



**DEPARTMENT OF STATE FOR HEALTH AND SOCIAL WELFARE
THE REPUBLIC OF THE GAMBIA**

Draft Report

REVIEW OF THE GAMBIA EXPANDED PROGRAMME ON IMMUNIZATION

26 August – 7 September 2001

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ACRONYMS

AD	Auto-disable syringes
ADB	African Development Bank
AEFI	Adverse Events Following Immunisation
AIDS	Acquired-Immune Deficiency Syndrome
BCG	Bacillus Calmette-Guerin
CATR	Celui d'Appui Technique Regional
CCM	Cold Chain Monitor
CRD	Central Island Division
DHO	Divisional Health Officer
DHT	Divisional Health Team
DPT	Diphtheria, Pertussis, Tetanus
DOSH	Department of State for Health
EPI	Expanded Programme on Immunisation
ESU	Epidemiology and Surveillance Unit
FEFO	First to expire, first out
FIFO	First in, first out
FP	Family Planning
GAVI	Global Alliance for Vaccines and Immunizations
GOG	Government of The Gambia
H/F	Health Facility
Hep B	Hepatitis B
Hib	<i>Haemophilus Influenzae</i> type b
HIS/RRS	Health Information System/Routine Reporting System
HIV	Human Immunodeficiency Virus
ICC	Inter-Agency Coordinating Committee
IWC	Infant Welfare Card
LRD	Lower River Division
MDVP	Multi-Dose Vial Policy
MCH	Maternal and Child Health
MID	McCarthy Island Division (the former CRD)
MRC	Medical Research Center
NBD	North Bank Division

NBD-E	North Bank Division – East
NBD-W	North Bank Division – West
NGO	Non-Governmental Agency
NIDs	National Immunisation Days
NVC	National Vaccination Campaigns
OPV	Oral Polio Vaccine
PHC	Primary Health Care
PHCV	Primary health care villages
TOR	Terms of reference
TT	Tetanus Toxoid
UNICEF	United Nations Children's Fund
URD	Upper River Division
USAID	United States Agency for International Development
VVM	Vaccine Vial Monitor
WD	Western Division
WHO	World Health Organization

EXECUTIVE SUMMARY

A. Objectives

The overall objective of the assessment was to review the performance of the programme with particular attention paid to the areas of management, coordination, funding, service delivery, the achievements and constraints of EPI in The Gambia with a view of guiding future performance towards sustainable EPI target diseases control and maximum impact on child survival.

B. Methodology

The review assessed all the four levels of the health care delivery system, namely: central, divisional, health facility (hospital, major and minor health centres, outreach post) and primary health care villages

The DOSH assisted by the local consultant compiled and used a comprehensive list of public health facilities to be reviewed. Facilities were purposively selected taking into account a balance in the following criteria:

- ▶ Catchment area
- ▶ Performance of the division
- ▶ Location vis-à-vis, per-urban, urban and rural,

With the limited number of hospitals (3) and major health centres (6), it was decided that these should be reviewed in total. Additionally, 7 (20%) minor health centres, 42 (10%) primary health care villages and three outreach sites were observed.

The WHO Immunization Service Assessment Tool was adapted and used for the review. The full review team participated in the adaptation process.

Following the adaptation, a two-day training of interviewers and supervisors was conducted. The training included classroom work and field-testing of the tools. While the field-testing was done in the health facilities in the Western Division (the Greater Banjul area), the classroom component focused on the standardization of the interview process and coding of responses. Data managers were also trained in data entry skills using EPI INFO version 6.04.

C. The Review Team

There were seven teams, each composed of two interviewers, one supervisor and one data manager. Teams covering the large divisions (Western and Central River) were composed of four interviewers, one data manager and one supervisor.

One external team member served as the overall team leader and was assisted by the local consultant.

D. Major findings

Strengths

The Gambian programme has over the years been a success story including being a leader in EPI advances. To no surprise, the review team identified the following key achievements:

- ▶ High rate of access to MCH services including immunization: All health facilities provide immunization services at both static facility and a number of outreach sites. The outreach sites are permanent and the catchment population is aware of the days services are provided at the site.
- ▶ Although immunization coverage is declining, coverage is still relatively high
- ▶ The Government has increased budgetary allocation for the purchase of routine vaccines
- ▶ The programme organized successful NIDs in 1998, 1999 and 2000
- ▶ The country has reached a near eradication poliomyelitis
- ▶ There is high public awareness about EPI Vaccines
- ▶ The country has successfully included two new vaccines into the immunization services.

Key Issues that need to be addressed

- ***Decline in immunization coverage:*** DPT 3 coverage has declined from 97% in 1998 to 74% in 2000 and fully immunization has declined from 80% to 69% over the same period.
- ***Uncertainty of Vaccine supply:*** The current funding sources for Hep B and Hib vaccines (the Italian Government and Aventis respectively), end within 4 months (December 2001). To date, there are no confirmed sources of financing for the two vaccines. The supply of these two vaccines, particularly the Hib vaccine, has been very erratic. The programme experienced Hib vaccine stock out at least 3 months each year of the last 5 years.
- ***Aging Cold Chain equipment:*** Although most of the cold chain equipment are still functioning, over 50% of them have been there for 10 years or more. At the moment, there is neither a replacement plan, nor available resources for replacement.
- ***Interruption of outreach services:*** over 50% of health facilities reported interruption of outreach activities as a result of unavailability of vaccines and/or transportation
- ***Absence of annual report of service delivery indicators:*** the team was unable to locate annual reports for the programme or the entire DOSH
- ***High vaccine wastage rates:*** Although vaccine wastage is not routinely monitored at any level, a vaccine utilization and wastage study conducted in 1999 reported a high wastage rate for all antigens.
- ***Need for strong advocacy for the programme:*** The EPI has been perceived as being fully funded by UNICEF and WHO, which may have been true in the 1980s and

1990s, but this is no longer the case. Hence, there is a need for strong and high level advocacy to compete for Government resources.

- ***Weak inter-Unit collaboration:*** All EPI data from the field are sent to the ESU, but there is no mechanism in place for the information to be shared with the EPI. Making this situation worse, the ESU has not been analysing any to the health data. It was only recently that the DOSH began to make effort to have routine data analysed.

Key Recommendations

- Government to ensure continuous availability of vaccines
 - Increase and maintain vaccine line-item in the annual recurrent budget (for traditional vaccines)
 - Apply for GAVI support for both windows 1 & 2
- Replace and expand cold chain equipment urgently
- Government should develop a transport replacement policy
- Consider shifting from the use of four wheel to two wheel vehicles for outreach services
- Planning directorate should re-organize the ESU to ensure the collection and use of routine data at all levels
- DOSH to ensure the production of annual reports
- ESU to establish a mechanism for sharing routine data with relevant units
- Need to adopt the multi-dose vial policy (MDVP) and monitor vaccine wastage

1. BACKGROUND

1.1 Geography:

The Gambia is located in West Africa, bordered in the west by the Atlantic Ocean, in the east, north and south by Senegal. The country is divided into 6 sub-political divisions known as, the Divisions plus the Banjul City. The climate is hot during the rainy season (June to October) and cool during the dry season (November to May).

1.2 Population

In 1993 a housing and population census was conducted nationally. The total population was 1,038,145 with an annual growth rate of 4.2%. Females constitute 49.9%, women in the childbearing age group (15 to 49 years) 23%, under ones 3% and 1 to 4 year olds 13%. Birth rate is estimated at 43 births/1,000 population (1999 est.) and infant mortality rate: 75/1,000 live births (1999 est.) All estimates are based on the Census data 1993 projections. The main ethnic groups are Mandingo, 40%, Fulla, 19%, Wollof, 15%, Jola 11%, and Sarahulleh 9%. The major religion is Islam with 95% of the population being Muslim. Christians constitute 4% and traditionalists and others 1%. The 2001 estimated population to be 1.4 million.

Fertility levels in the country have been declining over the years. In 1999 it was estimated to be 5.1 a decline from 6.0 according to the 1993 Census.

1.3 Literacy

For both sexes 41% of the population 10 years and above are literate. Literacy rates are much higher for males, 55%, than females, 27%. Literacy levels are better in urban areas, 53% than rural areas, 33%. Overall 65% of the population 7 years and above have never been to school. In the urban areas this is 50% and the rural areas 74%.

1.4 Health

Government health services in the Gambia are provided through the Department of State for Health and Social Welfare (DoSH&SW). The health care delivery system is organized into three directorates: Directorate of Health Services, Directorate of Planning and Information, and Directorate of Support Services.

The Directorate of Health Services has overall responsibility for provision of health services, whilst the Directorate of Planning and Information has over all responsibility for the policy, planning, research, and health management information system; and the Directorate of Support Services is responsible for finance, transport and maintenance. The Directorate of Health Services is further subdivided into three technical divisions viz., Family Health, Disease Control, and Health Promotion and Protection. All the programme units fall within one of the

three technical divisions. For example, the Maternal and Child Health and Family Planning Unit and the Expanded Programme on Immunization Unit are under the Family Health Division; Malaria Control Programme, Control of Diarrhoeal Diseases Programme, Acute Respiratory Illnesses Programme and HIV/AIDS Control Programme are under Disease Control; and Health Education Unit, Mental Health and Environmental Health are under Health Promotion and Protection. In addition the primary and secondary level health services are also under the Directorate of Health Services. The exception is the hospitals, which are managed by semi-autonomous boards under the Permanent Secretary.

Administration and management of the primary and secondary level health services have been decentralized. Initially there were three health administrative regions, namely, Eastern Region (made up of the former MID and URD), Central Region (made up of LRD and the eastern half of NBD – the Badibus), and Western Region (made up of Western Division, KMC, the city of Banjul and the western half of NBD – the Niumis and Jokadu). From December 1992 to 1993, in a bid to further decentralize and strengthen the management of health services, six divisional health teams were created from the three regions subdividing them into two divisions each. Equally staff of the Regional Health Teams were reorganized to become the staff of the newly created Divisional Health Teams. The Divisional Health Teams are charged with the responsibility of managing the decentralized health care services. The impact of the decentralization process is limited, as the DHTs do not have autonomy with respect to financial matters and the deployment of staff. The DHTs remain functionally weak especially with respect to effective planning, co-ordination, supervision and the evaluation of implemented activities.

Since 1980 government health services have been run on the Primary Health Care (PHC) concept. The primary level refers to the Village Health Services, whilst the secondary level is the Basic Health Services. The VHS are in what is known as PHC villages. At the start of PHC implementation in 1980 these were villages with a population of 400 or more situated away from locations with health facilities. This criteria set in 1980 is still the guiding principle in selecting villages for PHC expansion. Small remotely located villages with fewer than 400 inhabitants have been made PHC and in some cases small villages close together have been made into one PHC cluster. All PHC villages or cluster of villages have a Village Health Worker and/or a trained Traditional Birth Attendant. These cadres of community health workers are volunteers selected by their respective communities after a process of sensitisation and trained by the Department of State for Health. PHC villages are organized into groups called circuits, which usually comprises between 5 and up to 9 PHC villages. A Community Health Nurse supervises each circuit.

The secondary level has three different types of basic health facilities, viz., major health centres, minor health centres and dispensaries. The services common to all these types of facilities include outpatient services, MCH, FP and Immunization services, environmental health services and registration of births and deaths. Some minor health centres have inpatient facilities in addition to the aforementioned services. The major health centres have theatre and laboratory facilities to handle minor operations and obstetric emergencies.

The MCH, FP and Immunization services in the secondary facilities are offered in an integrated way known as combined clinics. The mother visiting the facility with

her child receives all the services at that one visit, both for herself and her child. These combined clinics are offered at the base facility and the outreach stations. Each base facility has a number of outreaches, which are visited usually once or twice monthly. At these outreaches mothers within that catchment area converge to receive services. Staff running the base combined clinics are the same personnel who go on outreach. A typical MCH Team comprises a Nurse Midwife (SCM or SEN Midwife), 2 CHNs, 1 Health Officer and a Community Nurse Attendant

Tertiary services are currently provided by three hospitals – the Royal Victoria Hospital (RVH) in Banjul, Bansang Hospital in Central River Division and the AFPRC General Hospital in Farafenni. Construction of a fourth hospital in Bwiam, in Western Division is nearing completion. A fifth hospital is planned for in Serre Kunda in the Kanifing Municipality.

EPI Services

An EPI Unit located in the Department of State for Health, is responsible for the planning, overall supervision, implementation, monitoring and evaluation of the programme. In line with health sector reforms, six decentralized divisional health teams are responsible for the delivery of immunization as well as the supervision and monitoring of these activities in static and outreach clinics in their respective divisions. A coordinating committee, the Interagency Coordinating Committee (ICC) that is chaired by the Director of Health Services and meets on a quarterly basis, provides support to the EPI Unit. Since 2001, the ICC has assumed more responsibility for the overall co-ordination of all aspects of the EPI and not just the National Immunization Days for Polio. Membership of this Committee outside the health sector, includes research institutions (MRC) the Chamber of Commerce UNICEF, WHO, Rotary International, EU and the ADB.

In 1999, under the Vaccine Independent Initiative, the Government for the first time ever instituted a budget line for the procurement of vaccines and consumables amounting US\$131,275.93 in the recurrent budget

Since its inception in May 1979, the EPI progressively increased immunization coverage within its target population until 5 years ago when coverage started to fluctuate. .

Initially, the program used the mobile strategy (i.e. visiting villages and immunizing target children and pregnant women) that was found to be expensive and not sustainable. In that regard, the Department of State for Health (DOSH) decided to use the Maternal and Child Health (MCH) teams to deliver the immunization services at all the static and outreach clinics. In 1995 the private clinics were involved in the provision of immunization services to increase immunization delivery points.

Programme Objectives

(a) General Objective

To reduce childhood morbidity and mortality due to vaccine preventable diseases.

(b) Specific Objectives

- ▶ Raise awareness in the general public, particularly among parents, on the importance of immunization
- ▶ To attain and maintain 99% coverage for OPV3 in the under ones.
- ▶ To eradicate poliomyelitis by the year 2005
- ▶ To attain and maintain the elimination of Neonatal Tetanus in The Gambia.
- ▶ To attain and maintain the reduction of Measles deaths by 95% and the number of cases at 90% when compared to the pre-EPI level.

2. THE REVIEW

According to existing information, there has never been a comprehensive EPI review in The Gambia. However, components of the programme have been assessed over the years and those assessments identified some strengths and challenges that needed to be explored further. . The current review is in response to the need for a comprehensive assessment of the programme.

2.1 OBJECTIVES OF THE REVIEW

2.1.1 General Objective

To review the management, coordination, funding, service delivery, the achievements and constraints of EPI in The Gambia with a view to guiding future performance towards sustainable EPI target diseases control and maximum impact on child survival.

2.1.2 Specific Objectives

- ▶ To undertake a management audit of EPI and propose strategies for a more effective programme management.
- ▶ To review operations regarding vaccines procurement, quality, stock management and distribution.
- ▶ To review the cold chain logistics system and define strategies that will ensure efficient/effective systems.
- ▶ To review experiences associated with the implementation of new and underused vaccines (Yellow fever, Hepatitis B and the DPT-Hib) and propose a future course of action
- ▶ To assess the design, methods, materials and effectiveness of the communication component of EPI and propose strategies for improved community utilization of EPI services.
- ▶ To review EPI training and propose strategies that will ensure an effective and sustainable training support to the programme.
- ▶ To assess the injection practices within EPI service delivery and propose practical and sustainable strategies (depending on the breath of injection safety study being analysed).
- ▶ Using available information from the routine reporting, Multiple Indicator Cluster Survey (MICS), documented EPI and other studies, determine cut-off for low performing divisions, or pockets within the divisions.
- ▶ To identify the reasons for the low performance and make recommendations for improvement.

- ▶ To review the methods and the adequacy of the existing programme monitoring activities at various levels and make recommendations for improvement

2.2 FOCUS OF THE REVIEW

Generally, the review focused on the following components:

- *Overall programme management and coordination*: review of the structure, planning and coordination mechanism for the implementation of programme activities at the various levels.
- *Immunization service delivery*: assessment of strategies and activities involved in giving vaccinations, including experiences associated with the introduction of the tetravalent (DPT-Hib) and monovalent (Hep. B) vaccines in the routine programme.
- *Disease surveillance*: review of disease incidence, record keeping, and reporting; laboratory testing, with emphasis on AFP surveillance and polio eradication performance indicators.
- *Logistics*: evaluation of the delivery system of vaccines and other supplies, including, transport, adequacy of cold chain equipment, and waste management, documenting appropriateness.
- *Vaccine quality and supply*: Review of methods used in vaccine forecasting, procurement, and vaccine utilization and monitoring of vaccine wastage rates.
- *Advocacy and communications*: review of strategies, activities and channels for immunization education and promotion, social mobilization, and advocacy.
- *Human resources*: review of staffing pattern for EPI at all levels including pertinent policy issues (e.g. staff retention, postings and motivation)
- *Training and education*: review of the appropriateness of in-service and pre-service training
- *External environment*: examination of factors outside of the health system and EPI that influence the quality of EPI services
- *Sustainability*: examined strategies to retain the achievements of the EPI programme.

2.3 THE REVIEW PROCESS

The review process was implemented in 3 steps as outlined below (see Annex 1 for a diagrammatic presentation of the review process)

In addition, the team assisted the DOSH in revising the draft the EPI multi-year plan based on results of the review as well as the draft EPI Policy.

Step 1: Preparation Stage

An advance team composed of (DOSH staff, local technical staff of partner agencies, assisted by a National/local consultant) undertook activities in this step. The team performed the following:

- ▶ Finalized the TOR for the review team
- ▶ Collected, organized, and compiled needed information.
- ▶ Acquired materials and supplies for the review
- ▶ Selected central level elements, the Divisional and peripheral sites to be reviewed
- ▶ Identified and notified team members

Step 2: Planning Stage

All members of the team participated fully in this step and all subsequent steps.

Activities carried out included:

- ▶ Orientation of team members
- ▶ Adaptation and field-testing of data collection tools
- ▶ Training of interviewers
- ▶ Finalization of list of health facilities and PHC villages to be visited

Step 3: Implementation Stage

- ▶ Visit to pre-selected review sites at national, Divisional, health facilities, outreach and PHC village for data collection and debriefing staff at all levels.
- ▶ Data entry, analysis, report writing
- ▶ Debriefing of DOSH and ICC.

3. METHODOLOGY

The review assessed the four levels of the health care delivery system, namely: central, divisional, health facility (hospital, major and minor health centres, outreach post) and primary health care villages

3.1 Sampling

The DOSH assisted by the local consultant compiled and used a comprehensive list of public health facilities to be reviewed. Facilities were purposively selected taking into account a balance in the following criteria:

- ▶ Catchment area
- ▶ Performance of the division
- ▶ Location vis-à-vis peri-urban, urban and rural,.

With the limited number of hospitals (3) and major health centres (6), the DOSH decided that these should be reviewed in total. Additionally, 7 (20%) minor health centres, 42 (10%) primary health care villages and three outreach sites were observed.

3.2 Data collection Technique

The WHO/UNICEF Immunization Service Assessment Tool was adapted and used for the review. Interviewers used the tool to collect information from the various health workers and care givers in the selected facilities: Also interviews had to observe children being vaccinated where ever possible and cold chain.

3.3 Data collection

There were 7 teams , which participated in data collection consisting of two interviewers, a supervisor and data manager. Teams covering the large divisions (Western and Central River) were composed of four interviewers, one data manager and one supervisor. One external team member served as the overall team leader and was assisted by the local consultant. Data collection in Divisions was completed within three days. The team interviewing the staff in Central level took a longer time roughly five days to finish data collection. Only the supervisors and data managers assembled back in Banjul to give the feedback on the fieldwork experience.

3.4 Training and pre-testing

The team spent a day and a half adapting the WHO generic Immunization Service Assessment tools for the country. The tools include, a facility questionnaire, divisional and national level questionnaires. Following the adaptation, a two-day training of interviewers and supervisors was conducted. The training included classroom work and field-testing of the tools. The field-testing was done in the Western Division (the Greater Banjul area). The classroom component focused on the standardization of the interview process and coding of responses. After the pre-test the questionnaires were revised accordingly.

3.5 Data Analysis and Report writing

Data managers were also trained in data entry skills using Epi Info version 6. 04. Data managers were part of the team in the field to speed up data entry. Each data manager was given to a laptop to use to capture data. Microsoft Word was used to produce the report. The consultants and locals from WHO, UNICEF, EPI Unit and data managers participated in the production of the report as part of capacity building.

3.6 Limitations

Some of the key focal persons in EPI at Divisional, facility and Community level were not available during the review process. At community some health workers could not be reached. Also, there was no communication/social mobilization expert on the team and that created a gap.



4. DISCUSSION OF FINDINGS

4.1 PROGRAMME MANAGEMENT AND COORDINATION

The EPI Unit occupies two very small offices in the Medical and Health Department, (the manager in one and all others in the other) making work very difficult. Equally so, both the cold and dry rooms are very inadequate.

At national level, the EPI Manager, assisted by an Assistant Manager, heads the unit. In the Unit are also, a logistician, a data manager, a surveillance officer, a cold chain technician and a secretary to assist the staff.

For some of the staff, the roles and responsibilities are not well defined, vis-à-vis, no job descriptions. For instance, the day-to-day roles and responsibilities of the assistant manager are not clear. Also, there seems to be a lot of overlaps in the functions of the data manager and the surveillance officer. . The coordination between the EPI and other relevant units in the DOSH, particularly between EPI and ESU, Disease Control and MCH is very weak.

The programme manager and assistant manager would clearly benefit from additional management and EPI technical training.

At the divisional level, the EPI focal person is also responsible for all other preventive services as well as environmental and sanitation programme activities.

At the service delivery level, the health worker(s) provider all MCH services including immunization in the supermarket approach (all services available to the mother and child).

There is inadequate interaction between the national and the Divisional levels in the way of supervision, reporting and feedback.

The EPI unit lacks the basic means to communicate with the rest of the DOSH and partners. The telephone in the unit only receives calls but cannot call out, no fax or e-mail access. This makes it very difficult for the programme to communicate with other units in the DOSH as well as with partners.

The main mechanism for co-coordinating among partners is the Interagency Coordinating Committee (ICC), which groups the DOSH, NGOs, and the UN agencies and other partners to assure efficient implementation of programme activities. The role of the ICC has been broadened to play a more active role in the routine programme.

The critical issue at the service delivery level is the very high staff turnover (either by transfer within the Division or out). At least 50% of health workers surveyed had been in the position for less than a year. Although the team was told by national level that some EPI training had been conducted in the past 2 years, the health workers' practices and handling of vaccines could confirm they had been trained in

those aspects of EPI. Vaccine handling and injection practices observed were absolutely sub-optimum. This again could be attributed to the high turnover of staff, which does not match available resources for training.

4.2 SERVICE DELIVERY

Immunisation coverage for the various antigens have generally been above 90%. However, coverage has declined over the past five years. The DPT3 coverage has dropped from a high of 96.7% in 1998 to 74.4% in 2000. (See Table 4.1. The proportion of children fully immunised has also dropped from 80% in 1998 to 68.6% in 2000. The major reason primary reason given by both management and services providers for the decline in coverage is the frequent interruption of services. Services have been interrupted as a result of the following:

- ▶ Unavailability of vaccines. Funding for vaccines has in the past depended heavily on external support. The period of transition between transferring funding of procurement for routine vaccines to the government caused some initial delays which led to late arrival of vaccines
- ▶ The ‘new’ vaccines (DPT-Hib and Hep B) introduced into the programme over the past ten years were fully funded by external Partners. Intermittent supplies had led to shortages of vaccines in country
- ▶ Frequent breakdown of transport used for outreach services. Sixty-per cent of immunisation services are delivered using the outreach services. Most of the four-wheel vehicles have broken down and although a plan have been prepared for replacement, a funding source has not been identified.
- ▶ The private sector plays very little role in delivery of services, particularly in rural areas. Only two out of the 16 facilities surveyed have private/NGOs delivering immunization services in their catchment areas.

Table 4.1: Percentage immunization coverage over the last six years

Antigen	1995	1996	1997	1998	1999	2000
BCG	99.4	99.6	99.2	99.0	96.3	96.1
OPV3	94.5	87.0	98.5	95.2	87.8	91.8
DPT3	96.3	95.9	96.2	96.7*	87.5*	74.4*
Hib3				96.7*	87.5*	74.4*
Hep B3		88.0	93.4	92.8	87.6	86.9
Measles	91.1	93.8	91.1	91.9	87.9	91.7
Yellow Fever	91.1	94.6	91.6	90.8	85.6	90.8
TT2	95.9	90.7	86.7	96.8	70.6	75.5
Fully Immunised infants (<1yr)	79.5	80.6	83.7	79.8	64.1	68.6
BCG-DPT3 Drop Out Rate	3.1	3.7	3.0	2.3	8.8	21.7
Fully Immunised children <2yr	83.4	87.0	86.9	87.7	78.6	72.0

*From 1998, the tetravalent vaccine DPT-Hib was used

Source: EPI Coverage Surveys Reports, DOSH, The Gambia 1995- 2000

Routine reporting and feedback:

Routine data on vaccinations services are supposedly submitted to the Epidemiology and Statistics Unit through the divisions on a monthly basis. This information is neither collated for analysis nor are they shared with the EPI unit. Feedback is therefore not provided to lower levels. Of course timeliness and completeness in reporting is not monitored. The national EPI unit, however, has recently made a great strive to improve this situation. The Unit started monitoring some administrative data as of the beginning of 2001, although feedback is still not provided to lower levels.

Monitoring and supervision

Although some supervision from national level is performed through support from partners, this is not done on a regular basis. There is very little information of supervision conducted at all levels. There were no supervisory tools available.

Monitoring of immunization drop out is through the annual coverage survey. Hence the data is not used to monitor or improve program performance. Over the period 1995 – 2000, drop out rate (BCG-DPT3) increased from 3.1% to 22.6%. This is unacceptably high. Again, staff attributes this situation to the shortage of vaccine supplies and believe that this will be corrected with improved supply.

Injection Safety

Guidelines on injection safety have been included in the recently drafted EPI Policy (2001). In 1998, the GOG shifted to the use of Auto Disable syringes (AD) for all EPI injections with accompanying safety boxes.

An injection safety study conducted in early May 2001 revealed that 83.7% health facilities use AD syringes and 16.3% use disposable syringes for vaccinations. The study further revealed that safety boxes were available at 50% of health facilities. Sharps were seen in open containers exposing health workers to needle stick injuries in 79.7% of health facilities surveyed. About 71% and 52% of vaccinators and curative injection providers respectively had experienced at least one needle-stick in the previous year. Only 17% of facilities had any kind of incinerator.

During the present assessment, 44% of facilities reported that they had experienced stock outs of AD syringes in the past year. In a number of facilities, health workers were not using the boxes. Instead, sharps were deposited in open containers. In one instance, the health worker reported that there were no safety boxes when asked why sharps were inappropriately disposed of when an unopened carton of safety box was in his office. This raises the question of whether health workers know the use of the safety boxes.

Although the assessment team was told that draft EPI manual covering all aspects of EPI exist, it was not made available to the team. It has also not been

disseminated to the lower levels. Hence, in responding to the question of guidelines, a high percentage of respondents informed interviewers that they had not seen guidelines.

4.3 DISEASE SURVEILLANCE

The Epidemiology and Statistics Unit (ESU) was established in 1982 as the unit responsible for disease surveillance. The ESU has also been designated as the focal point for the newly introduced integrated disease surveillance (IDS) implementation. ESU coordinates surveillance activities with emphasis on all notifiable diseases and diseases of epidemic potential.

The Gambia recently conducted an integrated disease surveillance (IDS) assessment in an effort to adopt an IDS policy, building on the polio eradication initiative and AFP surveillance. Although IDS generally covers 17 diseases, the Gambia is contemplating on including 20 target diseases in various categories.

There is a laboratory located at each major health centre and each of the 3 government hospitals. These laboratories are

Health workers are required to provide immediate notifications of epidemic prone diseases and diseases slated for elimination and eradication to ESU through the Divisional Health Teams. The other group of diseases are called reportable diseases and they are reported monthly through hand delivery.

Acute flaccid Paralysis (AFP) surveillance system:

Table 4.3: Reported cases of selected vaccine preventable diseases 1995 – 2000

Disease	1995	1996	1997	1998	1999	2000
Measles	195	312	1585	127	856	336
AFP/Polio	1*	1*	0	0	0	0
AFP	0	0	0	0	0	13
NNT	7	2	0	0	1	2
Yellow fever	0	0	0	0	0	0
Cerebra-spinal meningitis	46	410	1685	703	252	205

*Source: Routine data – DOSH The Gambia

Prior to the year 2000, AFP surveillance was either none existent or very weak. However, with the appointment of the WHO EPI Advisor, the country made progress on AFP surveillance.

During the year 2000, 13 cases of AFP were reported. Stool samples were collected within 14 days from the onset of paralysis in 5 (38.5%) cases and send to the reference lab in Dakar for isolation. All cases investigated were found negative for the wild poliovirus.

From January 2001 to date, 9 cases have been reported and stools were collected within 14 days of the onset the paralysis in all cases (100%). All cases were reported negative for wild polio as well.

4.4 NEW AND UNDER UTILISED VACCINES

4.4.1 Disease Burden Studies and Impact

Hepatitis B

Prior to the introduction of the new vaccines, the Medical Research Council in The Gambia, conducted extensive studies. Surveys in the early eighties showed that more than 90% of the Gambian population are infected with the Hepatitis B Virus (HBV) by the age of 15 years. Fifteen to 20% of adults are persistent carriers of HBV, a condition that is considered to be the main risk factor for developing hepatocellular carcinoma. Horizontal transmission is the most important means of infection in The Gambia. The studies showed high vaccine efficacy rates, which convinced the Gambian Government to include the vaccine into the routine programme in a stepwise fashion in 1990.

A follow up of the initial children showed high protective antibody levels ten years after vaccine administration. However, study being conducted by MRC shows the that the protective antibody level diminish considerably by 12 years after vaccine administration. A trial is being planned to assess vaccine efficacy against HBV in adolescence by administration of booster doses.

Haemophylus influenza type B (Hib)

The burden of disease and deaths gave an indication of the importance of this disease for children in The Gambia. A successful vaccine trial of Hib conjugate vaccine (Hib-PRP-T) was conducted in The Gambia between July 1993 and December 1995. The vaccine was shown to be 95% effective in protecting Gambian infants against Hib invasive disease and also reduced x-ray documented pneumonia in children receiving the vaccine by 20%.

These impressive results of the trial led to the decision to implement Hib conjugate vaccine throughout the country. This vaccine was introduced nationwide into the Gambian EPI in

Yellow fever

Yellow fever vaccine was introduced in The Gambia in 1979 at the inception of the programme. Coverage has consistently been above 90% except in 1999. when coverage for all antigens declined. For The Gambia, yellow fever vaccine is therefore neither a new nor an under utilised vaccine.

4.4.2 Vaccine Financing

Prior to 1998, UNICEF, assumed responsibility for the procurement of routine vaccines (the six traditional antigens and yellow fever) as well as the provision and maintenance of the cold chain system. Following extensive consultations between UNICEF, the EU and the Government of The Gambia (GoG) the Gambia began to participate in the Vaccine Independent Initiative (VII). for Sahelian countries that had commenced in 1996. The Gambia became a signatory to this agreement in January 1999. The EU pledged a total of US\$250,000 from regional counterpart funds for the procurement of routine vaccines. A pre-payment system was established whereby following a request from the government; UNICEF procured Copenhagen vaccines on behalf of the government though. The government who subsequently received a refund from the EU reimbursed thereafter UNICEF. The major constraint related to the agreement has been the persistent late reimbursement of payments to UNICEF. This had a negative impact on the delivery of vaccines and hence on the number of orders that were placed under the VII project.

The original agreement for a term of two years expired in January 2001. The government has made some move towards assuming responsibility for the procurement of vaccines through the establishment in the health budget of a budget line specifically for vaccines. The amount of money however earmarked for 2001 (D1, 500,000 equivalent to US\$111,524.16) cannot cover the annual needs for vaccines and supplies estimated by the EPI Unit at US\$245,249.63.

A recent study reviewing the financing of all aspects of the Gambian EPI revealed that the annual cost of the EPI taking into consideration capital and recurrent costs was nearly 35% higher than previously estimated. The major contributors to this cost are vaccines and investment in the cold chain equipment. The outreach strategy is over 60% more costly than the fixed strategy, which is reflected in the differences also realized in fully immunizing children with the 2 strategies. Understandably, it cost USD37 to fully immunize a Gambian child as compared to the sub-regional estimate of USD15-25. This high cost is the result of the high cost of the Hep. B and Hib vaccines.

Financing for the procurement of Hepatitis B and Hib has been precarious. Funding for the procurement of Hepatitis B has been heavily dependent on external donors, namely, ADB and more recently the Italian government. The agreement with the Italian Government ends in December 2001.

The support for Hib vaccine (DPT-Hib) was arranged between The Gambian government, and a vaccine manufacturer, Pasteur-Merieux, (Aventis). The manufacturer was to supply a total of 1,000,000 doses over a period of five years. The supply of the vaccine has been irregular. This has led to stock outs, which has disrupted service provision. There are disputing claims between UNICEF and The Gambian government on one hand and Aventis-Pasteur on the other about the amount of vaccines supplied. The support however ends on December 31, 2001.

4.4.3 Changes implemented for new vaccine introduction

Changes that were implemented in order to introduce the above vaccines included:

- ▶ Estimation of additional cold chain space needed for the new vaccines and procurement of appropriate cold chain equipment
- ▶ Modification of infant welfare cards and forms used for data collection and reporting
- ▶ Training of staff on the new schedule, this included the use of samples to demonstrate how to store and handle vaccine reconstitution
- ▶ Sensitisation of media personnel on the new additions and awareness creation for care givers at MCH clinics.
- ▶ Remaining stocks of DPT vaccine was used in administering booster doses. Some vaccines expired before use.
- ▶ Development of IEC messages and materials covering the new vaccines for all target audiences

4.4.4 Impact on programme management

- ▶ The immunization schedule was modified to reflect the new additions
- ▶ Infants received additional injections, this was not perceived negatively, because caregivers have a high affinity for injections in The Gambia.
- ▶ National level increased supervisory visits to lower levels. Additional logistics (vehicles, fuel) was provided.
- ▶ Staff complained about the increased workload and mothers also spent more time at sessions.

4.5 ADVOCACY AND COMMUNICATIONS

The absence of a communication expert on the assessment team created a real gap. However, the tried to fill in the gap by making full use of the assessment tool to obtain information from community members and health workers at all levels.

EPI has always been recognised at the highest level of government as a priority programme of the Department of State Health. That commitment translated into Government's decision to participate in the VII in 1999. Since then, government has progressively increased its spending on vaccine procurement. Notwithstanding, Government needs to support other components of the programme, such as, cold chain equipment, training, and supervision. The Director of Health Services chairs the Inter-agency Co-ordination Committee.

There is currently no focal person at the national level for advocacy and communications. The Health Education Unit provides technical support for the development of IEC materials and during NIDs. Recently, a sub-committee of the ICC on Social Mobilisation was created. The main focus of committee at present is on organising Social mobilisation during NIDs. There are plans to expand its role to include support for routine EPI. Membership includes, government agencies, WHO, UNICEF and Rotary.

Health education is usually provided in the health facilities on a regular basis and at community gathering and other occasions. Health cadres such as Trained

Traditional Birth Attendants, Community Health workers, also give health education and information.

Informing the public

Community awareness about the importance of immunisation is very high in The Gambia. Both static and outreach clinics are well patronised by mothers and children. Mothers are offered an integrated package of both preventive and curative services at these clinics. This high patronage has been attributed to the impact of a project on Community Action For Immunisation Awareness (CAFIA) sponsored by the Canadian Public Health Association (CPHA) in the late eighties. A combination of strategies using chiefs, local artistes, schoolchildren, mass media (radio and television) were used to reach caregivers on the importance of immunisation.

Schoolteachers were given training in the basic benefits of EPI and were encouraged to include topics on immunisation in the curriculum of schools. School children were encouraged to educate community members about the importance of immunisations. Bi-annual competitions were held between schools to determine the school, which had provided the most education to the community, and awards were given to best performing schools. Immunisation coverage in the least performing divisions increased from below 50% to above 80% within two years. Coverage in other divisions also increased. The Gambia has since then been one of the countries with the highest immunisation coverage in Africa

While there is clear evidence of high level of awareness about immunisation services, only in one facility (6%), was a health worker observed giving information to the mother of the vaccines her child was to receive. Randomly selected mothers cited the following as the most important sources of information about immunisation for mothers:

- ▶ Health workers (including CHWs)
- ▶ Radio
- ▶ Friends/neighbours

In addition, 54% of mothers said they received all services during their visit to the facility or outreaches.

4.6 COLD CHAIN AND LOGISTICS

4.6.1 Analysis of Cold Chain Inventory

4.6.2

A national cold chain inventory conducted by the EPI staff in 1999 had not been analysed. The logistician on the assessment team analysed the data to have a general picture of the cold chain situation in the country. Results of the analysis are presented below.

Additionally, the team carried out a vaccine management assessment comprising of a review of the cold chain and vaccine supply as discussed in the following section

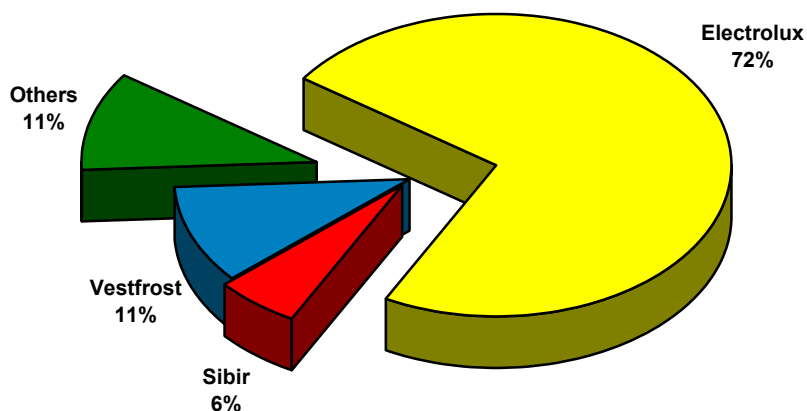
Type of equipment

The estimated total equipment available was 85. Of these, 59 are located at the various facilities of which 18 are at the DHT stores. About 50% of the total equipment is solar Electrolux RCW 42 DC.

Table 4.5: Breakdown of equipment manufacturers

Manufacturer	Number	Percent
Electrolux	62	72
Vestfrost	9	11
Sibir	5	6
Naps solar	1	1
Others (7 at national)	8	10
Total	85	100

Fig 1. Composition of cold chain



Energy source

The main energy used in operating refrigerators at the peripheral is solar. Electric compression and absorption equipment are installed at national and divisional level vaccine stores.

Age of equipment

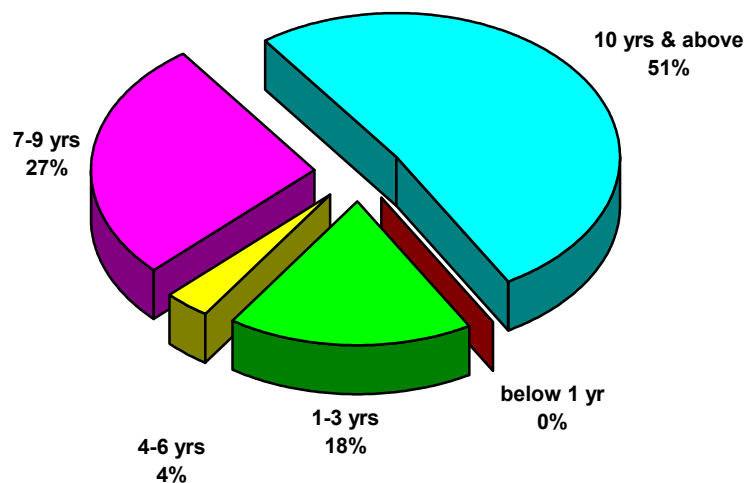
The average age of the cold chain equipment is 9 years. About quarter (25%) of these are about and/or below 5 years.

Table 4.6: Age group of equipment

Age group	Frequency	Percentage (%)
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10 years & above	44	51
7 - 9 years	23	27
4 - 6 years	3	4
1 - 3 years	15	18
Total	85	100

Fig. 2 **Age of equipment**



Working status of equipment

Twenty-seven (31 %) of equipment are non-functional and need immediate replacement. Of those functioning, most are too old and performing below standard.

The downtime for any break down to be fixed, ranges from 2 weeks to 3 months (or more). Action taken during breakdown of the cold chain equipment was to return vaccines to the district store, use cold box with ice packs, store vaccine in domestic refrigerator or store vaccines at the nearest major health centre.

Fig. 3 Vaccine management at different levels in The Gambia, 2001

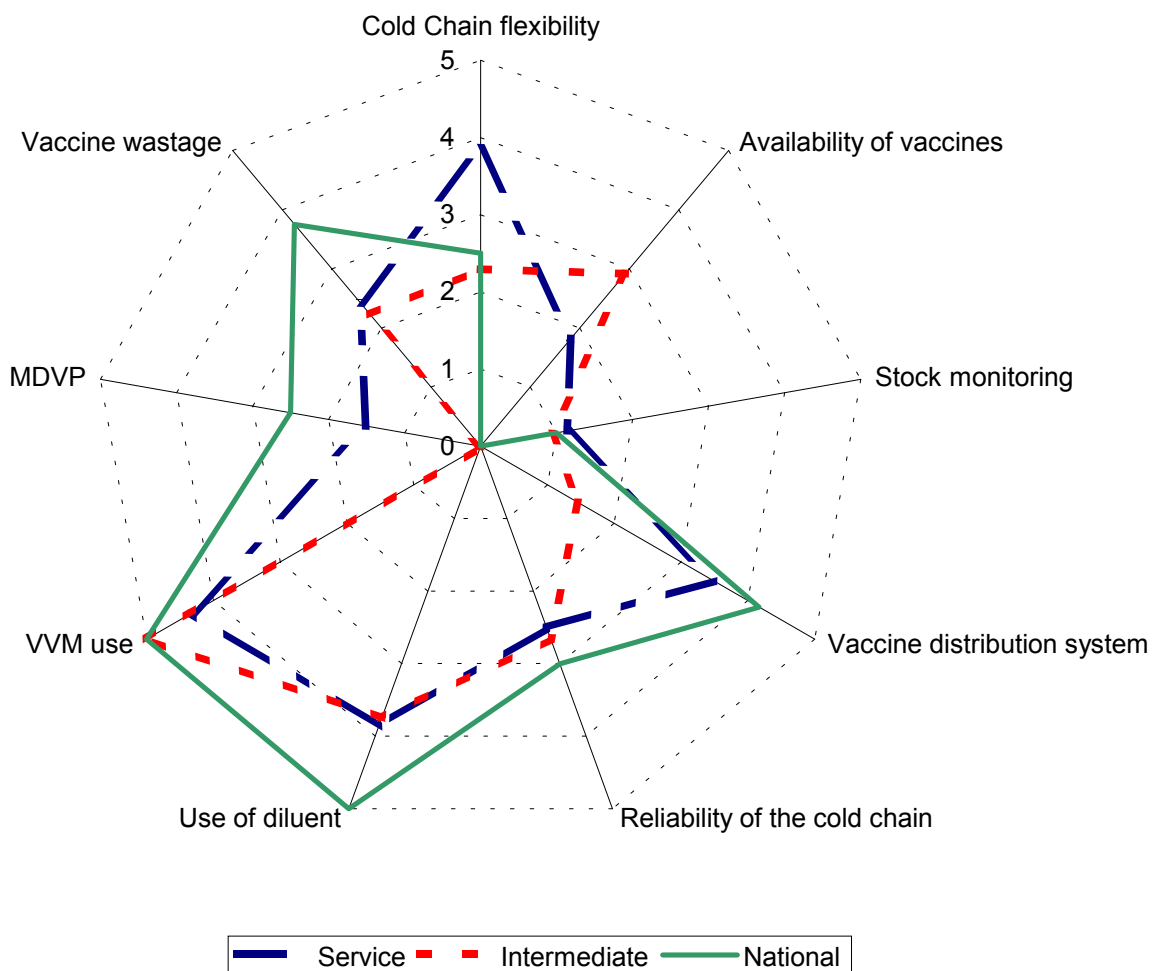


Table 4.8: Status of vaccine management at different levels

	Cold Chain flexibility	Availability of vaccines	Stock monitoring	Vaccine distribution system	Reliability of the cold chain	Use of diluent	VVM use	MDVP	Vaccine wastage	Average Total
H/Facility	3,9	1,8	1,1	3,5	2,5	3,9	4,3	1,5	2,4	2,8
DHT	2,3	2,9	0,9	1,5	2,7	3,8	5,0	0,0	2,2	2,4
National	2,5	0,0	1,0	4,2	3,0	5,0	5,0	2,5	3,8	3,0
Total	2,9	1,6	1,0	3,0	2,7	4,2	4,8	1,3	2,8	2,7

Flexibility of the cold chain

Greater percent of the equipment in place are the recommended standard for EPI although most are above 8 years, 3 to 22 years. (see table 4.6). There is inadequate storage and freezing capacity at the national level. At the national level, there is inadequate capacity for storage at 2 to 8 degrees Celsius at the national level. There is no space for receiving and/or packing of vaccines

There is no display of the indication of content in refrigerators. Inappropriate and over aged refrigerators in the store. Vaccine managers and health workers know and follow the correct procedures for vaccine transport and what to do when there is insufficient refrigeration capacity. In general there is the need to improve the vaccine storage capacity and handling at all levels.

Transport constraints has also contributed to disruptions of services (67% of planned trekking clinics) and cancellation of vaccination because of inability to go and collect vaccine at the DHT.

Reliability of the cold chain for vaccine storage

At all levels, vaccine storage temperatures were monitored twice daily and recorded on appropriate form. Higher temperatures were noted and these were due to stolen panels or poor battery for the system. Adequate refrigeration for service delivery exists at facilities. Sufficient cold boxes and vaccine carriers for transporting and distribution of routine vaccines are available.

Vaccine managers or the health workers know and follow the correct procedures for vaccine handling in case of a breakdown in the cold chain. There are not spare parts available. Adequate and regular preventive maintenance procedures such as defrosting are not followed at all the sites using domestic refrigerators (20%) as a back up. There is not enough frozen ice pack at all levels particularly at the facilities. Vaccine vials are exposed to heat during immunization session as these vials are placed on ice packs, which gets warm too quickly and are not replaced throughout the session.

Efficiency in vaccine distribution system

In general the level of efficiency for vaccine distribution system is satisfactory. Vaccine requirements have been estimated at the national for all divisions. Divisions and district levels do not estimated requirements for the facilities and have not established minimum and maximum stock levels to guide distribution. Notwithstanding, vaccine distribution and utilization are made according to FIFO, FEFO and VVM status at all levels.

4.6.3 VACCINE SUPPLY AND QUALITY

Availability of adequate quantity of vaccines

Inadequate quantities and shortages of some antigens at all level. In the current year, shortage of vaccines (Hib. yellow fever and OPV) was experienced for over a month. OPV is still in short supply since July, and at the national level only 800 doses available. The ability of staff to estimate vaccine requirement decreases from the national through the service delivery. Most vaccine requirement is based on consumption.

Stock recording system for vaccines and diluents

At the national level only the UNICEF receipt form is being used. There is no recording system for diluents and droppers. However, a satisfactory recording system for vaccine received and distributed is in place at the national level. The existing tools do not provide information on lot/batch numbers and expiry dates.

Nevertheless, there is an effort to include details such as batch/lot numbers and expiry dates in the records of vaccines received.

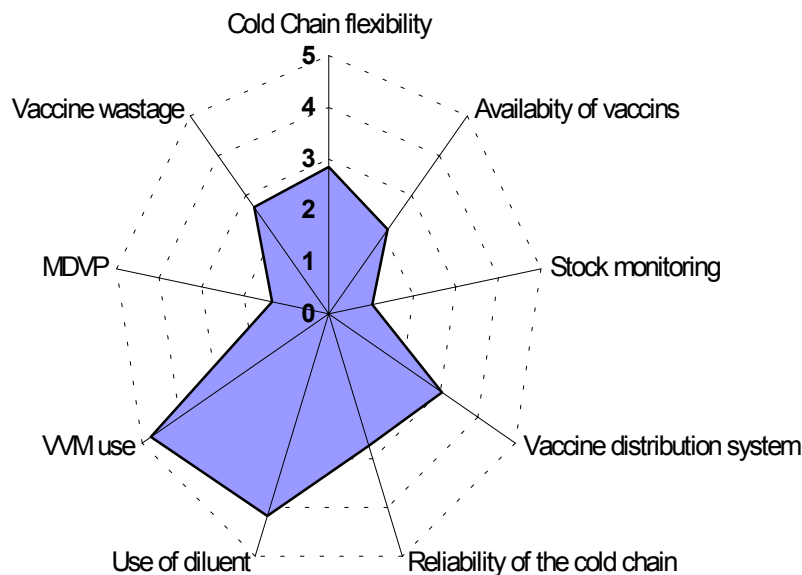
Usage of proper diluents for freeze-dried vaccines

All freeze-dried vaccines used in the country are received and distributed with equal amount of diluent.

Effective use of VVM

Vaccine managers are knowledgeable in interpreting VVM on OPV and fully use it as a management tool. The VVM on the current stock of OPV were all at stage 1. Currently there is a new stock of Hepatitis B recombinant vaccine with VVM indicator.

Fig. 4: The overall performance on Vaccine Management in the Gambia, 2001



Implementation of Multi-dose Vial policy – MDVP

MDVP has not been adopted as a national policy.

Monitoring Vaccine wastage

The national level has since revised the wastage rates for vaccine estimation. However, there is no tool for proper monitoring of vaccine utilization. Data is being collected at some facilities but are not available and analysed for programme management to institute appropriate action.

Availability of flexible cold chain

At the national level there is inadequate storage capacity for storage at 2oC to +8oC as such vaccines are closely packed with little airflow between packages. In situation of inadequate storage capacity due to excess vaccine, the MRC and private stores could easily be accessed. There is no ice-pack freezer and inadequate frozen icepacks.

There is no information on the doors or on the shelves to indicate the type, expiry date and quantity of vaccine and/or diluents in stock

At the divisional and service delivery levels, (80%) of all the equipment in use are from the PIS and the available storage capacity is adequate at all the stores. Alternative storage capacity is always available. In facilities where domestic refrigerators (20%) are being used as a back-up or replacement for the solar, other items are stored in the refrigerators and the system is not properly maintained.

None of the sites visited had information on the refrigerators indicating the type and quantity of vaccine in stock. In 30% of the stores, vaccine managers have knowledge on vaccine storage capacity and able to adjust supply period for efficient use of available cold chain space.

Vaccine managers know and follow the correct procedures for vaccine transport.

Reliability of cold chain for vaccine storage

Storage temperatures are monitored twice daily and recorded on appropriate forms at the national level. Within the last 6 months the temperature has been in the appropriate range.

There is inadequate ice-pack freezing capacity. Cold boxes from the divisional stores are used for vaccine distribution/collection from the central store. There is a stand-by generator, which is switched over when there is a power-cut from the national grid.

The national technician undertakes maintenance of the cold store. There is no schedule for preventive maintenance; most often repairs are undertaken.

In all the stores at the divisional level, storage temperatures were monitored twice daily and recorded on appropriate forms. Within the last 6 months the temperature has been in the appropriate range in 50% of the stores. However, in the other half the temperature has not gone beyond the required range for more than a day.

There is adequate ice-pack freezing capacity. There were sufficient cold boxes and vaccine carriers for transporting and distribution of vaccine when necessary.

In 80% of the divisional cold stores there are functional stand-by generators. All the divisional stores are linked to the main electricity supply system in place and therefore use compression refrigerators. No stock of spare parts or electrolytes for solar compression refrigerators. Although the national level has a scheduled for preventive maintenance of equipment at the divisional and health facilities, it is irregularly conducted.

All the stores at health facilities, storage temperatures were monitored twice daily and recorded on appropriate form. Within the last 6 months the temperature has been in the appropriate range in about 70% of the sites. In the other 30% the temperature has not gone beyond the required range for more than a day.

There were inadequate frozen ice-packs in all the sites visited. Ice-packs are frozen at the DHT. There were vaccine carriers for transporting vaccine during immunisation services.

Except for two sites in Banjul, all the service delivery sites visited were using photovoltaic solar compressor refrigerators. There were problems with batteries and chargers.

4.6.3 Vaccine Management

While vaccine wastage rate is not routinely monitored at service levels, vaccine wastage study funded by European Union and conducted by staff of the EPI Unit, reported the following wastage rates for the various antigens (Table 4.8 & 4.9²).

Explain tables please

Table 4.8: Vaccine utilization and wastage, January to June 1988

Vaccine Doses	Antigen or type of vaccine							
	DPT	Hib	OPV	BCG	Hep. B	Measles	Y/fever	TT
Total received	63180	51070	140806	44190	34290	35600	40272	44520
Number of doses administered	28747	32882	76911	15921	21762	11917	12235	24597
Balance on hand	22097	13210	47170	17480	9790	17580	16451	14240
Wastage in doses	12336	4978	16725	10789	2738	6103	11586	5683
Wastage rate	30.03	13.15	17.86	40.39	11.18	33.87	48.64	18.77

Source: Vaccine utilization and wastage research, 24 May –30 June 1999, DOSH

Table 4.9: Vaccine utilization and wastage, January to December 1988

Vaccine Doses	Antigen or type of vaccine							
	DPT	Hib	OPV	BCG	Hep. B	Measles	Y/fever	TT
Total received	113617	93412	185982	63750	108543	62162	69612	75000
Number of doses administered	55356	56784	110819	24126	64894	23372	22510	39164
Balance on hand	38807	24520	41185	24310	32208	28112	28151	25650
Wastage in doses	19545	12108	33978	15314	11441	10678	18951	10186
Wastage rate	26	17.58	23.47	38.83	14.99	31.36	45.71	20.64

Source: Vaccine Utilization and Wastage Research, 24 May –30 June 1999, DOSH

² Vaccine utilization and wastage research, 24 May –30 June 1999; by Kebba B. Jobe et al.

Vaccine Supply and quality

Prior to 1999, UNICEF financed the cost all traditional vaccines (DPT, OPV, Measles and TT) use in the routine programme. During the period, there were adequate supplies of those vaccines at all times and the programme maintained a high immunization coverage rate (SEE TABLE--).

In 1997, the *Haemophilus Influenzae type b* vaccine was introduced in the routine following vaccine efficacy trial, which was conducted over a period of two years. The vaccine is administered in combination with DPT as diluents. At the time of the introduction, the vaccine manufacturer (Adventist) supposedly agreed to donate one million doses of the GOG over a five-year period (1997-2001), giving 200 doses annually. Unfortunately, this agreement was never documented; hence, there exist no legal binding. However, the manufacturer has over the years, supplied the vaccine although erratically. Because of the erratic nature of supplying the Hib vaccine, the programme has experienced numerous vaccine stock-outs over the years. Children have been denied the four antigens (DPT & Hib) although the DPT was available. Making the situation more serious is the fact that there is no source of supply of Hib vaccine in site for the rest of this year. According to DOSH records, there is an outstanding amount of 200 doses of the Hib vaccine, but Adventist argues that they have supplied all of the one million doses promised.

The other vaccine introduced into the routine programme was the Hep B in 1997 also following a vaccine efficacy trial. With this vaccine, the Italian Government committed to financing the vaccine for 5 years (1997-2001). While it is known that this agreement ends in four months, there is neither a renew discussion between the Italian and The Gambia nor is there an alternative source of financing the vaccine.

There is currently no OPV at central and Divisional levels and most facilities. A few facilities have few doses of the vaccine.

Injection safety

In 1998, the GOG shifted to the use of Auto Disable syringes (AD) for all EPI injections with accompanying safety boxes. An injection safety study conducted in early May 2001 revealed that 83.7% health facilities¹ use AD syringes and 16.3% use disposable syringes for vaccinations. The study further revealed that only safety boxes were available at on 50% of health facilities and sharps were seen in open containers exposing health workers to needle stick injuries was observed in 79.7% of health facilities surveyed and the 71% and 52% of vaccinators and curative injection providers respectively had experienced at least one needle-stick in the previous year. Only 17% of facilities had any kind of incinerator.

During the present assessment, reported that they had experienced stock outs of AD syringes in the past year. In a number of facilities, health workers were not

¹ National Survey on Injection Safety, April 2001

using the boxes. Instead, sharps in deposited in open containers. In one instance, the health reported that there were no safety boxes when asked why sharps were inappropriately disposed off. In actual fact, there was a cartoon of 20 safety boxes in site. This raises ad question of whether health truly know the use of the safety boxes.

Until the last five years, the immunization programme of the Gambia had managed to secure adequate supplies of vaccines for all of its target population. However, with the introduction of the Hib vaccine, which is administered in combination with DPT, there have been numerous missed opportunities as a result stock outs, mainly Hib vaccine. There have been instances when children were denied DPT, although the DPT was available, but there was no Hib vaccine.

The Department of State for Health manages the central EPI store/warehouse under the direct management of the National Logistician supervised by the EPI Programme Manager. All vaccines and cold chain equipment are stored at the central EPI Warehouse prior to transfer to Divisional storage points under the control of the Divisional Health Team (DHT).

More recently, the programme has experienced shortages of traditional vaccines as a result of misunderstanding about who should pay for the vaccine-----

5. CONCLUSIONS AND RECOMMENDATIONS

In conclusion, the assessment revealed the following strengths and challenges of the programme, based on which the team put forth the following recommendations. These were grouped into the various programme components.

5.1 PROGRAMME MANAGEMENT AND COORDINATION

Strengths

- Full complement of staff at national level
- Committed motivated staff
- Support from non traditional partners (Christian Children Fund, Catholic Relief Services)
- Support for quarterly supervisory visits to lower levels

Challenges

- Lack of training on programme management for newly appointed EPI Manager
- There is no clear delineation of roles and responsibilities of staff at national level
- Lack of co-ordination among colleagues, staff work in isolation
- Lack of communication equipment to facilitate flow of information with other units and lower levels
- There is inadequate working space for EPI Team

Recommendations

- Support EPI to attend training on programme Management for managers
- WHO/UNICEF should provide technical support in areas of strategic planning, monitoring of logistics and vaccine management.
- WHO/UNICEF should support EPI management to prepare job description of staff
- Unit should prepare job descriptions for its staff.
- Staff should be supported to work as a team and be able to support each other when necessary
- Regular weekly meetings should be introduced to co-ordinate activities
- Provision of telephone, fax, e mail at national EPI office
- Expansion of office or provision of new offices for team

5.2 SERVICE DELIVERY

Strengths

- Access to health services is high – 90% of population live within 7.5 km of a health facility
- High rate of access to MCH services including immunization: All health facilities provide services at both static facility and a number of outreach sites. The outreach sites are permanent and the catchment population is aware of the days services are provided at the site.
- Immunisation coverage in two-thirds of DHTs met national targets. All 6 DHTs reported the targets set by the national level reasonable.

Challenges

- ❑ Lack of monitoring of immunisation services information-routine administrative data is unavailable, especially at national level
- ❑ Staff at service delivery level not aware of national targets
- ❑ Staff at service delivery level not using target population to monitor vaccination coverage
- ❑ Timeliness and Completeness not monitored at national and Divisional levels
- ❑ Feedback not provided to lower levels
- ❑ Only 47% of staff administer vaccines at right interval
- ❑ Marked decline in vaccination coverage over the past two years
- ❑ 69% of health facilities could not conduct outreach clinics as planned
- ❑ Staff at service delivery not monitoring drop-out rates
- ❑ Vitamin A supplementation not fully integrated in MCH activities

Recommendations

- ❑ Annual EPI targets should be circulated to all Divisions and facilities for the proceeding year. National level should support lower levels to determine target populations and monitor coverage.
- ❑ National level should monitor coverage by facility catchment area on a monthly basis.
- ❑ Divisional Summaries should be prepared on a quarterly basis and provided as feedback on performance.
- ❑ Introduce EPI monitoring charts at facility level
- ❑ Targets for timeliness and completeness should be circulated to all staff and feedback should be provided to lower levels on submitted data
- ❑ Training needs assessment should be done with development of long term training plan.
- ❑ Simplified manual on EPI is needed at facility level as reference material
- ❑ Provide regular training for staff and post training supervisory support
- ❑ Need to address reasons for decline in coverage.
- ❑ Ensure regular supplies of vaccines and other supplies.
- ❑ Implement transport replacement policy and use of alternate transport
- ❑ Address replacement of cold chain equipment
- ❑ National level to train all levels on how to monitor drop out rate and institute system of reducing drop out rate
- ❑ Develop with Nutrition and MCH unit an implementation plan for integration of Vitamin A supplementation into MCH activities

5.3 DISEASE SURVEILLANCE

Strengths

- ❑ There has been a decline in the incidence of vaccine preventable diseases over the past decade.
- ❑ Three-quarters of facilities do zero reporting for vaccine preventable diseases
- ❑ The EPI Unit has initiated bimonthly surveillance meetings with designated surveillance staff from the divisional level and other units at the central level

Challenges

- ❑ Outbreaks of measles over past three years
- ❑ Reported cases of neonatal tetanus increasing
- ❑ Lack of availability of guidelines on surveillance for reporting on vaccine preventable diseases
- ❑ Lack of collaboration between EPI and ESU in sharing surveillance information

Recommendations

- ❑ Measles outbreaks may be due to fluctuations in coverage or breakthrough outbreaks.
- ❑ Programme should develop a five-year plan for accelerated measles control in partnership with its neighbour, Senegal.
- ❑ National level to institute case based surveillance for NNT and ensure that MNT elimination is maintained
- ❑ Implement Integrated Diseases Surveillance strategy nation wide. Institute case based surveillance for measles, NNT and Yellow fever
- ❑ Institute regular co-ordination meetings between the two units. ESU should pass surveillance information to EPI regularly

5.4 NEW AND UNDER UTILISED VACCINES

Strengths

- ❑ Disease burden studies were successfully conducted to establish the need for new vaccines
- ❑ The country successfully introduced two new vaccines over a ten year period – (Hep B and DPT-Hib)

Challenges

- ❑ Lack of long term vaccine financing plan for routine and ‘new’ vaccines
- ❑ Lack of plan on replacement of cold chain equipment
- ❑ Frequent breakdown of transport used for outreach services

Recommendations

- ❑ DOSH should prepare a strategic costing plan for both routine and new vaccines and injection safety materials
- ❑ Cost of routine vaccines and injection safety materials should be included in Poverty Alleviation plan for possible funding under debt relief
- ❑ ICC should make arrangements with Italian Government for possible extension of support for supply for monovalent Hepatitis B for next two years
- ❑ Government of The Gambia should process GAVI application for support for Hep B and DPT-Hib vaccines and injection safety materials
- ❑ Report on cold chain inventory and replacement plan should be completed and presented to the ICC
- ❑ Funding sources should be identified for support of plan
- ❑ Replacement plan for ageing transport should be prepared for funding from possible donors
- ❑ DOSH should consider using two wheel instead of four wheel transport for outreach activities

5.5 ADVOCACY AND COMMUNICATIONS

Strengths

- ❑ The programme has a high level of political commitment. Decision makers consider EPI as the most successful health programme in the country. The government has increased its spending on the procurement of vaccines over the past two years.
- ❑ Interviews conducted with mothers at immunisation sessions during review revealed that health workers are the most important source of information on EPI to care givers
- ❑ There is a high level of awareness about the importance of immunisation in communities

Challenges

- ❑ Lack of strategic plan on communication for Routine EPI, NIDs and Surveillance
- ❑ Lack of IE &C materials at health facilities
- ❑ Danger of loss of credibility in the programme by care givers (due to frequent shortage of supplies and breakdown of transport)

Recommendations

- ❑ Training should be conducted for DHTs on how to prepare their own strategic plans
- ❑ Health Promotion and Protection unit should support EPI to produce strategic plan
- ❑ EPI should identify sources of funding for plan
- ❑ Implement plan
- ❑ IEC materials planned for in strategic plan should be produced for facilities
- ❑ DOSH should ensure availability of supplies and appropriate transport for service delivery

5.6 LOGISTICS, AND VACCINE SUPPLY AND QUALITY

Strengths

- ❑ The programme follows the established stores procedure for request and issues with appropriate requisition books.
- ❑ Satisfactory recording system for vaccine received and distributed is in place at the national level
- ❑ All the service delivery stores has photovoltaic solar refrigeration system.
- ❑ At all levels, vaccine storage temperatures were monitored twice daily and recorded on appropriate form.
- ❑ Eight percent (80%) of the equipment in place are the recommended (PIS) standard for EPI
- ❑ Adequate refrigeration for service delivery exists at facilities. Sufficient cold boxes and vaccine carriers for transporting and distribution of routine vaccines are available.
- ❑ Vaccine managers or the health workers know and follow the correct procedures for vaccine handling in case of breakdown in the cold chain.

- ❑ Vaccine managers are knowledgeable in interpreting VVM on OPV and fully use it as a management tool. The VVM on the current stock of OPV and new stock of Hep B vaccines were all at stage 1.

Challenges

Cold chain capacity, rehabilitation and replacement

- ❑ Inadequate storage and freezing capacity at the national level.
- ❑ There is no ice-pack freezer at the central and inadequate frozen icepacks at all level.
- ❑ Lack of frozen ice packs for outreach services.
- ❑ Vaccine closely packed and in some cases haphazardly arranged in refrigerators

Vaccine coordination

- ❑ There is not enough coordination between the programme and suppliers.
- ❑ No coordination and dissemination of vaccine status. The capacity for the estimation of vaccine and supplies is reduced through the various tiers to the lower level.

Stock monitoring and distribution system

- ❑ Inadequate monitoring system on vaccine and supplies stockade.
- ❑ No recording system in place for vaccines, diluents and droppers received and issued or used.
- ❑ Divisions and district health teams do not estimated requirements for their facilities
- ❑ No established minimum and maximum stock levels to guide distribution.

Recommendations

- ❑ There is urgent need to develop and implement a plan for the rehabilitation and replacement of aged and non-functioning equipment. Improve the vaccine storage capacity through expansion of the space and provision of equipment including ice-pack freezers at the national level. For the service delivery sites, solar refrigerators with adequate freezing capacity.
- ❑ Ensure neat arrangement of vaccines to allow the flow of cool air around vaccines. Proper indication of the content of refrigerators must be displayed on appropriate forms.
- ❑ Programme management need to liase and alert early UNICEF or suppliers of expected shortages. The Department of State for Health & Social Welfare/EPI Manager need to be assisted in co-ordinating the forecasting of vaccine and equipment requirement and distribution in consultations with the health partners.
- ❑ At the national level the UNICEF standard vaccine arrival report must be implemented.
- ❑ At divisional and lower levels, a standardized format for vaccine monitoring (recording issues and receipts) must be developed, distributed and used.

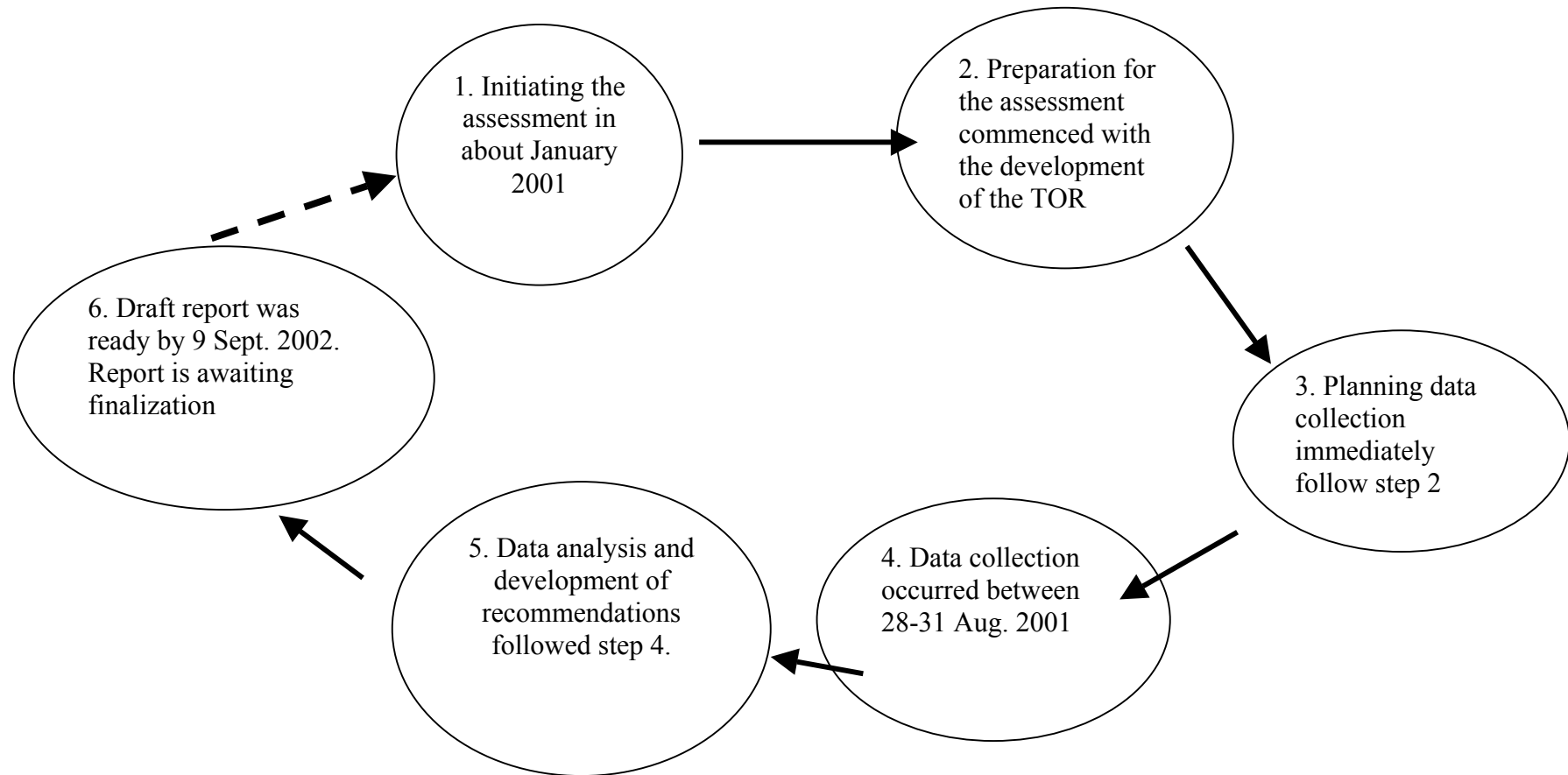
- ❑ A standardized format for recording issues and receipts and other details (e.g. by modifying the current format in use at the national cold store to include columns for entering lot/batch number and expiry date) must be developed, distributed and used.
- ❑ All sub-national levels should establish minimum and maximum stock levels
- ❑ All levels should institute monthly vaccine distribution report

REFERENCES

1. Changing for Good, Health Policy Framework, 2001-2005 (DOSH, The Gambia)
2. EPI Financing Study –the Gambia, 2001
3. Injection Safety Study, 2001
4. Health Care Waste Management Study, 2001
5. Vaccine Utilization and Wastage Study, 2000
6. Annual EPI coverage survey reports (1995-2000)
7. Public Expenditure Review of the Health Sector, 1998
8. Interim Draft Public Expenditure Review of the Health Sector, 2001

ANNEXES

6.1 Annex 1: The Assessment Process



6.2 Annex 2: List Of Participants For The Gambia EPI Assessment

No	Names	Designation	Place of work
1	Rose Macauley	International Consultant	WHO/AFRO
2	Mercy Essel Ahun	International Consultant	EPI/Ghana
3	Paapa Turkson Obimpeh	International Consultant	WHO/ICP/WA
4	Cherno Jallow	Local Consultant	Banjul
5	Ayo Palmer	Technical Advisor	UNICEF/Gmabia
6	Dodgi Tagodoe	Technical Advisor	WHO/Gambia
7	Alpha Njie	Supervisor	National EPI
8	Yamoundow Lowe-Jallow	Supervisor	National EPI
9	Momodou Gassama	Supervisor	WHO/Gambia
10	Pilat Khulimani	Supervisor	WHO/Gambia
11	Sidat Fofana	Data Manager	National EPI
12	Bai Cham	Data Manager	National EPI
13	Robert Ninson	Data Manager	National EPI
14	Fatajo Momodou	Data Manager	National ESU
15	Abdoulie B. Jah	Data Manager	National Eye care
16	Sheriff Senghore	Interviewer	Western Division
17	Omar B. Njie	Interviewer	Central River Division
18	Baba Balajo	Interviewer	North Bank East
19	Sanjally Trawalley	Interviewer	North Bank East
20	Yorro Bah	Interviewer	Central River Division
21	Saikou Barrow	Interviewer	North Bank West
22	Saikuna Sagnia	Interviewer	Lower River Division
23	Halimatou Baldeh	Interviewer	Western Division
24	William Mendy	Interviewer	Upper River Division
25	Musa Camara	Interviewer	Central River Division
26	Hamat Sowe	Interviewer	North Bank West

27	Momodou Lamin Manneh	Interviewer	Upper River Division
28	Karamba Keita	Interviewer	Western Division
29	Buba Jagne	Interviewer	Central River Division
30	Bafoday Jawara	Interviewer	Upper River Division
31	Sheriff Darboe	Interviewer	Lower River Division

6.3 Annex 3: Location Of Sites Visited For The Review

Facility/Institution	Central	Western	NBD-West	NBD-East	LRD	CRD	URD	Total
Special Units	4	0	0	0	0	0	0	4
DHT Office	0	1	1	1	1	1	1	6
Hospital	0	1	0	1	0	1	0	3
Major Health Centres	0	2	1	0	1	1	1	6
Minor Health Centres	0	2	1	1	1	1	1	7
PHC Villages	0	14	4	4	4	8	8	42
MCH/EPI Outreaches	0	1	1	1	1	1	1	6
Total	4	21	8	8	8	13	12	74

Central Team	Western Team	NBD-West Team	NBD-East Team
1. EPI Unit	1. DHT	1. DHT	1. DHT
2. MCH/FP Unit	2. RVH	2. Essau Major H/C	2. AFPRC Hospital
3. ESU	3. Faji Kunda Major H/C	3. Kuntair Minor H/C	3. Ngayen Sanjal Disp.
4. ICC	4. Brikama Major H/C	4. Fass Chaho	4. Suware Kunda
	5. Bakau Minor H/C	5. Aljamdu	5. Jumansare Bah
	6. Sukuta	6. 1 Outreach Clinic	6. 1 Outreach Clinic
Western Team (Cont'd)	7. Kerewan	7. Sitanunku	7. Katchang
15. Nema Kunku	8. Busura	8. Ker Omar Saine	8. Ballingho
16. Madiana	9. Bakary Sambouya		
17. Nyofelleh	10. Tuba Kuta		
18. Berending	11. Sangajorr		
19. Bonto	12. Chabai		
20. Sutusinjang	13. Leman St. Clinic		
21. Kanilai	14. 1 Outreach Clinic		

LRD Team	CRD Team	URD Team	Pre-Test Sites
1. DHT	1. DHT	1. DHT	1. Serre Kunda Minor H/C
2. Soma Major H/C	2. Bansang Hospital	2. Basse Major H/C	2. Banjulinding Disp.
3. Kwinella Disp.	3. Kuntaur Major H/C	3. Diabugu Dispensary	3. Sukuta Maternity Clinic
4. Sandeng	4. Brikama Ba Disp.	4. Jaa Kunda	4. Busumbala PHC
5. Medina Angalleh	5. Bati Jaha	5. Sare Alpha	5. Sinchu Alagie PHC
6. 1 Outreach Clinic	6. Bayaba	6. Gambisara Lamo	6. Old Yundum PHC
7. Jappineh	7. Pateh Sam	7. Nyamanarr	
8. Buiba	8. Kerr Ousman Boye	8. 1 Outreach Clinic	
	9. 1 Outreach Clinic	9. Numuyel	
	10. Fulla Kunda	10. Sabi	
	11. Sotokoi	11. Garawol	
	12. Yeroberi Kunda	12. Song Kunda	
	13. Dobong Kunda		

6.4 Annex 4: Adapted Questionnaires

1. Annex 4a: National Level Questionnaire
2. Annex 4b: Divisional Level Questionnaire
3. Annex 4c: Facility Level Questionnaire