

South Africa is close to eliminating iodine deficiency disorders

Iodine deficiency disorder occurs when there is a lack of the mineral iodine in the human body. A lack of iodine hampers the development of the brain in children and leads to goitre in adults. Severe iodine deficiency disorders may include mental retardation, cretinism, abortion and hypothyroidism.



A severe case of goitre in Northern Province.

"What's this? Mine is nothing. It isn't that large, you should see my aunt's." Marjorie Mongwe, deputy director for Nutrition in the Department of Health in Limpopo Province, relates a story of one woman comparing with another woman the size of her goitre in a remote clinic in that province.

This serious level of lack of awareness about iodine deficiency disorders is not as common as it was, however.

While in some areas of South Africa such as Limpopo Province, Mpumalanga and the North West Province, iodine deficiency still exists, leading to goitre and childhood mental and physical lack of





development, these cases are becoming more and more isolated. This is largely due to two factors: increasing awareness in communities; and salt producers taking the compulsory iodization of table salt more seriously.

Take the case of shy and petite 14-year-old schoolgirl, Phathutshedzo Phalanndwa of Tshitava Village in a rural area of Limpopo. She has the beginnings of goitre but you can't see it and it does not mar her delicate prettiness. Nor will it. It will not develop into a huge lump in her throat because through the education awareness campaigns from the local clinic and school, her family now realizes the importance of iodine in the diet. However, there is no gauging at present what effect iodine deficiency has had and will continue to have, on her academic performance.

It is June, midwinter. It is not a hot day by Limpopo Province standards but Phathutshedzo, standing in her classroom in her school uniform, white socks and black shoes, has broken out in beads of sweat from nervousness.

"They say [the Sambandou Clinic] I have an enlargement in my throat. I'm not sure what it is," she says.

Does she know that the lack of iodine in the diet leads to goitre? "Yes.



Phathutshedzo's 40yr old mother Tshinakabo, in Phalanndwa, Tshitara Village.

we are eating iodized salt," she says. And in response to what she feels about her mother's "lump", she looks sad and says: "No, I don't want to look like my mother."

Her mother, 40-year-old Tshinakaho, who has three other children, has a huge goitre, the size of a tennis ball. It's been there since 1984, she says. She is also unable to use her right hand because of stroke she suffered last year. It is too late for her to be cured. She has had it for too long, it is far too developed and she is not young enough for the present iodized salt in her diet to make a difference. She sits outside her mud hut in her village and in a desultory way watches her two young children play.

"We were not having any knowledge that the coarse salt we were using was the main cause of goitre. We now know about iodized salt, we are using it," the soft-spoken Tshinakaho smiles.

She says that while her goitre doesn't hurt, she would like to have it treated or extracted through an operation but she was told she would have to go to a hospital, which was quite a distance away, a good 100kms. The last time she made enquiries about such an operation, she was turned away because she was pregnant at the time.

So then does it worry her, in terms of her looks? She laughs, a bit unsure, then says "no" very softly. Does it bother her husband? "He hasn't asked me to remove it," she replies. But even more importantly, what is she going to do about the beginnings of goitre in her young daughter, Phathutshedzo?

She says that she will have to get her daughter treated soon by taking her to the hospital to ask for advice.

Head nurse of the Sambandou Clinic Grace Khavhadi estimates that there are about 70 cases of goitre in the surrounding area, which she concedes is much lower in the past two years than in previous years.

Male nurse Mashudu Vele at Sambandou Clinic confirms this. He has seen only about 12 cases over the one year he has worked at the clinic. "People are listening about iodized salt, since our awareness campaign last year. Personally I don't prefer to teach, I prefer one to one talks. Sometimes people say they become voiceless, they get worried, I refer them right away to the hospital because I suspect iodine deficiency. When people come in with swollen necks, we ask what salt they are using in their food. We often find that it is coarse un-iodized salt. But now the word is spreading," he says.

Goitre is one of the most obvious signs of iodine deficiency disorders. But what is even more serious is the effect of iodine deficiency in babies and young children. Goitre is terrible in adults but the problems of the deficiency are much more serious with children, says Dr Pieter Jooste, chief specialist scientist of the Nutrition Intervention Unit of the





Medical Research Council, in Cape Town. After examining both mother and daughter he says of the young teenager: "She will get away. It's too late for her mother."

Children and IDD

Jooste's primary concern is about the effects of iodine deficiency on the mental development in children. To this end he is passionate about educating salt producers in the country about iodization.

Severe iodine deficiency can cause the death of a baby. In other cases it causes impaired development of the unborn baby, abortion, still births, low birth weight, cretinism (stunted physical and mental growth), learning difficulties, reduced intelligence and goitre as an older child and then adult.

"Between 10 to 15 IQ points could be lost due to iodine deficiency. Iodated salt is the most effective health solution in the long term. The intervention we are aiming at is to have optimum iodization, which is between 40-60 parts per million (ppm) at the site of salt production. Secondly, we have to continue to raise awareness on the ground through education campaigns in the community and in the school curriculum. Thirdly, we need to assist salt producers in the process towards optimal salt iodization."

According to the last survey conducted in South Africa in 1998 by the MRC, 63% of all households used iodized salt. Before the 1995 legislation making it mandatory for all salt producers to iodize table salt between 40-60 parts per million (ppm), less than a third of table salt used in South Africa was iodized.

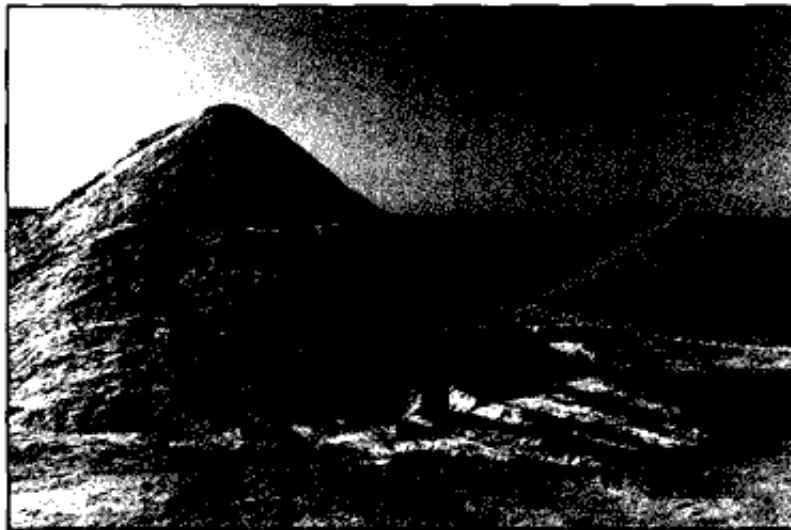
Jooste has been key in South Africa in visiting every producer iodizing salt in the country to spread awareness. In a quiet unassuming way, he has made enormous progress. All the producers he meets tend to generally open up to him. They read the pamphlets, booklets and other IDD information he sends them and they have watched the videos on IDD.



Dr Pieter Jooste MRC.

Salt producers

George McDonald, employer of about 50 workers as a manager of a large, very old (arguably over millions of years), salt pan called Bergpan Saltworks, in Soutpansberg, Limpopo is not iodizing salt.



Soutpansberg, Limpopo.

Yes, he does understand the need for iodization. Yes, he has read the literature sent to him from the MRC. Yes, he does agree that iodization of salt is a good idea. But?

"Well at this stage we are not iodizing. As nature made it, so we use it. Look at me, I use the same salt, I put it in a grinder and use it with my food, and I'm fine and strong. Our salt is for the boets (farmers), they use it for their cows, for digestion and helps hydration."

Majorie Mongwe is sceptical: "Make no mistake, his salt is getting to peoples' food tables. Many kids are being fed with this salt. I don't believe that this is just for cattle feeding. Street vendors are buying from here, I think, and what about all these workers, they probably get a bag to take home for free," she says.

Maude de Hoop of the National Health Department says: "It's so important to spread awareness. That's what we are keen on doing in the Health Department. So much of what we have seen in the provinces, which show a high incidence of IDD show a lack of awareness. The other problem, of course, is that many people buy from vendors who say the salt is iodized but often isn't."





However, De Hoop was pleased to discover that at the John Mbulaheni Supermarket in the Vhembe District that the packets of salt, all of which were labeled "iodized" did indeed all contain iodine.

All seven bags of salt, under different packaging, showed traces of iodine through the rapid results method of testing of the MRC. However, the rapid results method could not show what the concentration of iodine was.

Jooste does not believe that the Bergpan salt producing operation is a lost cause. He feels that it is a process of awareness and sooner or later iodization will take place at the salt mine.

Standing in stark contrast to McDonald's operation in Limpopo, is the Oranje Soutwerke of Upington in the Northern Cape with factory manager Pieter Prins and administrative manager Danie van Zyl. It is one of the biggest salt producers in the country.

The company has been iodizing salt since legislation made it compulsory to do so. The pan employs about 100 people, produces about 5000 tons per month of which two and a half thousand is iodated using potassium iodate. The Oranje Saltworks supplies Gauteng, KwaZulu-Natal, Limpopo Province as well as Namibia with salt, which accounts for 99% of their demand.

Is this salt producer iodizing because they are complying with legislation, or are they concerned about public health or is it plain business, customer demand?

Prior to the legislation, "it was becoming more of a request from the customers", says Van Zyl. He says that since 1995, the factory pan is visited at least twice a year from the provincial health department. The government officials have expressed satisfaction with the factory's compliance with the legislation, he says.

Van Zyl and Prins say the company picked up the cost of the iodization, instead of the consumer because "the market is price sensitive". Van Zyl says that while it is not a complicated process to iodate, it has entailed the following costs: labour, capital investment, monitoring process, and the potassium iodate itself.

The salt producers do not believe it is their duty to promote the use of iodized salt. "No, there is no need for us to promote this. We are in the business to provide what the customers want. They are asking for iodized salt."

Their companies own laboratory test, performed in front of all of us, showed an iodization rate of a significant 50 ppm. An essential piece of equipment for the analytical process, critical for the iodization of salt, cost the company R32 000, says laboratory analyzer, Mias Steenkamp.

Walking through the maze of hundreds of thousands of bags of salt in the factory, packaged with different names and in different colours, Van Zyl points to several different packages of refined iodized salt and quips about the quirkiness of customers:

"Some clients say they want that particular bag of salt, the green or blue package, it tastes better. But it's all the same salt, one can't taste better than the other."



Salt factory in Northern Cape.

Reassuringly, all Oranje Saltworks hundreds of bags were stamped with the date of production as well as labeled refined or non-refined, coarse, non-coarse, iodized, non-iodized. At the biggest supermarket in Uppington, the Pick n' pay, the rapid result test proved positive for iodine for all bags of salt on the shelf.

However, health and nutrition experts from the MRC and the Department of Health are geared up not to be complacent just because there has been so much progress over the past seven years. The battle to promote awareness of the benefits of iodized salt is far from over they say. To strengthen awareness, on IDD and the benefits of iodated salt, the Department of Health developed a poster and pamphlets for consumers, health workers and salt producers.

Some of the problems that still exist in the rural areas of Limpopo, Mpumalanga and North West Province according to the health and nutrition specialists involved in the promotion of iodized salt are:

- ❖ the non-iodization of salt by some producers
- ❖ the use of non-iodized agricultural salt for domestic purposes
- ❖ the problem of repacking in spaza shops by vendors who buy coarse salt and sell as iodized salt
- ❖ the need to create aware communities who will demand only iodized salt
- ❖ Instead of complacency developing there must be continued monitoring and surveillance of the problem to ensure sustainability of optimal iodine nutrition.

The predictions are that given South Africa has made such huge progress in the iodization of salt, over a mere seven years, it could easily be eliminated over the next decade.

"But", warns Jooste, "this is not a once-off, the iodization of salt must





continue forever. I would like to see more than 90% of all households use adequately iodized salt if we have to eliminate iodine deficiency completely in South Africa." Iodine deficiency is the most common preventable cause of mental deficiency and brain damage in the world today, he says. "As a general point we must not be critical and negative, we must be positive and constructive, through various interventions enormous progress has been made," Jooste adds.

Equally positive and optimistic is Joan Matji, nutrition officer for Unicef in South Africa.

"Unicef and the World Health Organization advocated for the use of salt as a vehicle to deliver iodine at the World Summit for Children in 1990. Development goals were established. All countries including South Africa embraced these goals to eliminate iodine deficiency. South Africa is doing this with great success. There are few pockets in different provinces where the message has not yet reached some people.

MRC findings: Nutritional Intervention Research Unit, August 2001

- ❖ Within one year of compulsory iodization of table salt in 1995, the iodine content of salt available in shops in three of the nine provinces more than doubled, from an average of 14 ppm to 33ppm.
- ❖ This average increased to 42 ppm over the next two years.
- ❖ 19,2% of salt packages on retailers shelves still had an iodine content of less than 20 ppm
- ❖ Of the 74 salt companies registered with the Department of Minerals and Energy, 12 producers, some representing groups of salt companies, are currently iodizing salt for human consumption
- ❖ However, the coverage of iodized salt improved from a situation before compulsory iodization where only 30% of table salt was iodized, to a situation where 63% of households in the country were using adequately iodized salt.
- ❖ Up to 20% of people in vulnerable groups from three provinces (Mpumalanga, Limpopo and North West) are using poorly iodized salt and non-iodized salt, meant for agricultural purposes in their food.
- ❖ Evidence of improved outcomes from the iodization of table salt was seen in primary school children. In four communities of the Western and Eastern Cape. Their iodine status improved dramatically within one year after the introduction of compulsory iodization. But the goitres in these children are taking longer to recover.