

THE WORLD BANK GROUP ARCHIVES

PUBLIC DISCLOSURE AUTHORIZED

Folder Title: National Health Project - The Gambia - Credit 1760 - P000812 - Drugs

Folder ID: 30159514

Project ID: P000812

Date: 8/8/1985 – 9/12/1985

Fonds: Records of the Africa Regional Vice Presidency

ISAD Reference Code: WB IBRD/IDA AFR

Digitized: 10/2/2018

To cite materials from this archival folder, please follow the following format:

[Descriptive name of item], [Folder Title], Folder ID [Folder ID], World Bank Group Archives, Washington, D.C., United States.

The records in this folder were created or received by The World Bank in the course of its business.

The records that were created by the staff of The World Bank are subject to the Bank's copyright.

Please refer to <http://www.worldbank.org/terms-of-use-earchives> for full copyright terms of use and disclaimers.



THE WORLD BANK
Washington, D.C.

© International Bank for Reconstruction and Development / International Development Association or
The World Bank
1818 H Street NW
Washington DC 20433
Telephone: 202-473-1000
Internet: www.worldbank.org

 **Archives**  **30159514**
R1992-161 Other #: 2 21272B
National Health Project - The Gambia - Credit 1760 - P000812 - Drugs

DECLASSIFIED
WBG Archives



GAMBIA - Drugs

OFFICE MEMORANDUM

DATE : September 12, 1985

TO : Mr. Michel Beguery, WANVP

FROM : Nancy Birdsall, Chief, PHNPR

EXTENSION : 61581

SUBJECT : Proposed Population, Health and Nutrition Project in The Gambia

This note describes briefly the drugs and consumables component of the proposed Population, Health and Nutrition project in The Gambia. The component would be suitable for cofinancing by the Italian Government. The total project budget is \$10 million, including \$3 million from IDA, \$4 million from the African Development Bank, and \$1 million local financing. We are currently seeking \$2 million additional financing to cover the drug component; the \$2 million should be on a grant basis.

There are several other portions of the project covering vehicles, spare parts and hospital equipment. These would amount to approximately \$1 million and are not yet fully costed. Cofinancing for these could also be arranged, but would be more complicated.

The project is designed to avoid adding in any way to the existing recurrent cost burden in the health sector, and includes on the policy side measures to strengthen cost recovery efforts in the sector, including charges for drugs. The following two paragraphs are from the May 1985 project brief.

Annual consumption of drugs is now about \$250,000, averaging about \$0.30 per capita compared to the WHO estimate of \$1.50 per capita necessary to cover essential drug needs. In addition to an overall shortage of funds, there is a foreign exchange constraint, since all drugs are imported. About 60 percent of current imports are covered under a swap arrangement with WHO (the maximum foreign exchange WHO can provide being set at its annual total spending in local currency); the remaining 40 percent is procured on an ad hoc basis under analogous swap arrangements with local branches of multinational companies, or directly from local private importers (in the latter case with a large mark-up, presumably to cover credit risks and a premium for the foreign exchange).

The project would provide \$2.0 million over the five-year period to finance drugs as well as dressings and other expendables. The amount of additional consumption this would permit depends on the degree of cost recovery that could be achieved, as well as the extent to which local revenues raised by charges could be transformed into foreign exchange. For example, an increase in annual consumption of publicly-supplied drugs to about \$750,000, three times the current level, could be achieved with a 40 percent rate of cost recovery (i.e., about \$300,000 a year or less than \$2 per capita -- 8 dalasis) and a continuation of general revenue funding of about \$250,000; the initial allocation of \$1 million would then be disbursed over 5 years to cover the remaining \$200,000 per year shortfall. The exact arrangement depends both on better estimates of what amount of drugs could be efficiently distributed, and of what amount of cost recovery would be appropriate. (This scenario does not take into account population growth, nor does it resolve the long-run foreign exchange problem -- the swap arrangements described above would have to be augmented in order for charges to the populace in local currency to be used for imports.)

cc: Mr. Landell-Mills (WA2DB), Mss. Bruns (WA2DB), Husain, Fogle (PHND2)

NBirdsall:am



copy to Bruins

Téléphone Central/Exchange: 91 21 11
Direct: 91 35 15

In reply please refer to: (The Gambia)
E19/445/3 GAM
Prière de rappeler la référence:

Ms N. Birdsall
Chief
Policy & Research Division
Population, Health & Nutrition Dept.
The World Bank
1818 H. Street, N.W.
Washington, D.C. 20433
Etats-Unis d'Amérique

8 August 1985

Dear Ms Birdsall,

Thank you for your 19 July 1985 letter. I am afraid I cannot give you much additional information on WHO's assistance to The Gambia with foreign exchange up to amounts of local WHO expenditures. I believe it has happened two or three times. To my knowledge it has been more or less emergency undertakings in which the WHO Coordinator in The Gambia has requested the WHO Regional Office in Brazzaville (AFRO) to release Gambia allocated funds in order to purchase the drugs. AFRO has then contacted WHO Headquarters asking the HQ Supply Division to buy the drugs. The procedure is usually long, rather cumbersome but was at times the only recourse for The Gambia to get the very much needed drugs. Furthermore when drugs are bought "in a panic" the prices are usually not optimal. We have not done an assessment, neither, I believe, has AFRO. I think that the Government of The Gambia would greatly benefit from the World Bank financing the foreign exchange costs of drug procurement, assuming that some degree of cost recovery is possible. Such financing would assure foreign exchange funds on a continuous basis.

at hand // Under separate cover and by air mail I have sent you two WHO duty travel (1982 and 1984) reports from The Gambia and Mr Battersby's report from his 21-29 January 1985 mission.

Yours sincerely,

M. Helling-Borda
M. Helling-Borda (Mrs)
Senior Scientist
Action Programme on Essential Drugs

(Dictated by Mrs Helling-Borda
but sent in her absence)

INCOMING MAIL UNIT

1382 VNE 18 19 1: 32

RECEIVED

MHB/SF/mr



copy to Bureau

Téléphone Central/Exchange: 91 21 11
Direct: 91 35 15

Ms N. Birbasall
Chief
Policy & Research Division
Population, Health & Nutrition Dept.
The World Bank
1818 H. Street, N.W.
Washington, D.C. 20433
Etats-Unis d'Amérique

(The Gambia)
E19/445/3 GAM

In reply please refer to :
Précis de raporter la référence :

8 August 1985

Dear Ms Birbasall,

Thank you for your 19 July 1985 letter. I am afraid I cannot give you much additional information on WHO's assistance to The Gambia with foreign exchange up to amounts of local WHO expenditures. I believe it has happened two or three times. To my knowledge it has been more or less emergency undertakings in which the WHO Coordinator in The Gambia has requested the WHO Regional Office in Brazzaville (AFRO) to release Gambia allocated funds in order to purchase the drugs. AFRO has then contacted WHO Headquarters asking the HQ Supply Division to buy the drugs. The procedure is usually long, rather cumbersome but was at times the only recourse for The Gambia to get the very much needed drugs. Furthermore when drugs are bought "in a panic" the prices are usually not optimal. We have not done an assessment, neither, I believe, has AFRO. I think that the Government of The Gambia would greatly benefit from the World Bank financing the foreign exchange costs of drug procurement, assuming that some degree of cost recovery is possible. Such financing would assure foreign exchange funds on a continuous basis.

Under separate cover and by air mail I have sent you two WHO duty travel (1985 and 1984) reports from The Gambia and Mr Batterby's report from his 21-29 January 1985 mission.

Yours sincerely,

[Handwritten Signature]

M. Helling-Borda (Mrs)
Senior Scientist
Action Programme on Essential Drugs

(Dictated by Mrs Helling-Borda
but sent in her absence)

INCOMING MAIL UNIT

1985 AUG 19 PM 1:35

RECEIVED

MHB/SF/mr

file: Gambia/Drugs B.S.
- From En F.

DISTRIBUTION OF ESSENTIAL DRUGS IN THE GAMBIA

by E. Farkas, Chief Pharmacist, The Gambia

The WHO model list of essential drugs was met with surprise, indignation and opposition in 1977. Physicians felt that their freedom to prescribe and to choose among thousands of brand name products was threatened; pharmaceutical companies feared the loss of considerable profit and the implied restriction on investment in research and development of new pharmaceutical products.

The concept stood the test of time and is increasingly accepted as the rational basis for selecting drugs for use at various levels of the health care delivery system. In recent years more than 80 countries in the Third World have adapted the WHO guidelines to their national drug policies to achieve two critical objectives: getting the maximum health benefit from funds to purchase and supply drugs and vaccines; and making sure that medicines are available to treat the most common diseases in the country on a regular basis. The Action Programme on Essential Drugs and Vaccines is becoming a worldwide effort, with many partners involved. Countries decide for themselves on the pharmaceutical policy they want to pursue. Many of them have chosen an essential drug policy working closely together with WHO, or other external technical collaborating agency to formulate new ways of selecting drugs, establishing procurement, storage and distribution systems and training of staff.

In 1982 at the request of the Gambia Government, AFRICARE advised on the introduction of a new inventory system in The Gambia. Major problems identified before the programme started were as follows:

1. The rural population did not have equal access to health services or pharmaceuticals.
2. The pharmaceutical management and distribution system was greatly outdated for the existing network of government hospitals, health centers, dispensaries.
3. The procedure for approving the Medical and Health Department's annual budget, making funds available, sending out drug tenders and selecting and paying vendors presented a number of operational problems for the Medical and Health Department.
4. The recordkeeping and information system did not easily supply current information from which to determine by item annual pharmaceutical needs. Orders were based upon somewhat general assessment of stock-on-hand at the Central Medical Stores and similar assessments of future needs.
5. Inadequate systems existed for the Director of Medical Services to supervise key functions of the Central Medical Stores.
6. Storage of pharmaceuticals at the Central Medical Stores and the Royal Victoria Hospital was inadequate considering the hot and humid climate of the country. The physical arrangement of supplies in the storeroom was not conducive to efficient stock location, retrieval and rotation.
7. The system for pharmaceutical distribution did not take into account the relative population base or disease patterns served by the health units.
8. There was a shortage of qualified manpower to operate the pharmaceutical system, namely one hosp. pharm. for Government Services.

To eliminate all the above mentioned problems is naturally impossible in a 2 1/2 year period, but the improvement has been considerable and there are grounds for confidence that in the near future the goals set together with AFRICARE will be met: to improve the health status of the rural population through the better distribution of Essential Drugs, within the financial capabilities of the country.

Before getting into details of the new inventory system based on a kardex stock control system - we will go through the improvement clearly seen today.

1. The rural population today have better access to pharmaceuticals due to the new distribution system and the development of village health services. Each health unit is supplied on a two month basis with established quantities of drugs.
2. The Pharmaceutical management and distribution system has improved greatly. Issues are made to Health Centres and Dispensaries every two months, to Bansang Hospital once a month, and to Royal Victoria Hospital every two weeks. The original policy of refusing supplementary issues is being vigorously enforced. Improvement is even more marked since the Mansakonko Regional Stores has been opened; this supplies six health centres in the Central Region. Another Regional Store will be opened soon in Bansang, which will ease transport problems in supplying the far end of the country from Banjul.
3. The procedure for ordering yearly supplies is somewhat improved, considering the operational problems two years back. 60% of our drug orders are placed through WHO, paid in local currency into their local account. There is a limit to this facility, set by the size of the WHO budget and the proportion of it that is spent in local currency, but it eliminated tendering procedures and problems with payments in foreign exchange. The rest of our supplies are purchased through local importing agents, but the prices charged are on an average 40% higher than the cost would be of direct imports paid in hard currency.
4. The present system allows for the determination of drug requirements based on current use. With the addition of data on morbidity and financial resources, it will be possible to bring actual use closer to implied need and ability to pay for drugs.
5. The system is, in principle, adequate for the supervision of the key functions at the Central Stores level, and with a few additional changes, for the Regional level as well.
6. Storage of pharmaceuticals today is improved. An airconditioned cold room has been installed at the Central Medical Stores and in the two Regional Stores. The design of the physical arrangement in the cool room as well as in the storeroom was to place supplies in alphabetical order on the shelves, which would simplify location and retrieval. To ensure regular rotation in the storeroom, cartons are labelled with the name of the drug, quantity and expiry date. No carton should be unlabelled or without expiry date.
7. AFRICARE proposed stock levels, based on morbidity statistics, relative population numbers and disease patterns. Each health unit has its individual stock level quantities, which are replenished every second month. These established stock levels are under review right now, to accord better with the financial capabilities of the country.

8. Our qualified manpower shows a significant improvement. In 1981, when AFRICARE started with the programme, there was only one pharmacist in the Government service. Today there are two hospital pharmacists and one chief pharmacist.

The system is based on the essential drug list suggested by WHO. Items have been reduced to 250 and the drug vocabulary for the Central Medical Stores is reviewed each year eliminating the lesser used drugs or the ones which are considered not essential.

The drug vocabulary is divided in 6 sections: oral preparations, cold room miscellaneous, injectables, large volume parenterals, refrigerated items, and external and compound agents. Each item held as a stock item by the Central Medical Stores is assigned a special and individual index number, which can be found in the bin cards which are located at the proper storage location of the product: on the receipt voucher on which each reviewed item is entered; on the tally cards which are updated upon the receipt of a stock item or prior to approval of issuance; on the stock item history card which shows a 5 year turn over of the particular item; on the inventory control card which is the double check to the tally card; on the kardex label inserts in the kardex file; on the combined requisition and issue note which allows health units to order items not previously printed on the standard requisition note; and finally it appears on the pre-printed standard requisition issue note.

Upon receipt, the item will be checked by the storekeeper, comparing invoice and receipt quantities. The item will be entered by him on the receipt voucher registering the date, supplier's name, index number of item, name of item, quantity received intact, damaged or missing, expiry date, and individual price. The receipt voucher is then passed over to the supply officer who enters on the tally card the date, the supplier's name, the receipt voucher's number, quantity received and the balance of the item. The same receipt voucher then goes to the clerk, who enters on the stock item history card and on the inventory control card all information from it, including price and date. The balance on the tally card and on the inventory control card should be the same and corresponding with quantities held in stock.

AFRICARE suggested an additional procedure in order to control orders placed and received. The stock item history card could give information on the time elapsed between orders being placed and received, but due to problems in the ordering procedures, this task has not yet been instituted.

The issue of CMS items is in accordance with the established and approved stock level quantities for each health unit and completed on a scheduled basis. Regional stores and health units submit orders every second month, Bansang hospital every month and the Royal Victoria Hospital every two weeks.

Stock level quantities have been established on the basis of twice the amount used in between orders. At the beginning of the assigned month, health units fill the standard requisition notes out, indicating their stock level quantities and the on hand quantities. The ordered quantities must not exceed the stock level. About two weeks before the order is due, standard requisition notes must reach the Central Medical Stores, where the assigned supply officer reviews the order, and the issued quantity is entered on the requisition note as well as on the tally and on the inventory control card. The clerk will post each item and enter the unit and total costs for each item on the standard requisition note and the supply officer then prepares the order according to the quantities written as issued. The supply officer might reduce quantities if Central Medical Stores stocks are low. Orders are packed in cartons for each health unit separately and kept in the cool room until transport is available.

As mentioned before, the new system could not solve all our problems. Outstanding problems include the following:

1. In spite of the two monthly supply to the health units, they run out of drugs weeks before the new supply arrives due to the fact that the Central Medical Stores cannot supply them with the established quantities, being low on stock at the central level too. This phenomenon will be explained later on.
2. The pharmaceutical management and distribution system together with the ordering system is closely linked with the national problems concerning financment and foreign exchange. The first and major problem of the procurement system is the very small amount of money available to buy drugs. The expenditure is low in both relative and absolute terms. Drug expenditure takes less than 10% of the health budget, compared with 15-25% which is common in Africa. Per capita expenditure is 1,30 Dalasis annually equivalent to US\$ 0.30 at current exchange rates. In the recent past, available funds for drugs have been reduced in real terms. The amount in Dalasis has been slightly increased, but because of the devaluation of the local currency, the volume of drugs entering the distribution system has been reduced. The quantities reflect not what is needed, but only what the Ministry of Finance thinks can be afforded.
3. The second problem is that even those limited funds which are provided cannot be converted into foreign exchange which is necessary to purchase drugs, all of which must be imported. There is no automatic allocation of foreign exchange by the Central Bank, and in practice there is a long delay between approval of an order placed by the tender board and the availability of foreign exchange to implement it, during which the validity of the tender price has often expired.

To escape foreign exchange problems at least partially, the WHO offer to purchase through them was more than welcome.

4. As mentioned before whatever the intention was the new system did not succeed in determining annual pharmaceutical need but only the present use. Even if we succeed in figuring out the need, it is doubtful if we could afford to meet it.
5. In principle, the system could be adequate for supervision, but at the level of the end-user, control is still lacking and even at the Central Medical Stores level, issues are weeks behind schedule. Quantities on tally cards and inventory control cards often do not match. ✓
6. Storage conditions will definitely further improve when the Bansang Regional Stores open and their stock, which is stored at the moment at the Central Medical Stores, is transferred. Break down of airconditioners is a standard problem, which could be overcome by regular maintenance and supervision. ✓
7. The established stock levels have been set at double the quantities for which orders have been placed, the stock levels were based on morbidity statistics, which are now out of date and the amounts supplied depend on what can be purchased, at current level of financial provision. The Central Medical Stores therefore supply units with only half the quantities that they require. ✓

Other problems worthwhile mentioning include:

Gifts: although gifts of drugs can in principle augment the purchased supply, in many cases the items provided by donors are inappropriate for use in The Gambia, or are close to, or even past their expiry dates, or are badly deteriorated by the time of their arrival. Gifts may entail considerable costs for the government in handling and transport charges, the labour of sorting and very often of disposal and the net benefit is often negative.

Packing: the consequences of shortage of funds and foreign exchange is that orders are placed for small quantities for which either the price or the packing and freight charges are extremely high. Inadequate packing leads to losses from breakage or pilferage, and insurance claims are difficult to pursue.

Transport: transport difficulties are well known all over Africa. In practice it is difficult to meet our obligation to supply health units every two months, and owing to shortage of vehicles or fuel delivery dates are often not met.

Training: we face the same problem with all other Third World countries of over prescribing. A diagnosis and standard treatment manual will be distributed this year, which hopefully will improve the situation.

In summary, the programme of reforms suggested by AFRICARE can be counted as a considerable success. It did not solve all the problems, because some are deep seated and not open to simple reforms, but preoccupation with continuing problems should not blind us to the gains which have been achieved.

B.B.
-Final

REPORT OF A VISIT TO
T H E G A M B I A
21-29 January 1985

Anthony Battersby
STC Essential Drugs



CONTENTS

1. Introduction
 2. Drugs
 3. Expanded Programme on Immunization
 4. Conclusion
- Annexes

1. INTRODUCTION

The purpose of this visit was principally to test the logistics assessment module which was prepared in July 1984. In the process of using the assessment modules, various aspects of the drugs and vaccine supply system were discussed with Department of Health officers. The results of these discussions are set down in the rest of this report and are based on data collected during visits to 8 health units, 2 regional stores, 2 primary health care (PHC) villages and central facilities. A list of persons met is attached as Annex 1.

Also attached to this report, for information, are terms of reference for a followup consultancy (Annex 2) and a timetable for the logistics component of a workshop on essential drugs to be held in Banjul from 15 to 19 April 1985 (Annex 3).

2. DRUGS

2.1 Central Medical Stores

There is almost total lack of security at CMS and anyone is free to enter the main store. This problem could be eased if the counter flap were kept closed and there was a designated officer responsible for controlling entry.

The existing stores buildings are physically adequate and are at present being refurbished. The main store is having a ceiling put in. It would be a considerable improvement if the ceiling were insulated by laying 75mm of insulation above the celotex panels. Although there are air conditioners in the store, they are only working as fans and the cooling units are not working. During my visit, when ambient temperatures were unseasonably low (+18°C at 08h00 and +24°C at 12h00), the temperature in this store rose to +28°C. The a/c units should be checked by the EPI technician and repaired as necessary.

The bulk store is located in a separate building behind the main store. It needs extra shelving to hold items presently stacked on the floor. These shelves should be labelled in the same way as those in the main store.

The bulk store also has considerable quantities of condemned equipment. This should be disposed of as soon as possible. Throughout the CMS compound there are considerable quantities of condemned goods and a Board of Survey should be convened as soon as possible to enable the scrap to be removed. For example, there are 12 vehicles beyond repair occupying valuable space.

2.2 Stock control

At CMS, stock control is weak. In a random check of 12 items, none of them had quantities which corresponded on tally cards, Kardex and shelves. In several cases, the discrepancy could be measured in thousands. For example, for chloroquine 150 mg base tally cards recorded 1,193,000, Kardex recorded 370,000 and on the shelves there were 62,000 with an uncheckable number in the bulk store. There is a pressing need to review the stock control system. It was established in conjunction with Africare in 1982-83. However, I was left with a strong feeling that the initial impetus has been lost and the subsequent momentum is rapidly declining. An example of this decline is to be found in the grossly depleted numbers of staff to be found in CMS after midday. By 13h00 it is quite normal to find only one person in the clerical office where normally 7 people work. As a result, some records are several months out of date.

At the regional level, I was able to visit both stores. That at Mansakonko is well organized and efficiently run. The one at Bansang is as yet not operational but should be ready for use within one month.

At the health unit level, stock control is virtually impossible because there is no stock record. This is referred to later under records and reporting.

2.3 Stock levels

Stock levels were set by Africare (their method of calculation is not shown in this report). There is no established means of reviewing these stock levels to see if they are still adequate, nor is there an established means of updating the inventory, although the Chief Pharmacist has recently carried out an update.

Last year drug orders amounted to only half the quantities set down by Africare, in consequence supplies have been very short. As a result, when funds have become available orders have been placed without due consideration or consultation, with the result that orders have been duplicated at least three times in the last three months. In addition, consignments have been airfreighted at great cost; for example, a consignment of cotton wool. Because of the lack of stock control referred to, orders have been placed for items which it subsequently turns out were already in stock.

To reduce the risk of such occurrences, all ordering, including 'gifts', EPI and MCH supplies, should be vetted by the Chief Pharmacist before the orders are placed and for the coming year, the quantities of at least the ten most used drugs should not be less than the quantities laid down by Africare.

2.4 Management

At present the management of CMS is weak. One cause of this is the fact that there is no adequate job description for the Chief Storekeeper and the Chief Pharmacist. In addition, the Chief Storekeeper is responsible to the Permanent Secretary, MOH, whilst the Chief Pharmacist is responsible to the Director of Medical Services, Department of Health (the executive of MOH). Ideally, the Chief Storekeeper should be a part of the Department of Health. However, this notwithstanding, it is essential to clearly define the responsibilities of these two offices.

2.5 Drugs supply

In the past supplies have arrived in many small consignments which greatly increases the cost of supplies and the work of the CMS. If possible, using organizations like UNIPAC and IDA, it should be possible to reduce the shipments to two or three a year.

Like many countries, the Gambia suffers from the misplaced good will of donor organizations which send unsolicited gifts of unwanted drugs. These often arrive with short expiry dates, or already expired and with all details in languages which are not understood in the Gambia.

In an attempt to limit such gifts, the Medicines Act should be invoked and the donating organizations requested to provide translations for all drugs given. Any drugs arriving without translation should be destroyed. If possible, donors should be given a list of items which are needed.

2.6 Records and reports at unit level

There are a number of difficulties with records at the unit level. These arise largely from the fact that there is no record of stock dispersed. In addition, the MCH patients who are treated do not appear on the monthly return.

The dispensaries record attendance and morbidity data on the same tally sheet. As a result, morbidity data is not accurate. For example, the patient who comes in with several complaints is only recorded under the major complaint. One approach to this problem could be to add a treatment report to the monthly report and also require MCH staff to record data in the same way as the dispensers. This is a complex and detailed problem and one that needs to be given special attention, with outside assistance if necessary.

One immediate improvement would be to bind the tally sheets into books so that they can become a clinic based record. The existing daily tally sheet should be changed so that the format matches that of the monthly report, i.e., under 5's should be recorded on the left not on the right of the sheet.

2.7 PHC supply

In the Gambia, PHC is treated as something separate from the main health service to the extent that supplies are segregated from CMS and reports made to the PHC organization. Whilst I understand the reasons at present, I feel there is a danger of these becoming perpetuated in the system when the need for them is long past. Basically, there is a health service which needs supplies at all levels, from the village health worker to the Royal Victoria Hospital.

2.8 Transport

Provision of transport, or rather petrol, is proving a major problem at present. As a result, significant numbers of health units are not receiving their supplies on time. During the last supply period beginning mid-December, at least 4 health units received their supplies a month late because of fuel shortage.

At the moment there is no established motor pool. Vehicles are assigned to projects and programmes thus minimizing their availability and maximizing fuel consumption. Under the proposed ODA funded Control of Childhood Diseases Project there is provision for a transport manager/engineer and the establishment of a motor pool. This chance should be grasped wholeheartedly. Meanwhile, the establishment of a buffer petrol stock should be made high priority.

Over the next few years, the vehicle types used should be rationalized by getting rid of the heavy 4-wheel drive vehicles and replacing them with double cab pick-ups. Gambian roads do not need the 'all-terrains' capability of vehicles like the Toyota Land Cruiser nor does the Department need the high fuel consumption that these vehicles have.

The transport needs can be well met by 'D'-vans and light Suzuki cars.

3. EXPANDED PROGRAMME ON IMMUNIZATION

EPI in the Gambia has reached a very high level of coverage, no antigen is below 70% (last sample survey December 1984). However, full immunization is only 48%. This seems disproportionately low and the figures should be checked. Whilst the programme is well developed there are a number of points I would like to make, as follows.

3.1 Analysis of health units visited (26% of total)

EPI

Correct temperature	66% (low ambient +22°C)
Overstocking	100%
Keeping reconstituted vaccine	66%
No stock records	66%
No immunization records	50%
Run out of kerosene	50%
Lack of syringes	100%
Poor sterilization	100%
Not stocking vaccines	40%

Drugs

Chloroquine consumption correlates with number of malaria cases recorded	37%
Incomplete records	100%
Reports late	25%
Run out of one or more essential drug since last supply	100%
Last supply late arriving	37%

3.2 Use of reconstituted vaccine

In 4 out of 6 centres which had vaccines both BCG and measles vaccines were being kept after reconstitution. This was also the case in one regional store. This practice should stop.

3.3 Stock levels

All the centres holding vaccine were over-stocked with at least one antigen. The reason for this is that stock control and stock records are very poor. As a result, there is a strong probability that a significant amount of BCG vaccine which expires in March and May will be wasted.

At the central level, there is enough stock to last four months except for DPT which will only last two months. As the next supply from UNICEF has not yet been agreed, this means that the programme will run out of this vaccine unless immediate steps are taken to get resupplied. WHO Geneva is arranging for a limited supply of DPT to be made available.

Discussions, in person if necessary, should be held with UNICEF Dakar to agree the supply of all vaccines for 1985-86. In the meantime, EPI Geneva has offered 30,000 doses of DPT through WHO/AFRO. After clearance by AFRO, this supply should be available in Gambia within 1 month.

3.4 Equipment

Sadly, despite the availability of the Product Information Sheets, refrigerators supplied by UNICEF in 1981 are of a type not suitable for vaccine storage (RAK660 by Electrolux). These refrigerators are installed at most health units.

However, there are some RCW42's (three) which are not in use. These should be installed instead of the RAK660's. The two RCW42's should have the evaporator plate replaced with the new pattern to hold in packs.

There are a total of 36 health units with kerosene refrigerators. If possible, these should be replaced with more suitable types. However, this will depend upon the supply strategy which is adopted (see 3.5).

There is a move to acquire up to 15 solar powered refrigerators. This should be resisted until the WHO/UNICEF Product Information Sheets*, which will include guidelines for purchasing solar refrigerator systems, are available in June 1985.

3.5 Supply strategy

At the moment, EPI delivers vaccines to the regional stores separately from the routine drugs supply. Centres in Western Region collect direct from the EPI central store. It would be valuable to cost out a different strategy whereby health units collect vaccine from the regional stores using vaccine carriers and public transport. This would remove the need for vehicles at the health unit and could be very significantly cheaper. Out reach in Gambia could quite easily be done by bicycle, the land is flat and distances short.

3.6 Sterilization and syringes

Although Ped-o-jets are used extensively, sterilization and lack of syringes are a major problem. The Product Information Sheets (see 3.4) will contain information on new sterilization/syringe systems.

3.7 Records and reports

Record keeping at health units is poor, no centres kept stock records nor indeed did Mansakonko regional EPI store. Further, no centres completed the stock section of the monthly report. Consequently it is not possible to compare immunizations with vaccine used.

When I reviewed the records for 1984 held by the epidemiology unit in Banjul, I found that an average of over 3 months out of 12 were missing for each health unit. This means that over 25% of all monthly records are not submitted. In addition, there has been no analysis of the EPI returns for 1984 and the EPI management was unable to tell me how many immunizations had been performed. Unanalysed data is of no use. Data analysed 12 months after the event is of little use. Only the prompt and regular review of reports will enable a manager to have the necessary information which he needs to control his programme. This aspect of EPI needs further investigation and development and could form a part of the work discussed in 2.6 above.


Meanwhile, if the epidemiology unit summarized the data as follows, analysis would be much easier.

Clinic																								
MONTH	No. of clinics held	BCG		DPT					OPV					MEASLES		TT								
		Imm.	Doses used	1	2	3	B	Tot.	Doses used	1	2	3	B	Tot.	Doses used	Imm.	Doses used	1	2	3	B	Tot.	Doses used	
JAN																								
FEB																								
MARCH																								

* Product Information Sheets are available from WHO/EPI, 1211 Geneva 27, Switzerland.


3.8 Cold chain monitoring

WHO now has a new pattern of cold chain monitor. With this it is possible to measure the quality of the cold chain. This monitor should be used to assess the cold chain WHO/EPI in Geneva are able to provide the necessary monitors and assistance to carry out this exercise if requested. An example of the monitor is shown below. Attached (Annex 4) is a description of such a survey conducted in Tunisia using a similar type of monitor.




Vaccine Cold Chain Monitor


Date in	Index	Location	Date out	Index



Monitor Mark
U.S. Patent No. 3,354,011

INDEX/INDICE/دليل





A

B

C

	If A all blue	If B all blue	If C all blue	If A, B, C & D all blue
--	---------------	---------------	---------------	-------------------------

Polio	Test vaccine before use
Measles	
DPT-4, BCG	
TT & DT	

	Use within 3 months
These vaccines may be used	Use within 3 months

SUPPLIER
FOURNISSEUR

Name: _____
 Nom: _____
 Date of dispatch: _____
 Date d'expédition: _____
 Vaccine: _____
 Vaccin: _____

4. CONCLUSION

From my point of view, this visit has been very useful. I have been able to modify the logistics assessment modules and these will now be able to be presented at the workshop on essential drugs to be held in Banjul in April 1985. I hope that the comments that have emerged out of this exercise and which are set down in this report are not considered presumptuous after such a short visit.

I would like to thank all those who made it possible for me to collect the data I needed in the time available and I hope the observations set out in this report may be some recompense for their trouble. I would especially like to thank the Chief Pharmacist who not only took time off to travel up river with me but also sacrificed half her week end in so doing.

Annex 1

Persons met

Dr F. Oldfield	Director of Medical Services
Dr H. N'Jie	Deputy DMS
Dr P. Gowers	Medical Officer of Health
Ms E. Farkas	Chief Pharmacist
Mr M. Macalo	Chief Storekeeper
Mrs B. M'Boje	Head of MCH
Mr K. Jobe	EPI manager
Mr K. Manneh	Head of Epidemiology section
Dr K. Fischer	Regional Medical Officer (Central)
Dr A. Jah	Regional Medical Officer (Eastern)
Mr M. Ceasey	Transport Foreman
Mr A. Nathe	Project Director, Project Concern
Mrs C. Akrofi	Acting WPC

Annex 2

Terms of reference
for followup consultancy in the Gambia
by Anthony Battersby

Time	Tasks
1 week	1. Review the record keeping in detail at CMS Banjul, Regional Stores and Health Units
2 weeks	2. Propose revised means of recording at health unit level which will help ensure: <ul style="list-style-type: none">- all patients seen are recorded, including MCH patients and those attending for EPI- where relevant, age is recorded- stock records are maintained- treatment records for 6-10 major high volume drugs are kept- analysis of data can be easily and quickly carried out on an empirical basis monthly- compatibility with data recorded for the PHC Programme- correlation with ongoing work on estimating drug requirements- methodology
1 week	3. Using new EPI vaccine cold chain monitors, set up a national cold chain review and train the EPI manager in the use of the cold chain monitors <i>- END USE - STANDARD TREATMENT SHEET TOGETHER</i>
1 week	4. Test new formats in selected health units in Western Region for 3-4 months and modify as necessary

Provisional dates: September 1985

Annex 3

Seminar/workshop on Essential Drugs
Banjul, 15-19 April 1985

Logistics component - timetable

Tuesday, 16.4	9h30 - 10h30	Presentation of logistics modules and the results of their testing in the Gambia
	10h30 - 11h00	Coffee
	11h00 - 12h30	Divide into 4 groups and work on modules 2 & 3 Planning, budgetting and procurement 5 & 6 Storage and warehousing and inventory control 8 & 9 Transport and repair 12 & 14 Records and reporting and supervision
		These working groups will discuss the modules with particular reference to their own experience and recommend improvements together with examples of effective solution which they have found to work well in their own countries.
	12h30 - 14h00	Lunch
	14h00 - 15h30	Continuation of group work
	15h30 - 15h45	Coffee
	15h45 - 18h00	Each group will present its proposals for improvements to its modules for general agreement in plenary session

Prior to the workshop, participants will receive copies of the modules. They will also be designated to particular groups so that they may make some preliminary study on their particular modules with particular reference to the conditions found in their countries. After the workshop, the agreed modifications will be consolidated so that the modules can be used during the field trial due to take place in Indonesia in late April.



WORLD HEALTH ORGANIZATION
GENEVA

ORGANISATION MONDIALE DE LA SANTÉ
GENÈVE

WEEKLY EPIDEMIOLOGICAL RECORD RELEVÉ ÉPIDÉMIOLOGIQUE HEBDOMADAIRE

Telegraphic Address: EPIDNATIONS GENEVA Telex 27821

Adresse télégraphique: EPIDNATIONS GENÈVE Telex 27821

Automatic Telex Reply Service
Telex 28150 Geneva with ZCZC and ENGL for a reply in English

Service automatique de réponse par télex
Télex 28150 Genève suivi de ZCZC et FRAN pour une réponse en français

25 MAY 1984

59th YEAR - 59^e ANNÉE

25 MAI 1984

EXPANDED PROGRAMME ON IMMUNIZATION Cold Chain Evaluation

TUNISIA. - In November 1981, the Ministry of Public Health decided to undertake a nationwide evaluation of their vaccine cold chain.

Cold chain monitor cards were used for this evaluation (Fig. 1).

PROGRAMME ÉLARGI DE VACCINATION Contrôle de la chaîne de froid

TUNISIE. - En novembre 1981, le Ministère de la Santé publique a décidé de procéder à un contrôle national de sa chaîne de froid pour les vaccins.

On a utilisé à cette fin les fiches de contrôle de la chaîne de froid (Fig. 1).

Fig. 1

Example of a Cold Chain Monitor
Modèle de fiche de contrôle de la chaîne de froid

VACCINE COLD CHAIN MONITOR
CONTROLE DE LA CHAINE DE FROID
CONTROL DE LA CADENA DE FRIO
 مراقب سلسلة تبريد اللقاح

ARRIVEE/ARRIVÉE/RECIBO وصول		LOCATION	DEPART/DESPACHO مغادرة	
DATE IN DATE D'ENTRÉE FECHA DE RECIBO تاريخ التناول	INDEX INDICE دليل 10N 38N	LIEU LUGAR اسم المكان	DATE OUT DATE DE SORTIE FECHA DE SALIDA تاريخ الخروج	INDEX INDICE دليل 10N 38N
4.3.82	0 0	DÉPÔT CENTRAL	7.6.82	0 0
7.6.82	0 0	RÉGION	1.7.82	0 0
1.7.82	0 0	HC/CS	5.7.82	1 0
5.7.82	1 0	SÉANCE DE VACC.	5.7.82	1 0

*If windows remain all white, INDEX = 0

*Si tous les voyants restent blancs, l'INDICE = 0

*Si todas las mirillas permanecen blancas, INDICE = 0

إذا بقيت النوافذ بيضاء كلها مستندة الدليل = صفر

3M INDEX/INDICE/دليل

Monitor Mark U.S. Patent No. 3,954,011 0 1 2 3 4 5 10N

3M INDEX/INDICE/دليل

Monitor Mark U.S. Patent No. 3,954,011 0 1 2 3 4 5 38N

SUPPLIER Name: INSTITUT ABC

Date of dispatch: 3.3.82

Vaccine: ROUGEOLE

Epidemiological notes contained in this number:
 Expanded Programme on Immunization, Parasitic Disease Surveillance, Toxoplasmosis Surveillance.
 List of Newly Infected Areas, p. 164.

Informations épidémiologiques contenues dans ce numéro:
 Programme élargi de vaccination, surveillance de la toxoplasmosé, surveillance des maladies parasitaires.
 Liste des zones nouvellement infectées, p. 164.

The monitors were activated by the vaccine manufacturer. Subsequently, any exposure to temperatures above 10 °C and 38 °C caused the windows on the monitors to turn irreversibly blue from left to right. The monitors travelled with the vaccine through the cold chain until the vaccine was used some 5-7 months later. At each link in the cold chain the date, location and temperature exposure were recorded on the monitors so that at the immunization site, the vaccinator had a complete history of the temperature exposure and could judge whether to use the vaccine or not. The monitors were then returned to the Ministry for analysis.

In order to acquaint the staff with these monitors, 4 separate training sessions were organized.

In Tunisia, with a population of approximately 6 750 000 people, there are 700 centres of immunization sites. In order to ensure that during the study period each site was reached, 1 vaccine vial was selected from each 25 vials distributed and a monitor attached to the selected vial. This "monitor vial" was despatched, with all the other vaccines, down the cold chain until it reached the vaccination site. During the study which lasted 7 months, 868 cold chain monitors were distributed.

Within 3 months the first monitors to have reached the vaccination site were being returned to Tunis for sorting and analysis. By October 1982, 513 monitors had been returned (59%) and the state of the cold chain during the study period started to emerge.

The analysis of the monitors which had been returned showed that in spite of the training, the method had not always been understood. Nineteen monitors (4%) had been incorrectly filled in and could not be used for analysis.

The remaining 96% of the monitors had a complete time and temperature history from the moment they left the vaccine manufacturer until they reached the immunization site. Although a large number of monitors originally distributed were not returned to the capital, sufficient monitors were returned to permit analysis for all but 3 of the 29 regions. These 26 regions are inhabited by 94% of the population.

Results

An index of zero shows that the temperature has never been above 10 °C. The other 5 indices give different degrees of temperature exposure. These exposure indices on each of the 2 time/temperature indicators can be grouped into 4 classes for purposes of analysis (Fig. 2).

Les indicateurs d'exposition ont été activés par le fabricant des vaccins. Toute exposition ultérieure à des températures supérieures à 10 °C et 38 °C fait progressivement virer au bleu, de gauche à droite, les fenêtres qui apparaissent sur ces indicateurs; ce changement de couleur est irréversible. Les fiches ont été jointes aux vaccins pendant tout leur cheminement le long de la chaîne de froid jusqu'à leur utilisation 5 à 7 mois plus tard. A chacune des étapes de la chaîne de froid, on a noté sur les fiches la date, le lieu et la température pour fournir aux vaccinateurs un compte rendu complet des conditions d'exposition du vaccin et leur permettre de juger si ce dernier pouvait être utilisé ou non. Les fiches ont ensuite été retournées au Ministère pour y être analysées.

Quatre séries de cours de formation ont été organisées afin de familiariser le personnel avec l'emploi de ces fiches de contrôle.

La Tunisie, dont la population est d'environ 6 750 000 habitants, compte 700 centres de vaccination. Pour s'assurer que chacun de ces centres soit contrôlé, on a fixé une fiche de contrôle à 1 flacon de vaccin sur 25. Ce «flacon indicateur» a cheminé avec tous les autres vaccins tout le long de la chaîne de froid jusqu'au lieu d'utilisation. Au cours de l'étude, qui a duré 7 mois, on a distribué en tout 868 fiches de contrôle de la chaîne de froid.

Les premières fiches parvenues à un centre de vaccination ont commencé à être renvoyées à Tunis pour y être triées et analysées dès le troisième mois de l'étude. Les 513 fiches (59%) qui avaient été retournées en octobre 1982 ont commencé à donner une idée de l'état de la chaîne de froid.

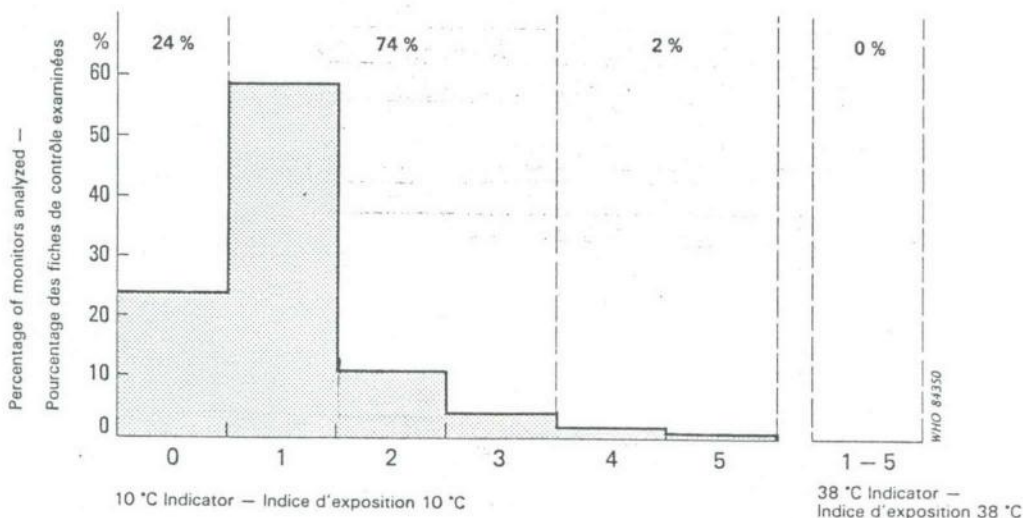
L'examen des fiches retournées au Ministère a montré que malgré les séances de formation, la méthode n'avait pas toujours été bien comprise. Dix-neuf fiches de contrôle (4%) n'avaient pas été correctement remplies et n'ont donc pas pu être utilisées pour l'analyse.

Dans 96% des cas toutefois, les dates et les températures avaient été correctement notées sur la fiche entre le moment où le vaccin avait quitté le fabricant et son arrivée au centre de vaccination. Bien que beaucoup des fiches de contrôle distribuées n'aient pas été renvoyées au Ministère, on a cependant pu en analyser un nombre suffisant pour évaluer la situation dans 26 des 29 régions du pays. Ces 26 régions regroupent 94% de la population.

Résultats

Un indice zéro signifie que la température n'a jamais dépassé 10 °C. Les 5 autres indices donnent les différents degrés d'exposition à des températures supérieures à la température seuil. Ces 6 indices d'exposition qui apparaissent sur chacun des 2 indicateurs temps/température peuvent être groupés en 4 catégories aux fins d'analyse (Fig. 2).

Fig. 2
Nationwide Summary of Results of Cold Chain Evaluation Using Cold Chain Monitors, Tunisia, 1982
Résumé national des résultats du contrôle de la chaîne de froid effectué à l'aide de fiches de contrôle de la chaîne de froid, Tunisie, 1982



Class I: No break in the cold chain and the temperature stayed below 10 °C for the whole period; 24% of the monitors reached their destination in this state.

Class II: The temperature in the cold chain exceeded 10 °C for a period from 1 hour to 8 days. This indicates that the most heat-sensitive vaccine - polio - must be used within 3 months; 74% of

Catégorie I: Pas d'interruption de la chaîne de froid - la température est toujours restée inférieure à 10 °C; 24% des indicateurs sont arrivés ainsi à destination.

Catégorie II: La température a dépassé 10 °C pendant une période allant de 1 heure à 8 jours et le vaccin le plus thermosensible, soit le vaccin antipoliomyélitique, doit être utilisé dans les 3 mois; 74% des indicateurs

the monitors reached their destination with this exposure. Because of the relatively short distances in Tunisia and rapid transport, the 3-month time limit on using polio vaccine did not present any special problem.

Class III: Temperature has been above 10 °C from 8 to 14 days. In this case polio vaccine should not be used without prior testing and other remaining vaccines must be used within 3 months. In all, 2% of the monitors showed exposure to this extent.

Class IV: Temperature has been above 38 °C. No monitor was exposed to this extent.

A separate analysis of each level of the cold chain showed that there were no failures in international transport, transport from the airport or storage in Tunis and very few breakdowns during transport to the regions. Storage at some of the regions was poor but the majority of failures were at the sub-regional (or delegation) level.

An analysis by region (Fig. 3) clearly indicated the levels of vaccine handling performance. The regions of Gabès, Gafsa, and Terbourba were shown to be the most effective in this respect, while Le Kef, Nabeul, and Zaghuan regions were clearly areas requiring closer supervision.

sont arrivés ainsi à destination. Comme les distances en Tunisie sont relativement courtes et les moyens de transport rapides, le délai de 3 mois imposé pour l'utilisation du vaccin antipoliomyélitique n'a pas posé de problème particulier.

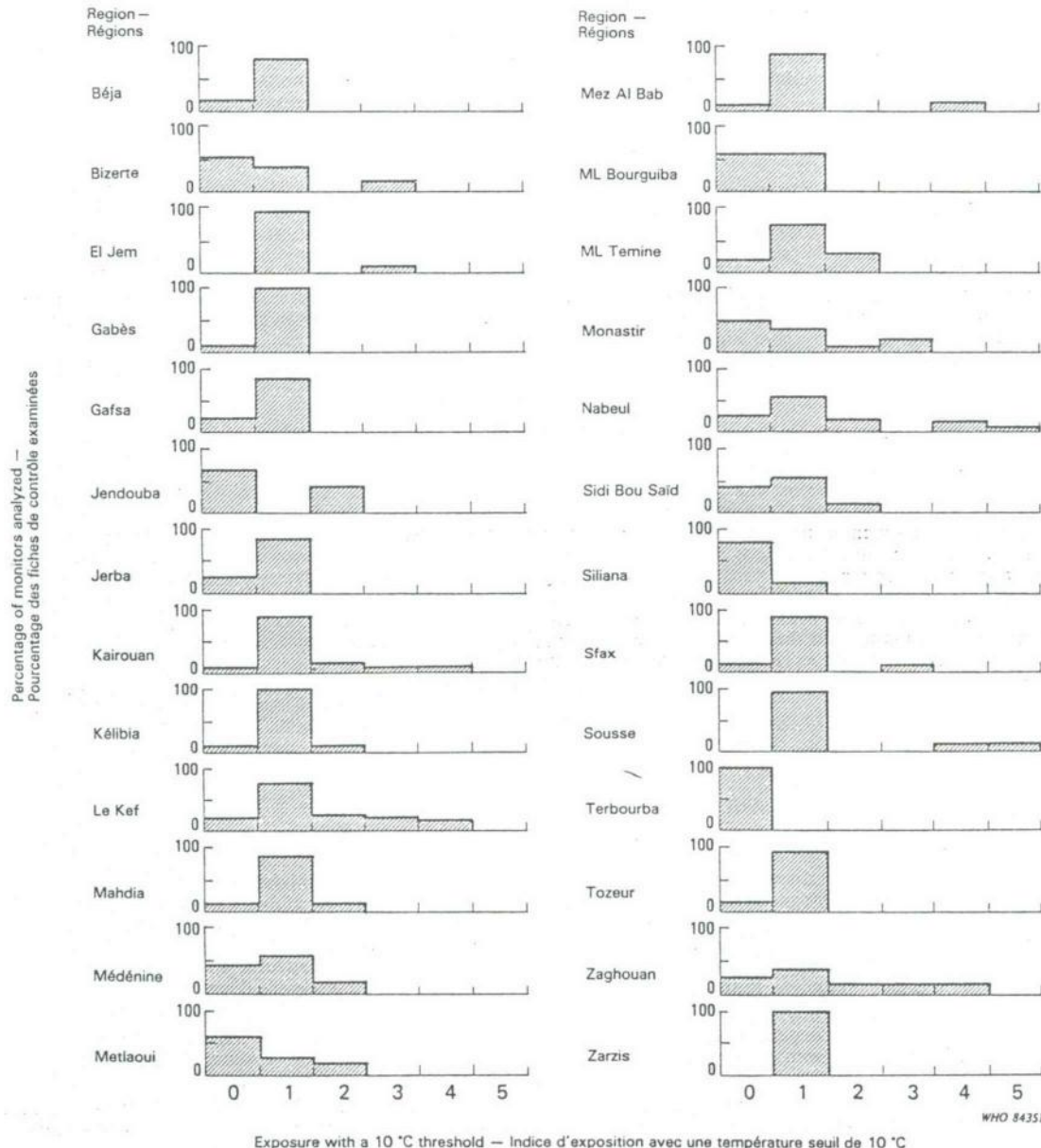
Catégorie III: La température est restée supérieure à 10 °C pendant une période comprise entre 8 et 14 jours. Par conséquent, le vaccin antipoliomyélitique ne pourra pas être utilisé avant d'avoir été préalablement contrôlé et les autres vaccins devront être utilisés dans les 3 mois. En tout, 2% des indicateurs sont arrivés ainsi à destination.

Catégorie IV: La température a dépassé 38 °C. Aucun indicateur n'a été exposé à une telle température.

Le contrôle de chacune des étapes de la chaîne de froid a montré qu'il n'y avait pas eu de défaillance au cours du transport international, au cours du transport depuis l'aéroport et au cours du stockage à Tunis et que les défaillances avaient été très rares au cours du transport jusqu'aux régions. Les conditions de stockage se sont révélées insuffisantes dans certaines régions mais la plus grande partie des défaillances a été relevée au niveau sous-régional (ou des délégations).

Une analyse par région (Fig. 3) a permis d'établir clairement les conditions de manutention du vaccin. Il est apparu que ces conditions étaient bonnes dans les régions de Gafsa, Gabès et Terbourba mais qu'une surveillance plus rigoureuse s'imposait par contre dans les régions du Kef, Nabeul et Zaghuan.

Fig. 3
Regional Summaries of Cold Chain Evaluation Using Cold Chain Monitors, Tunisia, 1982
Résumés régionaux des résultats d'un contrôle de la chaîne de froid effectué à l'aide de fiches de contrôle de la chaîne de froid, Tunisie, 1982



A more detailed analysis of the monitors was carried out in Le Kef and Nabeul regions. Two different types of problems emerged. In Le Kef (population 267 000) cold chain failures occurred both in transport and in storage; 2 delegations (sub-divisions of the region) had only transport problems; 3 had only storage problems and 3 others had both storage and transport problems. Of the 19 recorded cold chain failures, 11 (58%) occurred at the district level; 7 (36%) at the outreach site and 1 (6%) at the regional store.

At Nabeul (population 321 000) there were 25 breaks in the cold chain during the study period. Eleven (44%) of them occurred in refrigerators at the delegation level; 9 (36%) occurred in refrigerators at the district level and 5 (20%) occurred during immunization sessions at an outreach site. There was no cold chain failure during transport in this region.

Some lessons were learned on the use of these monitors for future evaluations of the cold chain:

- The 38 °C indicator will be removed and the cost of each monitor will be halved.
- The 10 °C indicator will be changed to an indicator that is more sensitive to the duration of the temperature exposure. The original indicator would reach index 5 after a 2-week exposure at 12 °C. The new indicator will reach the last window after only 2 days at 12 °C. Many supervisors thought that the monitor used in the study was not sensitive enough to detect small breaks in the cold chain.
- The detailed information available on the temperature history of each monitor can only be interpreted properly by the local supervisor. In the next study, therefore, the analysis of the monitors will be done in the Tunisian regional offices which are responsible for populations of up to 560 000 people. These supervisors will send to Tunis only the information needed for a national review of the cold chain.

Conclusion

The cold chain monitors are a useful tool for directing supervisory efforts in a vaccine cold chain. Furthermore, in Tunisia the monitors were seen by the staff as "silent supervisors" during the study and it was therefore likely that the standard of vaccine handling was better than usual when a monitor was used. The strongest benefit of the cold chain monitors is not for the central office to collect data about the condition of the national cold chain but for the mid-level personnel to carry out self-evaluation to improve the standards of vaccine care on the spot.

(Based on/D'après: A report from the Ministry of Public Health/Un rapport du Ministère de la Santé publique.)

EDITORIAL NOTE: As this study shows, cold chain monitors can be used to make a periodic check on a vaccine cold chain. Alternatively, they can be used as a routine method for monitoring the performance of a cold chain throughout the year. In this latter function the monitors reinforce the more widely used methods of regularly recording refrigerator temperatures, visits by supervisors, etc. Finally, cold chain monitors can also be used to check the performance of international vaccine shipments. Further information on the different types of monitors for these and other functions is available from WHO country offices, Regional Offices or headquarters, Geneva.

On a procédé à un examen plus détaillé des fiches de contrôle dans les régions du Kef et de Nabeul et l'on a constaté que les problèmes étaient de 2 types: au Kef (267 000 habitants), des défaillances de la chaîne de froid ont été constatées aussi bien pendant le transport que dans les dépôts: on a relevé des problèmes de transport seulement dans 2 délégations (sub-divisions de la région), des problèmes de stockage seulement dans 3 délégations et dans 3 autres, des problèmes de stockage et de transport. Sur les 19 défaillances enregistrées, 11 (58%) se sont produites au niveau du district; 7 (36%) au point de destination et 1 (6%) au niveau régional.

A Nabeul (321 000 habitants), on a relevé en tout 25 interruptions de la chaîne de froid au cours de l'étude: 11 (44%) dans les réfrigérateurs au niveau de la délégation; 9 (36%) dans les réfrigérateurs au niveau du district et 5 (20%) au point de destination au cours de séances de vaccination. Il n'y a pas eu de défaillances de la chaîne de froid au cours du transport.

Les leçons à tirer pour l'utilisation ultérieure de ces indicateurs lors de nouveaux contrôles de la chaîne de froid sont les suivantes:

- L'indicateur d'exposition à 38 °C sera supprimé et le coût de chaque fiche de contrôle sera réduit de moitié.
- L'indicateur d'exposition à 10 °C sera rendu plus sensible à la durée de l'exposition. Avec l'indicateur utilisé pour cette étude, la couleur n'atteignait l'indice 5 qu'après 2 semaines d'exposition à 12 °C. Avec le nouvel indicateur, la dernière fenêtre virera de couleur au bout de 2 jours seulement à 12 °C. Beaucoup de superviseurs ont estimé que la fiche de contrôle utilisée pour l'étude n'était pas assez sensible pour détecter de petites interruptions de la chaîne de froid.
- Les renseignements détaillés concernant les températures auxquelles a été exposée chaque fiche de contrôle ne peuvent être correctement interprétés que par le superviseur local. Pour la prochaine étude, les fiches seront donc examinées au niveau des bureaux régionaux tunisiens, chacun de ces bureaux pouvant couvrir jusqu'à 560 000 personnes. Les superviseurs chargés de cet examen n'enverront à Tunis que les renseignements nécessaires à un bilan national de la chaîne de froid.

Conclusion

Les fiches de contrôle de la chaîne de froid facilitent le travail des superviseurs chargés de veiller au bon fonctionnement d'une chaîne de froid pour des vaccins. En outre, au cours de l'étude réalisée en Tunisie, le personnel a trouvé que ces fiches étaient en quelque sorte des «superviseurs muets» et il est vraisemblable que du fait de leur seule présence, le transport et le stockage des vaccins ont été faits dans de meilleures conditions que d'habitude. Le principal avantage de ces fiches n'est pas que le bureau central puisse recueillir des indications sur l'état de la chaîne de froid nationale mais que le personnel de niveau intermédiaire puisse procéder de lui-même à des contrôles afin d'améliorer la manutention des vaccins sur place.

NOTE DE LA RÉDACTION: Comme le montre cette étude, les fiches de contrôle de la chaîne de froid peuvent servir à effectuer un contrôle périodique de la chaîne de froid pour les vaccins. Et ils peuvent aussi servir pour la surveillance systématique du fonctionnement de la chaîne de froid tout au long de l'année. Dans cette deuxième fonction, elles renforcent des méthodes plus largement utilisées, telles que relevés réguliers des températures des réfrigérateurs, visites de superviseurs, etc. Enfin, les fiches de contrôle de la chaîne de froid peuvent être utilisées pour vérifier les conditions dans lesquelles se font les expéditions internationales de vaccins. Pour de plus amples renseignements sur les différents types d'indicateurs d'exposition disponibles à ces fins et pour d'autres usages, s'adresser aux bureaux de l'OMS dans les pays, aux Bureaux régionaux ou au Siège de l'OMS à Genève.

PARASITIC DISEASE SURVEILLANCE Alveolar Echinococcosis

FRANCE. - Alveolar echinococcosis, an apparently rather uncommon but probably underestimated disease, is unique as a parasitic disease because of its very poor prognosis. Like parasitic zoonoses, it is one of those predominantly rural conditions that, by virtue of their sporadic nature, attract hardly any attention from epidemiologists; even so, recent research has brought about a better understanding of its mechanism and an improvement in detection methods.

The symptomatology, which is usually hepatic, slow to evolve and inexorable in its evolution, has often been confused with that of other, especially neoplastic, conditions.

Echinococcus multilocularis is, in the adult stage, a parasite of foxes which transmit the eggs to the intermediate hosts in which larvae develop. Larvae develop in rodents and particularly in

SURVEILLANCE DES MALADIES PARASITAIRES L'échinococcose alvéolaire

FRANCE. - Maladie apparemment peu fréquente, mais probablement sous-évaluée, l'échinococcose alvéolaire se singularise au sein des parasitoses par un pronostic redoutable. Elle fait partie, comme d'autres zoonoses parasitaires, de ces affections à prédominance rurale, qui, par leur sporadicité, n'attirent guère l'attention de l'épidémiologiste; pourtant, des travaux récents permettent de mieux connaître son mécanisme et de perfectionner les méthodes de dépistage.

Habituellement hépatique, tardive et inexorable dans son évolution, la symptomatologie de la maladie a souvent été confondue avec celle d'autres maladies, notamment néoplasiques.

Echinococcus multilocularis vit à l'état adulte chez le renard, qui disperse les œufs du ver et les transmet aux hôtes intermédiaires chez qui les larves vont se développer. Les larves se développent chez les rongeurs,

Table 2

ESTIMATED DEMAND FOR MAJOR TABLETS AND CAPSULES

			(Quantities In Million)					
1.	Aspirin 300 mg	Million Tablets	3.00	1.80	1.85	0.35	1.00	8.00
2.	Paracetamol	"	1.00	1.10	1.10	0.30	1.50	5.00
3.	Folic Acid	"	0.20	0.60	0.50	0.10	0.60	2.00
4.	Ferrous Sulphate	"	5.00	0.60	0.70	0.10	0.60	7.00
5.	Chloroquine	"	2.00	0.20	2.00	0.10	1.70	6.00
6.	Rehydration Salts	kg.	2500	-	100	100	300	3000
7.	Sulphadimidine 500 mg	Million Tablets	0.50	0.30	0.20	-	0.50	1.50
8.	Tetracycline	Million Capsules	0.50	0.20	0.25	0.05	0.50	1.50
9.	Ampicilline	"	0.10	0.05	0.05	-	0.10	0.30
10.	Penicillin	Million Tablets	1.00	-	-	-	-	1.50
11.	Phenobarbitone	"	1.00	0.20	0.10	0.10	0.10	2.00

(These estimates are based on discussions the experts had during their field visit to The Gambia)

Table 1

IMPORTS OF PHARMACEUTICALS INTO THE GAMBIA

S. N.	ITC Code No. and Product Description	1.7.78 to 30.6.79	1.7.79 to 30.6.80	1.7.80 to 30.6.81	1.7.81 to 30.6.82	1.7.82 to 30.6.83	Average Value in Dalsals
1	541-010 Vitamins & provitamins	48,908	55,873	55,803	101,147	40,111	56,368
2	541-090 Penicillin 020 Streptomycine, tyrocidin and other antibiotics	130,716	31,470	54,233	11,506	75,051	60,595
3	541-030 Opium, alkaloids, cocaine, caffeine, quinine & other alkaloids & their salts & other derivatives	3,523	8,464	292,928	149,845	21,444	95,241
4	541-040 Hormones	1,244	37,626	52,303	-	15,149	21,264
5	541-050 Bacterial Products, seravaccines, glands & their extracts	22,707	28,727	1,938	52,634	2,229	21,647
6	541-710 Ointments & Liniments	850,258	678,449	96,777	332,865	427,329	477,136
7	541-720 Antimalarials	173,978	35,550	31,852	-	-	48,276
8	541-790 Other Medicaments	1,923,547	2,609,682	2,004,924	3,653,475	1,491,904	2,336,706
9	541-910 Wadding, bandages, dressings & plasters, medicated	119,983	155,513	110,993	116,599	103,121	121,242
10	541-990 For retail medical & pharmaceutical products - Total	21,239 3,296,103	60,548 3,701,902	65,956 2,747,707	11,791 4,429,862	61,939 2,238,277	44,295 3,282,750

Source: Central Statistics Department - Buckle Street, Banjul