

Towards elimination of iodine deficiency Disorders by salt iodization in Cameroon

D. Sibetcheu*, M. Nankap*, M. Gimou** and B. Kollo*

* Directorate of Community Health, Ministry of Public Health, B.P. 11058 Yaoundé ; ** Centre Pasteur du Cameroun

INTRODUCTION

Iodine Deficiency Disorders (IDD) are of public health importance in Cameroon. A National Baseline Survey carried out in 1991 showed that the clinical prevalence of total goitre varied widely all over the country from 0.2% in Limbe, South-West Province to 75% in Doukoula, Far North Province. In 1991, 6 Million Cameroonians were estimated to be at risk of IDD and seven provinces out of ten were found to be regions of severe endemicity for goitre. With a national average of 29.4% Cameroon is classified as a region of moderate endemicity of goitre.

To tackle this critical problem, the Ministry of Public Health launched a National Programme to Fight against Iodine Deficiency Disorders in 1991 with the support of the salt factory called SELCAM in collaboration with the Faculty of Medicine. The strategies used were the fortification of salt with potassium iodate and the Information, Education and Communication with consumers, retailers and wholesalers.

Before the implementation of the Programme, the Minister of Public Health also signed on May 29th, 1991 a decree on the use of iodized salt to prevent iodine deficiencies disorders in Cameroon. The Ministry of Public Health and the Ministry of Trade and Industry gave facilities to SELCAM for importation and installation of a salt iodization unit. This factory started the production of iodized salt in 1990. At the beginning 40,000 tons of iodized salt at 100 ppm were produced. This production covered the national need and part was exported to the neighbouring countries. The iodized salt was marketed in Cameroon since May 1991.

The SELCAM factory was the only one producing the iodized salt in Cameroon until 1993. Since then trade was liberalised and many others traders were involved in the importation and the production of iodized salt. Today two local factories are involved in the production of iodized salt in Cameroon (SELCAM and SOTRASEL).

Our annual evaluation in 1998 showed 5 main types of iodized salt produced locally or imported from different countries such as France, Nigeria and Sénégal.

OBJECTIVES

The programme objectives are:

- to provide at least 85% households by the year 1998 with iodized salt containing more than 30 ppm and to reach a 90% coverage by the year 2000.
- to ensure quality control of salt in Cameroon at all the levels of distribution from factory/importation to households via wholesalers and retailers.

METHODOLOGY

After launching the Programme, a monitoring system based on the sentinel site principle was set up. Three methods was used in this monitoring system:

- A field test kit for iodated salt (MBI) with the graduation 0 – 100 ppm for annual evaluation. This is used for salt quality control from production/importation up till the household level through retailing and wholesaling. From 1992 to 1994, 17 sentinel sites spread over the country were involved. After the training of salt controllers in 1996, about 200 sentinel sites were set up over the country. Initially control was monthly after the training of controllers till 1997. When 85% of households started having access to salt iodized at more than 30 ppm, the control became quarterly as from 1998. The annual monitoring was completed by a national survey on the availability, quality, price and distribution of iodized salt in Cameroon conducted in 172 sites in 1995.
- Clinical and biological evaluation using respectively prevalence of goitre (size of thyroid) and urinary iodine in a sub-sample of school children aged 10 to 18. An impact evaluation was carried out in 1995 in two hyperendemic and isolated sentinel sites. Urine samples were collected in relevant lab tubes, kept in the field cooler and sent immediately to the lab for analysis. The method used for

Table 1: Trend in the availability of salt at the household level

Iodization level(ppm)	1992 n = 197	1993 n = 231	1994 n = 849	1995 n = 640	1996** n = 1766	1997 n = 1671	1998 n = 3059
0	33.5%	21.5%	13.7%	8.5%	23.7%	11.5%	3.8%
> 29	53.4%	57.9%	80.9%	82%	68%	81.5%	90.2%

** This is due to the existence of a trade mark of salt iodized with potassium iodide which tests negative with the iodine test kit used. This kit is sensitive only to potassium iodate.

analysis was the Sandell Kolthoff reaction based on the digestion with chloric acid. Another impact evaluation study is planned for this year 2000.

RESULTS AND ANALYSIS:

The monitoring system since 1992 and impact evaluation carried out in 1993 and 1995 are showed in table 1 and 2.

We observed from 1991 to 1998 :

1. An increase from 53,4% to 90,2% of the number of households receiving iodized salt with more than 30 ppm;
2. A decrease from 33,5% to 4,4% of the number of households receiving salt without iodine.

The study carried out in 1995 in 2 isolated sentinel sites which shows that the improvement of the households coverage with iodized salt had as consequence the reduction of prevalence of goitre and the increase of the rate of urinary iodine.

Five years after the beginning of salt iodization the mean urinary iodine level in Oshie sentinel site reached WHO/ICCIDD/UNICEF cut off point of no iodine deficiency disorders.

Analysis of table3 shows that almost 60% of children are without any iodine deficiency according to the criteria of WHO/UNICEF/ICCIDD for evaluation of the gravity of iodine deficiency.

According to these criteria when the proportion of urinary iodine with a level of iodine below 100µg/l is less than 50%, the situation is considered as normal. In those two isolated hyper endemic sites, 59.4% of samples have the level of urinary iodine with more than 100µg/l. This is proof of a significant reduction of the gravity of iodine deficiency in Cameroon.

CONCLUSION

Since the launching of the National Programme to Fight against Iodine Deficiency Disorders with iodized salt, its monitoring has enabled us to appreciate:

- a progressive improvement in the coverage of households with iodized salt;
- a significant reduction in the prevalence of total goitre rate;
- net improvement in the urinary iodine level.

This successful result is due to the Close collaboration between the Ministry of Public Health, the Ministry of Trade and Industry, Salt Industries and the Faculty of Medicine.

However, regular monitoring and impact evaluation are necessary to confirm this tendency.

If this tendency is confirmed, then Cameroon is progressively and surely attaining one of the objectives of the World Children Summit to eliminate iodine Deficiency Disorders by the year 2000.

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Table 2: Evolution of prevalence of goitre and urinary iodine in sentinel site of Oshie (North West province).

Variables	1991	1993	1995
Size of the thyroid			
Prevalence of goitre	64.2% (n=405)	38.9% (n=561)	21.1% (n=394)
Urinary iodine			
Mean iodine level µg/l	69 (n=60)	70 (n=49)	104 (n=153)

Table 3: Results of lab analysis of 251 urine samples collected from 2 sentinel sites of Oshie (North West Province) and Betare Oya (East Province) in 1995

Urinary iodine µg/l	Number (n = 251)	%
< 20	2	0.8
20 - 49	19	7.6
50 - 99	81	32.1
> 100	149	59.4
Total	251	100

Mean = 143 µg/l, Median = 112 µg/l

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