head of Department Ms Anne-Marie Swart



Ms Anne-Marie Swart

Summary of activities

The job purpose of a physiotherapist is to provide a holistic clinical service consisting of curative, preventative, rehabilitative and health-promotive procedures in the fields of respiratory, neurology and orthopaedic therapy.

Clinical services provided by TBH Physiotherapy Department:

- Inpatient service to all wards of TBH (wards D4, J1 & J3 have sessional locum services)
- Limited afterhours and weekend duties
- Outpatient service to clients residing in the catchment area of TBH
- Outpatient consultation in complex cases referred from other physiotherapy clinics
- Outpatient monitoring of certain elective procedures, e.g. shoulder replacements
- Specialist Outpatient clinics: Hands Clinic, Craniofacial assessments

Education: The TBH Physiotherapy Department is involved in education and training of staff, students and the public through various programmes.

Resources

Posts (Full-time)	Number	Filled
Assistant Director	1	1
Chief Physiotherapists	4	4
Physiotherapists Grade 1 & 2	14	14
Community Service Physiotherapist	1	1
Sessional locum physiotherapy services		

- Staff turnover: 1 resignation + 1 new appointment + 1 transfer to TBH
- Head Office funded 2 additional Community Service placements for April 2016 - March 2017 – 1 person is a foreign qualified physiotherapist

Output

January to December 2016 statistics totalled 46 017 patient attendances (Inpatients and OPD) by TBH physiotherapy staff and students – and an additional 2 135 attendances from weekend duty.

GRAND TOTAL = 48 152.

Comment on output

- The total attendances for the last few years have remained fairly constant: 2015 (50 983); 2014 (50 274); 2013 (51 940) and 2012 (50 638) – which was interpreted as having reached our performance peak within the current resource capacity
- The decrease in total attendances for 2016 could be the result of a decreased number of students allocated to clinical blocks and an increase in staff absences for extended periods due to medical conditions/surgical procedures – which resulted in fewer hands physically available to do the clinical work
- There was also an increased demand on physiotherapy for student-related activities and to participate in postgraduate research projects
- High turnover of patients and quick discharges due to a high demand for beds continue to cause an increased pressure on physiotherapy services. Changes on the medical platform also adversely impact on physiotherapy service pressures

Part 2

Infrastructure development – upgrading, new equipment, etc.

- Equipment purchased: 1 ultrasound electrotherapy machine

Teaching and Training (under, postgraduate and elective students)

Staff

- Physiotherapy staff utilised the following training opportunities:
 - 2 new staff members attended the TBH Induction Programme
 - 3 new staff member attended the Public Service Induction Programme
 - Funding to attend courses: 3 staff members
 - Selected courses/lectures were attended during working hours
 - No staff member could attend WCG courses or be granted special leave to attend other coursed due to operational challenges
- 1 Kinetic Handling lecture and demonstration was given to TBH Nursing staff
- 1 Physiotherapy information session was presented at the Lung Unit COPD Day

Students

- Physiotherapy staff participated in a number of postgraduate research projects
- The Department accommodates undergraduate students from UWC and US Physiotherapy departments. Students are also accommodated on elective placements

Student Placements 2016	
University	Number of Students
US III	39
US IV	73
UWC III	Fourth years allocated to third-year placements – UWC request
UWC IV	52
Elective placements	7

- Training was provided to MB CHB final year students regarding Orthopaedic Physiotherapy Practice as part of their Orthopaedic Clinical Rotation at TBH

Public

- 1 Open Day for scholars interested in studying physiotherapy was held

Special achievements and other highlights

- Representation on committees/portfolios outside Physiotherapy Department:
 - Occupational Health & Safety Committee – involvement with OH&S Risk Assessments and Ergonomics Subcommittee
 - Transformation Committee – representative served as Vice Chairperson

SPEECH THERAPY AND AUDIOLOGY

Head of Department
Ms J. Birkenstock

Summary of activities

Assessment and management of adults and children with communication, swallowing and hearing difficulties. Services are provided to both in- and outpatients.

Areas of Service Delivery include:

Adult and paediatric dysphagia
Neurologically-based communication disorders
Paediatric developmental speech and communication disorders (0 - 6 years)
Autistic Spectrum Disorder
Cleft Lip and Palate
Head and Neck Oncology
Fluency disorders
Voice pathologies
Adult and paediatric diagnostic hearing assessments
Adult and paediatric hearing aid fitting and rehabilitation;
Neonatal hearing screening
Cochlear implant assessments and management
Parent and patient support groups

Wards covered:

A1, A2, A3, A4, A5, A6, A8, A9, C1D, D-G, D2, D3, D4, D5, D8, D9, F1, G-G, G1, G2, G3, G4, G5, G7, G8, G9, G10, J1, J2, J3, J7, H1/2X

Resources

Posts (Full-time)	Number	Filled
Speech Therapy & Audiology Clinic		
Assistant Director		
<u>Speech Therapists:</u>	1	1
Chief Speech-Language Therapist		
Senior Speech-Language Therapist	1	1
<u>Audiologists:</u>	3	3
Chief Audiologist		
Senior Audiologist	1	1
Senior Audiologist 5/8	3	3
	1	1 (June - Dec)
Cochlear Implant Unit:		
Chief Audiologist	3	3
Chief Audiologist 5/8	1	1
Posts (sessional – how many hours worked per week)		
Senior Audiologist 30 hours/week (Contract)	1	1 (Jan - May)

Output (Jan-Dec 2016)

Audiology: 8 887 visits/treatments (in- and outpatient)
Speech Therapy: 7 087 visits/treatments (3 308 outpatient; 3 779 inpatient)
Total: 12 160

Assistive devices issued:

State-issued hearing aids: 691 (615 patients)
State-issued FM systems: 0
State-funded cochlear implant systems: 16
State-funded cochlear implant upgrades: 5
Private/externally funded cochlear implant systems: 51
State-funded Voice Output Communication Devices (VOCD): 6

Comment on output

- Due to the limited number of posts at other levels of care, as well as vacant/frozen posts, our department received referrals for a large number of outpatients from within our catchment area. While audiological services are predominantly outpatient-based, inpatient speech therapy services are prioritised in the tertiary hospital context, with inpatient contacts now exceeding outpatient contacts. This has resulted in unacceptably long waiting lists for outpatient speech therapy services. Furthermore, the opening of the new Stroke Unit resulted in an increased number of inpatient referrals despite staff shortage. Further post creation at other levels of care is necessary to address this imbalance to allow for decentralised service delivery to both in- and outpatients
- Inpatient statistics for Audiology showed an increase subsequent to the re-initiation of the inpatient Neonatal Hearing Screening programme in Wards G1, G8 and J3
- Additional budgets for hearing aids as well as cochlear implants were provided by the Premiere's Special fund, in support of the Speech and Hearing Project, for the third consecutive year. The number of state-issued hearing aids decreased slightly due to an increase in the purchase price of hearing aids. The number of state-funded cochlear implants remained the same as for 2015, with a decrease in number since 2014
- Issuing of Voice Output Communication Devices was limited due to procurement difficulties
- Overall, the number of patient contacts has increased significantly. This highlights the need for post creation to meet an increasing demand on service delivery

Part 2

Faculty of Health Sciences

Infrastructure development – upgrading, new equipment, etc.

- Funding for low-tech Alternative and Augmentative Communication (AAC) allowed for the acquisition of colour printers and lamination material. Customised communication boards and books could subsequently be provided for nonverbal patients
- A speaker was installed to enable free field physiological testing of the paediatric hearing impaired population to assess hearing aid benefit

Community outreach programmes/community services and interaction.

- The Department interacts and liaises with NGOs that provide support services to paediatric patients on an ongoing basis. These NGOs include Hi Hopes and Autism Western Cape, which provide support to families of hearing impaired children and families of children with Autism respectively
- The Department works closely with the Down Syndrome Association Western Cape in the running of weekly Early Intervention / Parent Support Groups for children with Down syndrome and other developmental delays. Input is provided by both a speech therapist and a developmental facilitator
- The audiological management of hearing impaired children of school-going age with hearing aids, FM systems or cochlear implants includes school visits where necessary, in order to provide support and information to educators and children, as well as to increase community awareness regarding the impact of hearing loss on the school-going child. Both special needs schools and mainstream schools were visited
- Audiologists liaised with the Carel du Toit School and CHAT Early Intervention Centre on a regular basis and meetings occurred throughout the year for case discussions and planning

Partnerships

National:

- The Carel du Toit Trust has undertaken to provide financial support to facilitate the employment of a newborn hearing screener, thus facilitating the re-instating of the inpatient Newborn Hearing Screening Programme.
- The Cochlear Implant Unit has three satellite programmes which provide audiological management of patients. One is based in Bellville, one in East London (Frere Hospital) and one in Port Elizabeth (Port Elizabeth Provincial

Hospital). These satellite programmes receive ongoing technical and logistic support as well as training support from our Cochlear Implant Unit

International:

- Speech Therapy services to patients with craniofacial abnormalities, e.g. cleft lip/palate have been enhanced the support offered by the SMILE Foundation to the Craniofacial Unit of Tygerberg Hospital
- The Harry Crossley Foundation provided funding for a specialised speech therapy service for appropriate rehabilitation management of young children and infants who have received a cochlear implant. We are grateful for this source of funding so that this critical service can be offered to young implantees so as to ensure best possible outcomes and standard of practice. However, this is not sustainable and at least one permanent post is requested to ensure sustainability of this service
- The Bidvest Hear for Life Trust and the Netcare Hospital Group facilitated cochlear implantation for six children from disadvantaged communities

Achievements w.r.t research activities and research outputs

Two staff members are currently completing their Master's degrees, one involving Cochlear Implants and the other involving Quality of Life in young stroke survivors.

Teaching and Training (under, postgraduate and elective students)

- The majority of staff members were involved in weekly clinical supervision of Speech Therapy and Audiology undergraduate students from the University of Stellenbosch (US) and the University of Cape Town (UCT). UCT Clinical Audiology blocks included training in adult and paediatric diagnostic test procedures, as well as observation of Cochlear Implant surgery and mapping. US Clinical Speech Therapy blocks included training in early intervention, paediatric speech and language disorders, adult voice, dysfluency and audiology. Approximately 20 fourth-year Speech Therapy students and 30 third-year Speech Therapy students are accommodated in the clinic throughout the academic year
- Our department provides ongoing Clinical Audiology lectures to fifth-year US medical students on ENT rotation
- Elective students in Speech Therapy and Audiology from UCT and US were accommodated over a two-week period in July 2016
- All staff members were involved in formal and informal in-service training to TBH staff
- Lectures and clinical discussions on Cochlear Implants were presented to Audiology third-year students
- Members of the Cochlear Implant team provided presentations at a number of national conferences
- An ABR Review group was established to allow Audiologists from various centres to review and discuss complex paediatric cases

Special achievements and other highlights

- The Cochlear Implant Unit celebrated its 30th Anniversary in November 2016
- HPCSA Additional Training in Cochlear Implants: A course was presented by the Cochlear Implant Unit on 15 - 26 February and 14 - 18 March 2016. Eight students successfully completed the course
- A new service focussing on the management of patients with drooling was launched in collaboration with the Ear, Nose and Throat Department
- A provincial Dysphagia Service Coordination group was established to improve service delivery and continuity of care for patients with Dysphagia

Inpatient statistics per ward 2016

Ward	Actual Beds	Useable Beds	% Occ (a)	% Occ (u)	Cum. Admis	Total Admis	Ward Int Trans In	Cum. Disch	Total Disch	Deaths	Day Patients	Ward Int Trans Out	Inpatient Days	Patient Days	Avg Los
A1 Burns	22	22	83.6	83.6	268	256	12	266	207	51	3	5	6 839	6 841	25.7
A1 Surgical ICU	12	12	96.8	96.8	678	101	577	680	3	56	0	621	4 320	4 320	6.4
A10 Metab	14	14	49.9	49.9	551	435	116	551	480	0	9	62	2 595	2 600	4.7
A2 Thoracic Surg High Care	10	10	192.4	192.4	862	417	445	854	541	20	31	262	7 140	7 156	8.4
A2 Thoracic Surg ICU	14	14	12.2	12.2	321	32	289	322	5	8	2	307	634	635	2.0
A3H Orthopaedics	31	31	85.2	85.2	1 442	1 320	122	1 447	1 336	3	20	88	9 820	9 830	6.8
A3W Orthopaedics	31	31	86.7	86.7	794	649	145	797	681	12	3	101	9 996	9 998	12.5
A4E Neuro Surg + Thoracic Surg	31	31	67.0	67.0	928	402	526	937	672	31	4	230	7 720	7 722	8.2
A4W Neuro Surg High Care	18	18	99.0	99.0	892	451	441	902	459	23	6	414	6 626	6 629	7.3
A4W Neuro Surg ICU	12	12	21.5	21.5	225	92	133	225	1	65	0	159	961	961	4.3
A5E Respiratory ICU	7	7	69.1	69.1	435	178	257	431	6	101	1	323	1 799	1 800	4.2
A5W Internal Meds High Care	13	13	83.9	83.9	825	93	732	823	197	91	2	533	4 055	4 056	4.9
A6 Cardiology High Care	16	16	85.1	85.1	1 371	730	641	1 367	1 085	15	16	251	5 060	5 068	3.7
A6 Cardiology ICU	8	8	78.1	78.1	928	796	132	928	311	47	7	563	2 320	2 324	2.5
A7 Renal High Care	6	6	102.3	102.3	496	450	46	492	447	13	10	22	2 279	2 284	4.6
A7 Renal ICU	4	4	8.6	8.6	24	20	4	25	11	1	1	12	127	127.5	5.1
A8 Internal Medicine	28	28	88.5	88.5	1 018	11	1 007	1 018	834	103	1	80	9 214	9 215	9.1
A8W Dermatology + Neurology	27	27	68.1	68.1	713	472	241	721	542	21	58	100	6 810	6 839	9.5
A9 Neonatal ICU	8	8	130.1	130.1	441	210	231	440	25	88	0	327	3 872	3 872	8.8
A9 Paediatric High Care	4	4	23.1	23.1	108	6	102	108	4	3	0	101	343	343	3.2
A9 Paediatric ICU	10	10	79.5	79.5	659	231	428	657	24	58	0	575	2 957	2 957	4.5
A9 Paediatric Trachea	6	6	43.5	43.5	96	68	28	96	81	0	3	12	970	971.5	10.1
B5E Day Surgery	15	15	30.7	30.7	3 534	3 516	18	3 534	12	0	3 421	101	3	1 714	0.5
CID Resus	4	4	129.0	129.0	613	497	116	614	19	101	0	494	1 920	1 920	3.1
CID Trauma + Surgery	23	23	192.0	192.0	5 783	5 626	157	5 802	2 764	146	256	2 636	16 296	16 424	2.8
C2A East	12	12	78.8	78.8	490	167	323	491	187	0	1	303	3 519	3 520	7.2
C2A Labour Ward	19	19	147.8	147.8	9 685	7 558	2 127	9 682	388	325	134	8835	10 380	10 447	1.1
C2A Labour Ward High Care	4	4	84.3	84.3	518	101	417	520	10	30	0	480	1 254	1 254	2.4
D Ground - Psychiatry	14	14	81.9	81.9	199	56	143	198	183	0	0	15	4 266	4 266	21.5
D1 Vascular Surgery	22	22	95.3	95.3	845	435	410	851	553	28	12	258	7 797	7 803	9.2
D10 Internal Medicine	30	30	76.2	76.2	928	3	925	919	699	139	0	81	8 509	8 509	9.3
D2 Abdominal Surgery	31	31	78.2	78.2	1 590	809	781	1 585	1 086	35	11	453	9 012	9 018	5.7
D3 Plastic/Reconstructive Surg	25	25	68.9	68.9	1 508	1 237	271	1 510	1 384	2	44	80	6 387	6 409	4.2

D4 Private + Cardiology	29	29	57.2	57.2	1 057	725	332	1 069	903	12	33	121	6 155	6 172	5.8
D5 Abdom +Head/Neck and Breast	31	31	75.9	75.9	1 249	597	652	1 250	843	18	6	383	8 746	8 749	7.0
D6 Urology	32	32	70.9	70.9	1 267	889	378	1 264	1 138	22	12	92	8 434	8 440	6.7
D7 Ophthalmology	32	32	69.4	69.4	2 885	2 820	65	2 892	2 601	1	167	123	8 177	8 261	2.9
D8 Internal Medicine	28	28	83.0	83.0	1 238	920	318	1 252	1 046	72	66	68	8 615	8 648	6.9
D9 Internal Medicine	29	29	88.9	88.9	1 245	15	1230	1 246	963	139	6	138	9 589	9 592	7.7
DLG Psychiatry (GLG)	12	12	137.3	137.3	237	156	81	234	142	0	0	92	6 131	6 131	26.2
F1 Medical Emergency	20	20	188.6	188.6	9 503	9 068	435	9 507	3 323	430	642	5112	13 714	14 035	1.5
F1 Medical Emergency High Care	6	6	47.8	47.8	994	800	194	997	71	224	11	691	1 061	1 067	1.1
F2M Obstetrics Antenatal	34	34	78.9	78.9	3 481	1 695	1 786	3 493	1 331	2	65	2095	9 951	9 984	2.9
F4 Orthopaedics	32	32	81.6	81.6	972	831	141	976	859	16	30	71	9 703	9 718	10.0
FGR Gynaecology	24	24	84.0	84.0	1 747	1 459	288	1 730	1 452	32	48	198	7 472	7 496	4.3
G Lower Ground - Psychiatry	16	16	80.9	80.9	165	149	16	162	155	0	3	4	4 815	4 817	29.7
G1 Kangaroo Ward	0	0	0.0	0.0	2	2	0	2	0	0	0	2	3	3	1.5
G1 Neonatal Medicine	30	30	90.0	90.0	1115	502	613	1117	585	31	7	494	10 042	10 046	9.0
G10 Paed Infectious Diseases	30	30	67.4	67.4	695	400	295	695	591	13	14	77	7 510	7 517	10.8
G2 Neonatal Medicine	27	27	102.8	102.8	2 086	2 084	2	2 084	192	97	25	1770	10 310	10 323	5.0
G3 Paediatric Oncology	18	18	71.9	71.9	1 005	889	116	993	777	14	151	51	4 737	4 813	4.8
G4 Paediatric Surgery	27	27	69.4	69.4	1 565	1 057	508	1 562	1 369	1	84	108	6 929	6 971	4.5
G5 Ear, Nose & Throat	19	19	84.3	84.3	1 361	1 190	171	1 368	1 213	5	47	103	5 933	5 957	4.4
G6LM Paediatric Orthopaedics	25	25	72.5	72.5	875	821	54	882	825	0	25	32	6 733	6 746	7.6
G7 General Paediatrics	23	23	80.6	80.6	1 185	192	993	1 186	1 019	16	3	148	6 895	6 897	5.8
G8 Neonatology / KMC	30	30	87.6	87.6	1 012	23	989	1 014	939	3	1	71	9 775	9 776	9.6
G9 Paed Internal Medicine	30	30	69.2	69.2	1 453	980	473	1 454	1 202	7	92	153	7 679	7 725	5.3
GG Paediatric Emergency	24	24	60.0	60.0	4 637	4 620	17	4 638	2 539	17	372	1710	5 167	5 353	1.2
H1X Radiation Oncology	21	21	84.9	84.9	635	513	122	634	558	49	2	25	6 631	6 632	10.5
H2X Radiation Oncology	26	26	83.3	83.3	744	623	121	748	669	45	13	21	8 046	8 053	10.8
J1 Medical / Surgical	28	28	101.9	101.9	1 425	7	1418	1 426	953	152	1	320	10 615	10 616	7.4
J2M Obstetrics Post Natal	27	27	87.9	87.9	3 652	785	2 867	3 663	2 557	0	5	1101	8 824	8 827	2.4
J3 Neonatology	25	25	106.5	106.5	971	16	955	969	832	2	0	135	9 909	9 909	10.2
J4 Gynaecology	33	33	76.2	76.2	2 892	1 785	1 107	2 916	2 560	26	56	274	9 327	9 355	3.2
J5M Obstetrics Post Natal	23	23	78.1	78.1	4 599	214	4 385	4 598	4 373	2	157	66	6 600	6 679	1.5
J6 Orthopaedics	29	29	78.7	78.7	905	798	107	910	747	7	5	151	8 491	8 494	9.3
J7 Trauma Surgery	31	31	87.7	87.7	1 224	749	475	1 222	1 007	35	1	179	10 118	10 119	8.3
R1 West (PACU)	2	2	10.1	10.1	74	5	69	74	0	0	0	74	75	75	1.0
Report Total:	1 384	1 384	81.1	81.1	99 920	65 804	34 116	100 020	55 571	3 106	6 206	35 137	428 712	431 815	6.9

Service Groups per Attendance Code - 2016

SERVICE GROUPS	ANT	ATT	CANAPP	CND	DNA	NREC	WLK
Audiology	25	3 179	2	55	428	50	2 979
Clinical Psychology	31	1 344	3	28	82		1
Human Nut/Dietetics	1	393	2	1	258	168	
Occupational Therapy	264	4 509	29	179	2 199	1	1 212
Physiotherapy	9	2 674	71	607	509	50	77
Podiatry	12	697	1	7	149	20	21
Radiotherapy	71	10 792	6	27	10		1
Social Work	165	4 383	3	14	24	451	2
Speech Therapy	7	2 431	13	89	532	28	10
Speech Thy/Audiology		16		2		1	
Stomaltherapy RN	7	893	2	91	160		823
Grand Total	592	31 311	132	1 100	4 351	769	5 126

ANT: Attended not treated ATT: Attended and treated CANAPP: Cancelled CND: Cancelled on day DNA: Did not attend NREC: Not recorded

Service Groups per New & Follow Up – 2016

2016 DEPARTMENTS	TOTAL HEAD COUNTS		TOTAL ATTENDANCES	
	NEW	FOLLOW-UP	NEW	FOLLOW-UP
Audiology	3 123	3 595	3 350	3 753
Clinical Psychology	197	1 292	414	1 741
Human Nut/Dietetics	428	395	4 659	11 496
Occupational Therapy	2 414	5 979	4 938	13 577
Physiotherapy	872	3 125	8 957	39 561
Podiatry	147	760	150	773
Radiotherapy	838	10 069	1 250	15 768
Social Work	2 188	2 854	5 790	8 245
Speech Therapy	692	2 418	1 392	4 526
Speech Thy/Audiology	2	17	5	18
Stomaltherapy RN	173	1 803	646	3 405
Grand Total	11 074	32 307	31 551	102 863

Oupatients per New & Follow Up – 2016

Sub-speciality	NEW	FOLLOW-UP
Anaesthetics		1
Burns	209	424
Cardio Thoracic Surgery	664	918
Cardiology	5 548	19 675
Child Psychiatry	280	1 937
Clinical Haematology	39	298
Community Paediatrics		1
Dermatology	3 041	11 731
Diagnostic Radiology	44 191	82 611
Ear Nose and Throat	4 596	9 213
Emergency Medicine	5 549	2 600
Endocrinology	608	3 786
Gastroenterology	4 237	12 954
General Medicine	1 665	10 668
General Paediatrics	21	123
General Psychiatry	1 007	2 934
General Surgery	1	3
General Surgery Abdominal	3 117	3 823
Geriatric Medicine	39	304
Gynaecological Endocrinology	216	569
Gynaecological Oncology	1 630	2 520
Gynaecology	9 879	15 637
Head Neck and Breast Surgery	1 056	8 446
Infectious Diseases	623	9 037
Maxillo-Facial Surgery	45	0 198
Neonatal Medicine	358	3 454
Nephrology	523	13 554
Neurology	1 392	4 592
Neurosurgery	989	3 511
Nuclear Medicine	2 663	3 132
Obstetrics	9 423	46 572
Occupational Health	664	2 760
Ophthalmology	4 728	22 491
Orthopaedic Joint Replacement	1	7
Orthopaedics	5 854	25 504
Orthopaedics Hands	51	88
Paed Allergy	42	719
Paed Cardiology	223	1 343
Paed Clinical Haematology	52	381
Paed Clinical Immunology	20	244
Paed Dermatology		1
Paed Ear Nose and Throat	666	887
Paed Emergency Medicine	10 223	1 949
Paed Endocrinology	140	1 918
Paed Gastro-Enterology	69	803
Paed Human Genetics	127	538
Paed Infectious diseases	467	1 981
Paed Intensive Care		19

Paed Medical Oncology	132	3 270
Paed Nephrology	112	1 838
Paed Neurology	376	2 772
Paed Ophthalmology		38
Paed Orthopaedics	19	19
Paed Respiratory Medicine	84	1 769
Paed Rheumatology	29	469
Paed Surgery	1 166	1 058
Paed Surgical Oncology		1
Paed Thoracic Surgery		1
Pharmacy-Repeats Scripts	1 351	8 880
Plastic Reconstructive Surgery	1 637	3 623
Radiation Oncology	2 895	31 893
Reproductive Medicine	292	85
Respiratory Medicine	1 459	6 604
Rheumatology	376	5 296
Take On Specialty		1 041
Thoracic Surgery		4
Trauma	11 548	5 002
Urology	3 137	13 269
Vascular Surgery	1 075	3 273
Grand Total	152 624	427 064

Outpatients per Attendance Code – 2016

SPECIALITY GROUP	ANT	ATT	ATTC	CANAPP	CND	DNA	NREC	WLK
Gynaecology	169	14 447	14	196	340	3 541		12 121
Maternity	288	38 849		933	501	4 518	3	10 903
Medicine	1 213	125 434	3	3 087	2 252	29 531	124	44 628
Non Specialist as per DoH	329	41 489	1	789	553	4 676	24	90 213
Orthopaedics	529	19 707		251	164	7 032	10	3 850
Psychiatry	71	3 367		298	132	851		1 439
Surgery	1 388	62 545	47	1 704	1 230	19 501	14	24 389
Grand Total	3 987	305 838	65	7 258	5 172	69 650	175	187 543

ANT: Attended not treated ATT: Attended and treated CANAPP: Cancelled CND: Cancelled on day DNA: Did not attend NREC: Not recorded

Theatre Data – 2016

Theatre name	OVER 60 MIN	UNDER 30 MIN	UNDER 60 MIN	TOTALS
TBH C6AT UROLOGY/CYSTOSCOPY	1 957	3 172	1 433	6 562
TBH B1AB ABDOMINAL/NEURO/RECONSTRUCTIVE	1 355	39	110	1 504
TBH B3QR PAEDS SURGERY/ORTHO	628	39	129	796
TBH B3UV TRAUMA/ORTHO	1 276	35	220	1 531
TBH C1AT BURNS ADULTS	751	61	222	1 034
TBH C2AT OBSTETRICS	2 251	31	1 615	3 897
TBH C4B THEATRE	1 259	948	1 084	3 291
TBH C5BT DAY CASE SURGERY	1 049	1 258	1 307	3 614
TBH C8DT CARDIOLOGY CATHETER LAB	626	569	926	2121
TBH B1CD EMERGENCY/SURGERY	7 038	193	1 439	8 670
TBH CGW KOEBERG THEATRE	237	143	216	596
TBH B1EF CARDIO THORACIC	799	84	159	1 042
TBH B1GH ADOMINAL/PAEDS/VAS/MAMM	1 441	54	279	1 774
TBH B1J ENT	529	22	139	690
TBH B1IJ SHARED ENT+UROLOGY	703	259	170	1 132
TBH B3ST GYNAECOLOGY	818	17	126	961
TBH B3WX ORTHOPAEDICS	1 336	27	182	1 545
TBH B3YZ OPHTHALMOLOGY	912	256	998	2 166
Grand Total	24 965	7 207	10 754	42 926

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