Report

DATA QUALITY AUDIT – Nigeria
Date: from 16th October – 6th November 2006

Global Alliance for Vaccines and Immunisations

EURO HEALTH GROUP
consultants

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Executive Summary

Objective of DQA:
The DQA has been designed to assist the countries receiving GAVI support to improve the quality of their information systems for immunisation data. In addition, it calculates a measure of the accuracy of reporting.

Method:
The DQA was undertaken by two international senior auditors and two national counterparts. The team worked at national level of HMIS and EPI, state level, before visiting four districts and six health facilities in each district. The four districts and 24 health facilities were selected randomly. The standard DQA method (GAVI, 2003) was applied, which included use of interviews, administration of questionnaires and recounting.

DQA Indicator Dashboard:

	2002	***2005 (Audit Year)***	***change since 2002***
Verification Factor (>0.8) *(Compares recounted to reported DPT3)*	*n/a*	*0.886*	
Core Indicators:			
DTP3 Coverage	<30%	*34.3%*	
Drop Out Rates	n/a	*4.3%*	
Safety of Injections and Vaccine Safety			
Wastage Rate		*n/a*	-
Completeness of Reporting		*94.3%*	-
Vaccine Stock-Outs		*n/a*	-
Action Plans for Districts		*n/a*	-
QSI at National Level	51%	*75.5%*	*24.5%*
Average QSI for Districts	43%	*63.6%*	*20.6%*
Average QSI for Health Units	37%	*69.95%*	

Summary of principal findings and prioritised issues:

As a whole the performance of immunisation services in Nigeria is satisfactory. However, at health unit level, the variations between some centres were large, suggesting the differences in comprehension of the programme across the country. The overall result of this DQA was a Verification Factor (VF) of 0.886.

During the audit, all health workers worked hard to make the mission a success. In addition, health workers at national, province and district levels are dedicated to their work and have a good understanding of problems linked to immunisation activities which they resolve in a satisfactory manner. However despite the tremendous efforts made to improve the system, during the audit we noted some weaknesses in the following components of the system which require corrective action:

Design:

- There are no written policy guidelines for handling late reports, and no back-up of computer data files and LAN.
- Some health facilities (5/24) are not aware of the guidelines on the surveillance of AEFI
- Appropriate calculation and universal use of denominators is a problem.
- Some problems with data accuracy and consistency at the three levels and between the three levels.
- Vaccine wastage is not monitored at the three levels (National level, 50% of Districts and all health units),
- An appropriate system is not in place for reporting AEFI although 2 of 4 districts and 19 of the 24 health units visited were aware of AEFI.

Reporting*:*

- The number of children (to be) vaccinated per immunisation strategy is not known.
- There is insufficient district supervision of, and feed-back to, health units.
- 16 of 24 health units audited used unofficial immunisation registers in 2005.
- Stock keeping for both vaccines and injection materials in most of the health units visited in the audit year was not satisfactory. However stock-ledgers were introduced in 2006 and their management has been well implemented and understood with most health units using the ledgers satisfactorily. Only 3-5 health units were still lacking in the appropriate use of ledgers..
- Reporting quality and accuracy is not satisfactory at all three levels audited with inconsistencies between various tabulations and physical reports at all three levels.

Use of Data*:*

- The wastage rate was not monitored at national level and in any of the 24 health units visited. Only 50% of the districts visited were able to monitor the vaccine wastage.
- 14 of 24 health units did not monitor the drop-out rate.
- Health workers lack the capacity to set targets for immunisation activities

Key Recommendations

1. Develop written guidelines:
   - for proper use of immunisation data collection tools and handling of late reports;
   - for proper calculation and use of denominators;
   - for back-up of computer data files;
   - for AEFI surveillance.
   - for proper monitoring of vaccine wastage rate at all levels;
   - for accurate handling of reported data at all levels including checks and balances between physical reports, including late reporting, and tabulated figures.

2. Train on the use of:
   - immunisation registers, tally sheets and summary forms for both children under one and pregnant women;
   - AEFI surveillance forms.
   - Vaccine wastage management.

3. Strengthen supportive supervision:
   - conduct self-assessment in all health units;
   - train the staff at both central and intermediate levels on the techniques of supportive supervision of immunisation activities;

- provide appropriate logistic support (transport, documentation, etc) to ensure regular supervision.

4. Monitoring of key indicators:
   - immunisation coverage e.g. of DPT 3;
   - drop out rates especially the DPT specific drop out rate;
   - timeliness and completeness rate of reporting;
   - vaccine wastage.

5. Capacity building
   - training and refresher courses on the guidelines on immunisation;
   - training of mid-level managers of the programme.

6. Use supportive supervision and other (training) opportunities to:
   - strengthen daily and monthly stock keeping for vaccines and injection materials at all levels, paying particular attention to batch numbers and expiry dates;
   - strengthen the capacity of health workers on how to estimate target populations and set objectives;
   - disseminate stock keeping cards for vaccines and injection material to all health units.

1 Introduction

The Data Quality Audit (DQA) is part of the Global Alliance of Vaccines and Immunisation (GAVI) programme. It has been designed to assist the countries receiving GAVI support to improve the quality of their information systems for immunisation data. In addition, it calculates a measure of the accuracy of reporting, the country's 'verification factor' for reported DTP3 vaccinations given to children under one year of age (DTP3 <1). In 2006, the DQA is being performed in seven countries. It is hoped that participation in the DQA will assist each country in understanding the extent and details of the verification while providing guidance on how the country's system for recording and reporting immunisation data can be improved. It is the explicit goal of the DQA to build capacities in the participating countries.

This DQA was undertaken in Nigeria*, from 16th October to 6th November 2006*, by the following team:

Name	***Position***	***Districts Visited***
Mr. Njweipi Jet	*External Auditor*	*Idemili North, Enugu South*
Dr. Tollo Bienvenu	*External Auditor*	*Adavi, Ose*
Mr. Kelechi Dare Amaefule	*National Auditor*	*Idemili North, Enugu South*
Dr. Yisa Ibrahim O.	*National Auditor*	*Adavi, Ose*

The team worked at the national level of HMIS and EPI before going to district and health facility levels. Based on a random selection carried out in advance, the following four districts were visited: Idemili North, Enugu South, Adavi, and Ose. *Only districts with more than six health units and out of political crisis were selected*. As such a total of 91 (11.8%) with 7.1% of the reported DTP3<1 for the audit year: why non-eligible). Six Health Units (HU) were selected randomly in each district (24 HUs for the audit exercise). Only one of the total of 92 HUs in the four selected districts was non-eligible for sampling because of political crisis in the areas of the health facility BHC Afo in Ose (Ondo State). An error was done during the selection of HUs in Ose. According to the DQA procedure, three HUs from stratum number two and the rest two from stratum number three have to be selected as the stratum number one allows only the selection of one HU. The reverse was done between stratum number two and three, but fortunately did not have any significant impact on the overall result. All selected districts and health units were visited according to a pre-established schedule. A debriefing meeting was held on 6th November 2006 with members of the Interagency Coordinating Committee, presided over by a representative of the Minister of Health. See attendance list in Annex 1

2 Background Information

2.1 Geopolitical information

Nigeria is located on the west coast of Africa and it is bordered by Benin to the west, Niger to the north, Chad and Cameroon to the northeast and east respectively. The southern part of the country lies in the coastline of the Atlantic Ocean. The country covers an area of about 923,768 square kilometres with a population of about 130 million people of which 21.7% and 44.9% are under the ages of 5 and 15 years respectively. There are over 300 ethnic groups in Nigeria and the major languages are *Yoruba*, *Hausa* and *Igbo*. Nigeria has a federal system of Government comprising 36 states and FCT grouped into six zones and the states are further subdivided into 774 Local Government Areas (LGA) serving as administrative units at the third tier of government.

2.2 Health care system

The national health care system is based on the three tier system of primary, secondary and tertiary care provided by the local, state and federal governments respectively. The Federal ministry of health has the responsibility to develop policies, strategies, guidelines, plans and programmes that provide the overall direction for the national health care delivery system. The state ministries of health provide secondary level of care and technical advice as well as supervision to the Local Government Areas (LGAs). The LGAs are the implementers of the primary health care services including immunization. The organization of the health system includes both public and private sector providers. The Nigerian health system is weak, as reported by the WHO report 2000 on health systems performance. This report forms one of the bases for the current heath sector reform programme of the federal government. The health indicators for Nigeria are worse than the average in the Sub-Saharan Africa. Poor health management information system remains a major challenge and constraint for sector reforms, health planning, monitoring and evaluation and disease surveillance. Poor community participation in health care services seriously undermines service ownership and community support for health intervention programmes.

2.3 The National Programme on Immunisation (NPI)

Nigeria is a signatory to the declaration of the survival, protection and development of children, which was articulated at the 49th World Health Assembly in 1988. This was reinforced by the world summit for children held in New York in 1990. This declaration established challenges for global immunization. The Federal Government of Nigeria, through the Federal Ministry of Health has pursued an active immunization programme and has given necessary priority to this programme.

The Expanded Programme on Immunization (EPI) was initiated in 1979. However, in view of the critical need to enhance the effectiveness of immunization, which was fast declining, and to meet the global challenges of immunization, the EPI was restructured in 1997. It was renamed the National Programme on Immunization (NPI) and established under decree 12 of 1997 as a Para-public of the Federal Ministry of Health. This is the second DQA in Nigeria, the first took place in 2004, with 2002 as the audit year.

The flow of reports from health unit to central level is illustrated in the following table.

Table 1: The route followed by EPI data from vaccination post to central level

Health Unit	District (LGA)	State	Central level (NPI)
• Immunisation registers • Tally sheets • *Monthly reports* • Other individual recording forms	• District (LGA) synthesis (summary) • Copies of health unit monthly reports	• Copies of district (LGA) reports • State synthesis	• Copies of state synthesis • National synthesis • JRF

3. Key findings

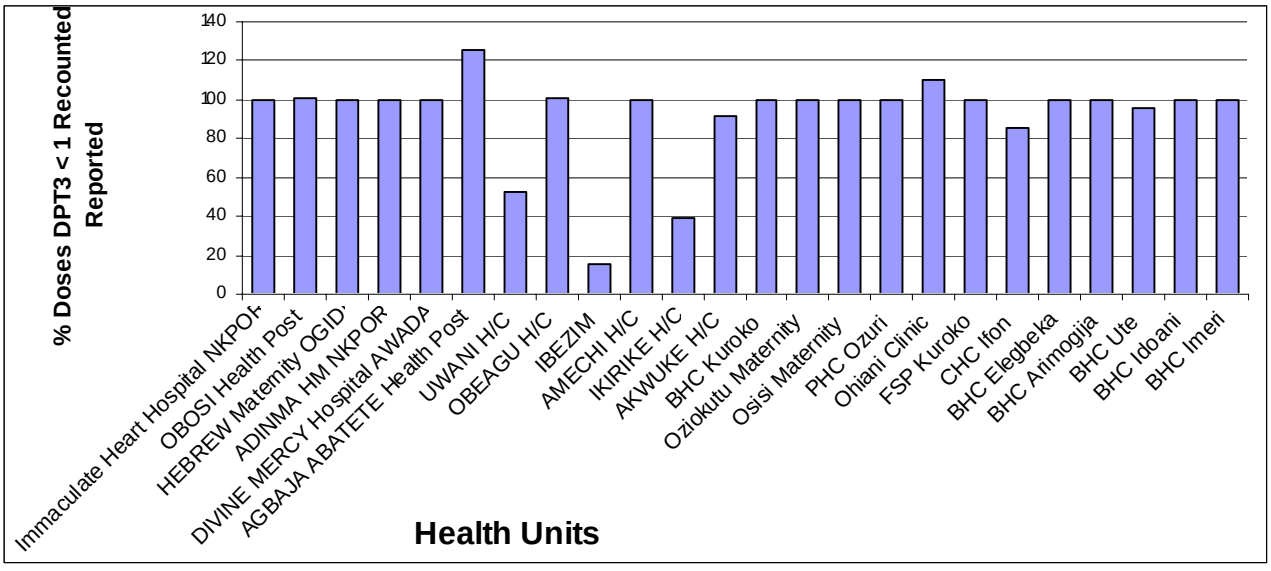
3.1 Data Accuracy

The verification factor is the ratio between the DTP3<1 recounted from tally sheets or register at the health unit (HU) during the DQA and the figures reported in the monthly (or quarterly) summary reports: Recounts/Reported (please refer to figure 1). The Verification Factor (VF) found for Nigeria was **0.886 with a Confidence Interval of 0.45 to 1.32.**

Though the VF is above the GAVI threshold, the confidence interval is wide. This is due to the very low recount in health units such as Ibezim (15%) (due to a staff member leaving the hospital without a smooth transfer of relevant immunization documents to the new staff now in charge). In Ikirike (39%) and Uwani (52%) the results are due mainly to missing tally sheets with no clear records in the registers. It should also be noted that there was under-reporting in several health units where reports were either missing or nothing was reported at district level, but was found at health unit level (Fig. 1). Too high data inconsistency rate was observed at all levels with e.g. only 7 reports matching at national and district level for Adavi district, three for Ose district and none for the other two districts. Nine of the HUs had different figures for the monthly reports at district and HU level. The auditors observed that there were errors due to negligence during the reporting process.

Between JRF reported DTP3<1 for 2005 (1,988,452) and the latest national district tabulation (1,879,604), there is a difference of 108,848 (more reported DTP3 < 1 in the JRF). Also the comparison of the latest national tabulation (1,859,084) and latest national district tabulation (1,879,604) shows a difference of 20,520 non reported DTP3 < 1. These differences could not be justified by the NPI manager and the auditors could not establish the sources of data for the JRF and the latest national tabulation. The only explanation could be a negligence in data management at national level.

Figure 1: Recounted/reported DTP3<1



Errors at the district and central levels can also compromise the VF. Table 2 shows the level of consistency between reports and tabulations found at the district and central (NPI) levels. Ideally all the four values should be equal, but inconsistencies were noted between the reports found in Enugu, and to lesser degree in Idemili-North, Adavi and Ose, and those at the central level. For Enugu, the differences arose from a lack of proper keeping of reports at the district level.

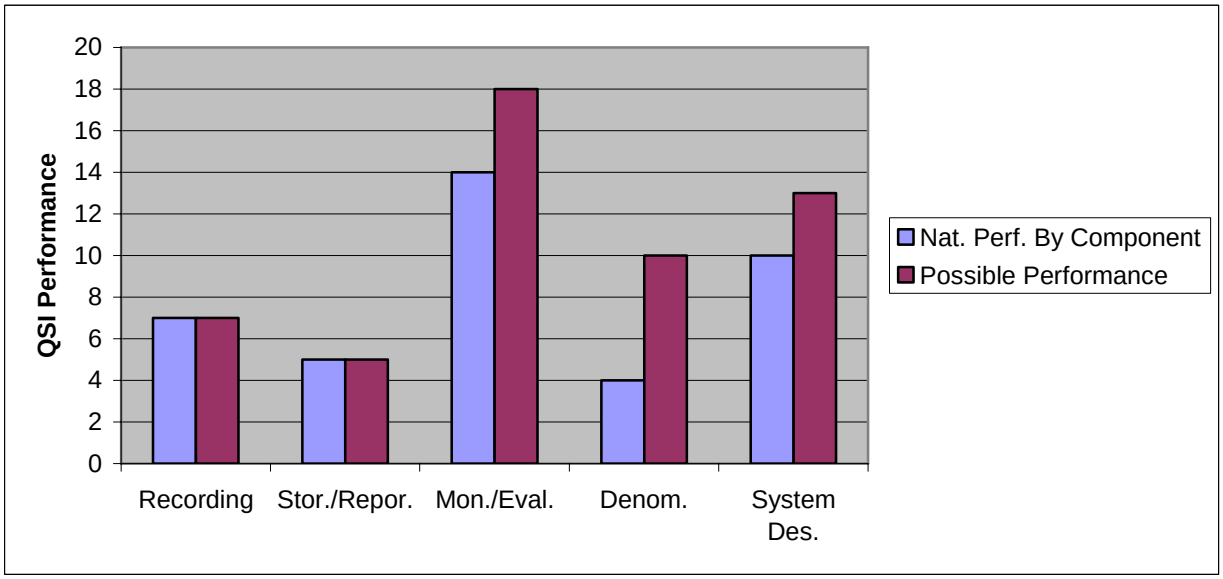
Table 2: DTP3<1 data at district and central level

	Idemili-North	Enugu South	Adavi	Ose
Nat. Distr. Tab.	10,930	4,165	5,191	2,410
Nat. distr. Rep.	10,930	4,165	4,944	2,390
Distr. Tab.	10,544	3,059	5,005	2,571
Distr. Rep.	10,195	3,059	4,113	1,571

3.2 Key findings at central level

The quality of the system index (QSI) at central level is 75.5%. The central level has excellent recording and storing & reporting practices, but the system design, monitoring & evaluation and denominator issues pose significant problems; as shown in Figure 2.

Figure 2: QSI at central level, performance by component



System design:

- There are no adequate or written instructions on how to deal with late reports;
- Guidelines on the surveillance of AEFI appear to be unknown by most health workers and where they are known the instructions are not being followed.
- For the audit year the report format to higher levels from the Health Units does not make provision for the calculation of vaccine wastage rate.

Denominators:

- The denominators for childhood immunisation used at central level does not agree with WHO definition - the denominator used is total births. As a consequence, the number of surviving infants for the audit year is not consistent with those of other programmes. However in consultation with major technical partners, the country is to adopt the use of figures for surviving infants.
- The denominators for children vaccination found at national level are only slightly different from those found at the districts visited, apart from Idemili North, as shown in the following table.

Table 3: National and District Denominators

Districts	Idemili North	Enugu South	Adavi	Ose
National denominators	14556	11238	8659	4667
Districts denominators	14968	11232	8646	4667
Difference	-412	6	13	0

- The number of children (to be) vaccinated during each immunisation strategy is not known.
- Contrary to the situation for children, the denominator used for pregnant women is consistent with the WHO definition: 5% of total population. However the auditors were not able to verify whether there is a difference between the denominator for the audit year and the year previous to the audit

Monitoring and evaluation:
- Core indicators, including vaccination coverage, drop-out rate, and completeness and timeliness of reporting, are regularly updated.
- Physical monthly reports are not received at national level from lower levels. This activity takes place at State level so monitoring of timeliness and completeness cannot be done at national level
- There is no printed publication or chart for the performance of the NPI for the audit year.
- Vaccine wastage rate was not reported in the JRF for the audit year.

Recording practices:
- Record keeping for vaccines and injection material in 2005 (audit year) was complete.

Storing and reporting:
- The computerised data is backed-up on CDs and transferred to other computers in the Unit by flash disks because the NPI computers are not yet networked to each other.
- Though physical reports are not kept at national level, they are kept at State level and are in order in the States visited during this exercise. However, this method of data transfer and data entering could be another cause for data consistency, quality and accuracy). The State send the printed data (on paper) to the NPI by Air or by Road courier. The manager at central level transfers the data from each into the computer. It should be noted that human errors are not excluded at this stage.

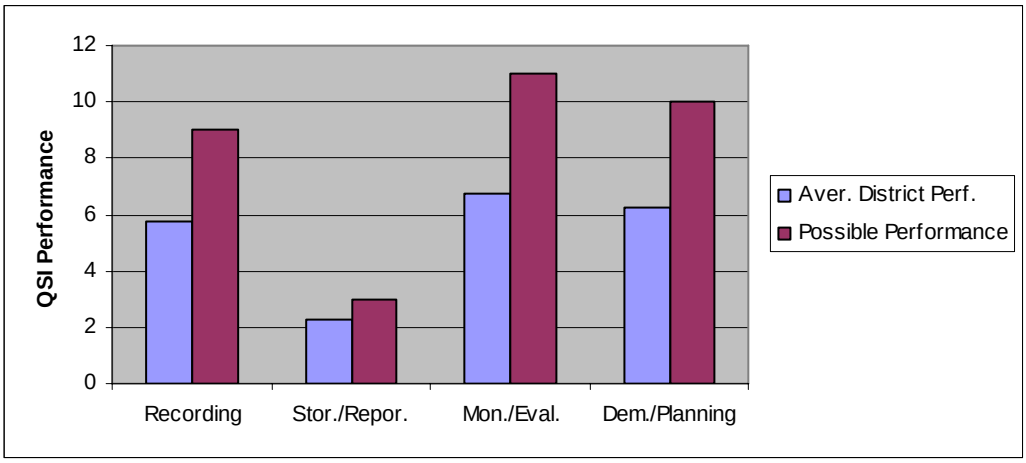
3.3 Key findings at district level

The mean QSI for the four districts is 63.6%. As illustrated in Figure 4, no QSI component is satisfactory at district level. This is especially true for denominators and monitoring/evaluation. Generally the personnel don't master the use of demographic data. Their target figures for example in the Idemili district are usually dictated from above (state or zonal offices). The district personnel are not involved when these decisions are made and the figures (which are usually lower) do not agree with the normal percentage worked out from the total population. When the indicators, such as vaccination coverage are generated on the basis of this denominator it will give a false impression of good performance which might discourage the putting in of more efforts on vaccination activities. Therefore monitoring of indicators on this basis is bound to be misleading.

Of the four districts selected, Enugu South stood out as the poorest in record storing and reporting. It scored zero for this aspect. The reason could be that the newly appointed supervisor in charge of immunisation at the district happens to be a personnel coming from

another department of health with little or no experience in immunisation matters. Despite the enthusiasm, her inadequate exposure to immunization activities, processes and procedures could not permit the mastery of certain exigencies of this office such as good immunization practices, including record keeping. Most documents were either missing or poorly kept.

Figure 3: Average QSI at district level, performance per component



Denominators:

- The denominators at all the district levels visited are slightly different from that used at national level
- The denominator for childhood immunisation is different from the one used in other public health programs in all four districts visited. This is because each program has its own target population for interventions.
- The proportions of children (to be) vaccinated per immunisation strategy are not known.
- In one of the districts (Idemili North) the denominator for the year previous to the audit was not known and no denominators for pregnant women were available.
- No micro plan of activities is elaborated in any of the districts.

Monitoring and evaluation:

- There was no official feedback format in any of the districts visited.
- In two districts the drop-out and wastage rates were not regularly monitored.
- Completeness of reporting was not monitored in two districts, and timeliness was not monitored in one.
- In two districts there was no indication of the monitoring of supervision activities.
- Only 2 of 4 districts visited had regular meetings with health units to discuss immunisation activities.
- There is no publication in any form that can be seen for performances for the audit year in all the districts visited.
- There is no clear system in place for reporting and investigating Adverse Events Following Immunisation (AEFI), though AEFI forms were found in most of the health units.

Recording:

- Dating and stamping to indicate the receipt of reports is not done in three of the four districts visited.
- Immunisation forms (child immunization cards) were not available in most health units visited in one district (Idemili). When there were any, they had been locally produced and sometimes did not agree with national specifications and some were sold against the national instruction.

- Report (summary) formats were different from the recommended format in two of the four districts visited.
- Receipt for vaccines for the audit year were not complete for two of the four districts visited.
- Records for other injection materials (syringes, safety boxes etc.) were generally not kept by the districts.

Storing and reporting:

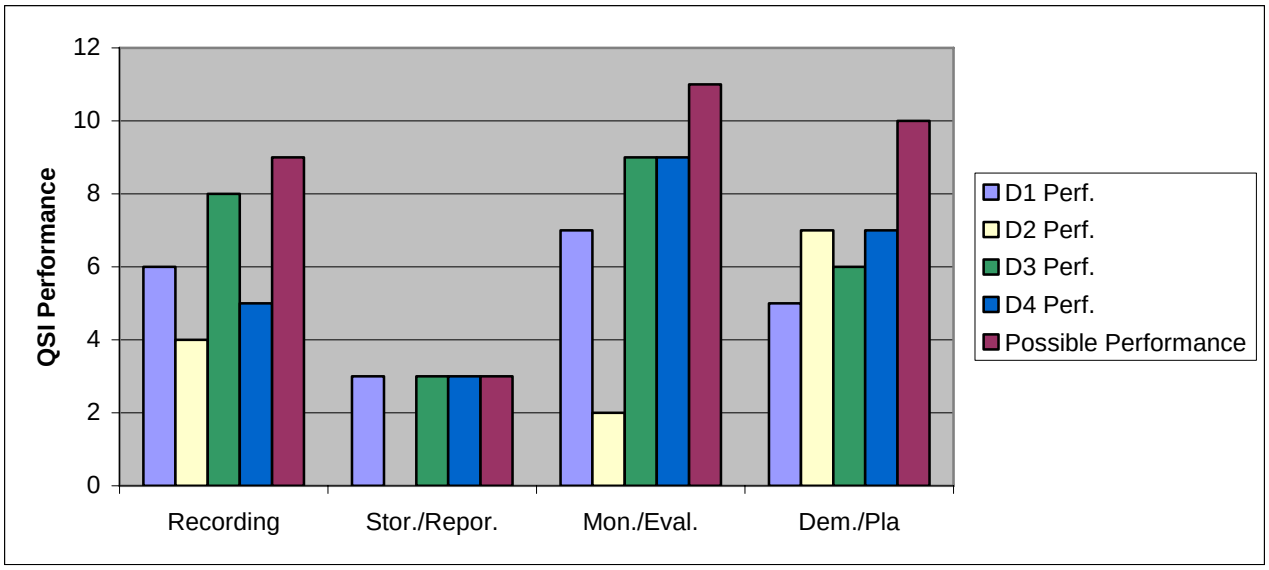
- In the districts visited, there appear to be no clearly written procedures for handling late reports.
- Data processing is not computerized in any of the four districts and in one of the districts no processing is done even manually.
- In Enugu South no filing system of reports is practised.

The quality of the system index per district was as follows:

Idemili North:	63.6%
Enugu South:	39.4%
Adavi:	78.8%
Ose:	72.7%

Figure 4 below shows the performance of districts by QSI component. Performance for each component varies from district to district, but demography/planning, monitoring/evaluation practices and to a lesser extent recording practices are poor across the board. The case of zero for Enugu for the storing & reporting has been discussed above.

Figure 4: quality of the system index per district (performance by component)



3.4 Key Issues at Health Unit Level

The mean QSI for the 24 health units is 69.95%. As can be seen from Figures 5 and 6, performance was not satisfactory in two of the components, particularly in monitoring and evaluation

Figure 5: Average HU Quality of system index by component

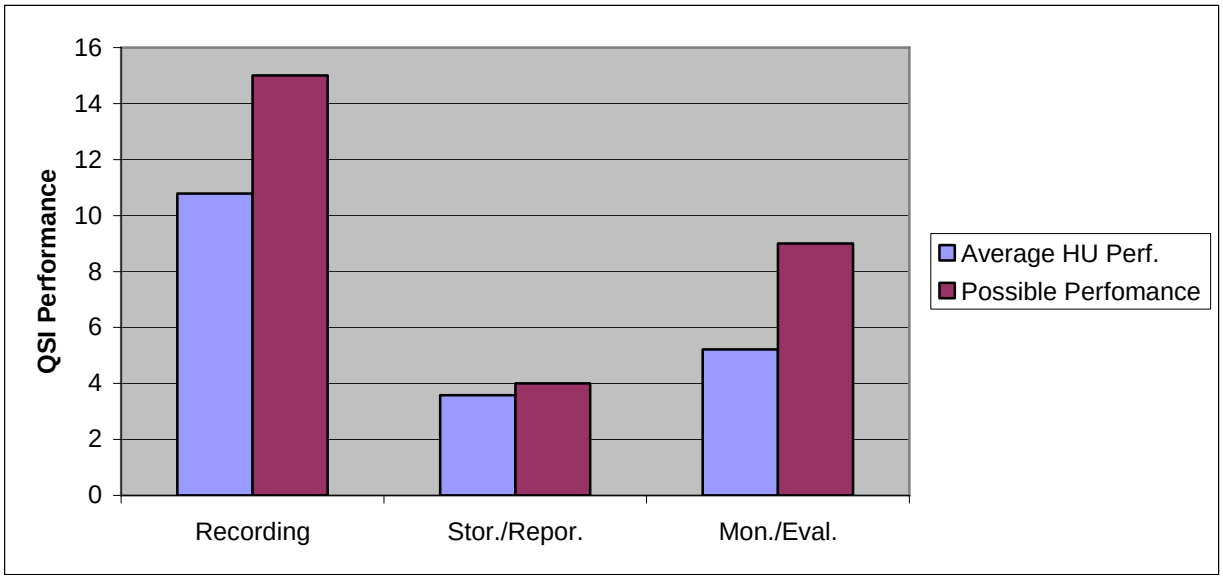
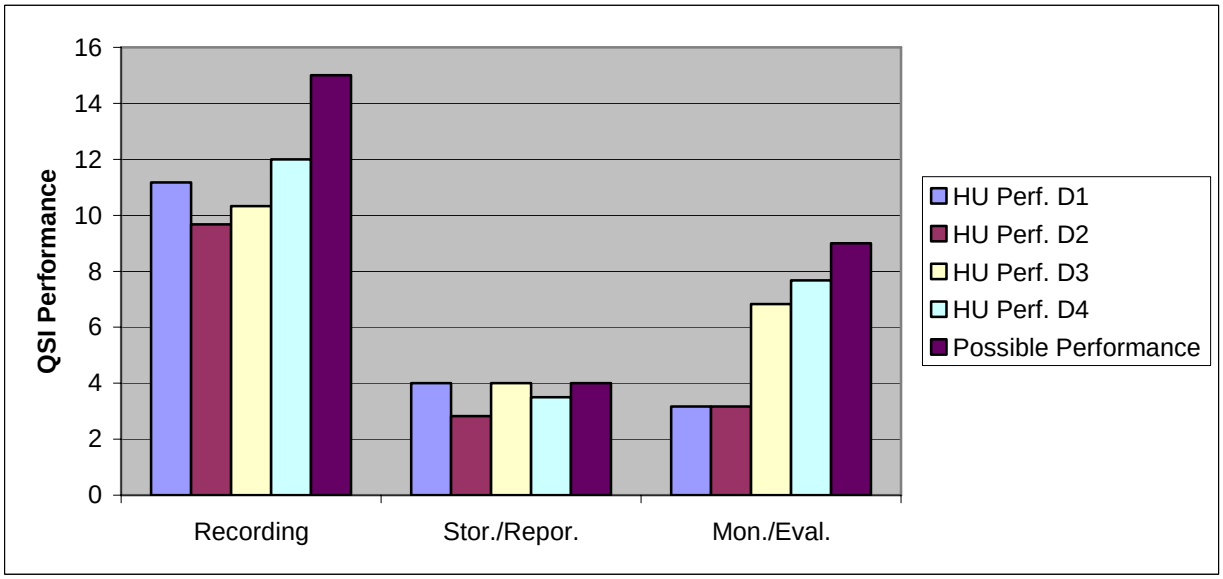


Figure 6: Average quality of the system index for Health Units per district (performance by component)



Recording:
Immunisation data collection tools used in health units were immunisation registers and tally sheets. The tallying was well done such that the auditors had no problems extracting the required data. However, we noted the following shortcomings:

- There were no tally sheets for women TT vaccination in 4 of the 24 health units visited (Divine Mercy Hospital Awada in Idemili-North, Amechi HC and Ikirike HC in Enugu South and Osisi Maternity in Adavi).
- The registers for recording individual information about women TT vaccination were not available or not used in 5 of the 24 health units visited (Hebrew Maternity and Divine Mercy Hospital in Idemili-North, Ikirike HC in Enugu South, BHC Kuroko and Ohiani Clinic in Adavi).
- Stock management for vaccines and injection materials were very unsatisfactory for the audit year. In all health units in Idemili-North, Enugu South, Adavi and in two health facilities in Ose (CHC Ifon, BHC Imeri) there was no daily stock management due mainly

to the absence of ledger books. Complete vaccine stock management was done only in the health facilities BHC Ute in Ose.
- Even in health units where the ledger books were available, there were incomplete information (late starting or missing months).

However, in the current year (2006) stock keeping is very satisfactory. Most of the health units are using complete and up to date vaccine ledger books.

Storing and reporting
The best storing and reporting practices were observed in the health facilities of Idemili-North and Adavi. In most health units visited in these LGAs documents were well filed. Immunisation registers (in health units that had one) and monthly reports (for the audit and, sometimes, previous year) were well filed by date. However, the auditors noted some deficiencies in some health facilities, particularly in Enugu regarding the reporting of AEFI. In five health units of this LGA the staff were not aware of standard operating procedure and the forms to complete in a case of AEFI

Monitoring and evaluation
Most health units visited in Adavi and Ose carried out good monitoring of vaccination coverage for the various antigens, with monitoring charts and drop-out well displayed. However, monitoring of wastage rates was not done. Their catchment's population and target population, particularly for pregnant woman, were often unknown.

The situation in Idemili-North and Enugu South was below expectation. In the health facilities visited in these LGAs performance in monitoring and evaluation was very poor (between 33.4% and 44.4%). Most of the health units have difficulties in fixing coherent, realistic and realisable objectives. These loop holes were attributed to lack of training.
The following issues should be addressed:
- Catchment's population or denominator
- The definition of target population
- The monitoring of vaccination coverage, with displayed monitoring chart
- The monitoring of vaccine wastage, drop out rates, etc.
- The production of annual tabulations of vaccination activities
- Catchment area map

Generally speaking, the health units performed well in storing and reporting. For recording practices the performance was more or less satisfactory across the board. For monitoring and evaluation practices, however, all health units visited in Idemili-North and Enugu South still have much efforts to make.

3.5 Core indicators

Vaccine Safety
Auto-disable syringes and safety boxes were available and used in all health units visited, and no stock-outs were reported. However, there were no stock cards for monitoring the receipt and issue of injection material in all health units.

On the monthly report form there is no provision for reporting of AEFI. However, there is a separate investigation and management form on AEFI and the auditors found it in most of the health facilities visited. AEFI are said to be very rare. Of all the health units and district visited none declared having had any serious cases.

Wastage

Table 4: DQA Vaccine Wastage Rates

	Idemili-North	Enugu-South	Adavi	Ose
District WR (unopened)	0%	n/a	0%	n/a
Average WR for HUs (opened and unopened)	n/a	n/a	n/a	n/a

From the table above it can be seen that the information obtained did not permit the calculation of the wastage rate at district and HU levels. Most of the Health Facilities in 2005 (audit year) did not use vaccine ledger books, or if they were used, could not provide complete information to permit the calculation of the WR. We are satisfied that for 2006 something has and is already being done in this area. Vaccine ledger books in the form of exercise books were found in most HUs visited and the personnel are using them well. In general, a new version needs to be printed and introduced into the health units to correct some aspects which were not well addressed in the current version (batch number, expiry date).

Generally, the preservation of vaccines even at HU level is not satisfactory. Most of the Health facilities do not have a fridge for keeping the stock, so the process is to collect the required vaccines on the vaccination day and return the rest of the doses to the LGA on the same day. This method can contribute to high vaccine wastage when human error occurs during transfer between HU and LGA .

Presently, the monthly reporting form does not provide space to calculate wastage rate. Therefore it can be said that the process of monitoring vaccine wastage has not begun and the country should take this into consideration when printing new forms.

Completeness of Reporting

The completeness of reports at national level in the audit year is 94.3%. This can be explained by the fact that some districts (5.7%) and some States had not sent their data to the national level. Monthly reports are carried to the LGA office by the health workers themselves during the monthly coordination meetings. Therefore, transmission of reports from health units to LGA is reliable.

Each LGA carries out a district synthesis and transmits a monthly report to the State. In most cases, the district EPI or medical officers carry the monthly reports, themselves, to the State. Data synthesis is computerised for the districts (LGAs).

The State in turn makes its own monthly synthesis and couriers this, along with all district reports, to the central level by air or road. The national level then uses the electronic district reports to carry out a national synthesis. Monthly report forms from the LGAs are not available at national level because files are only sent electronically by the State to the NPI office.

Table 5: Completeness of district reports at central level

District	Idemili-North	Enugu South	Adavi	Ose
Completeness of District reports	100%	83.3%	91.7%	100%

At district level, the completeness of reporting is lowest in Enugu South (83.3%) following by Adavi (91.7%). All reports from Idemili-North and Ose were complete in the audit year at national level.

Other Core Indicators
The national DTP3<1 coverage rate and the DTP drop-out rates were respectively 34.3% and 16.0% in 2005. Reported DTP3<1 increased by 679,695 from 2004 to 2005 and districts with DTP3<1 above 80% increased from 3.9% to 4.3% which is very low and not significant. The proportion of districts with DTP<1 drop-out rate less than 10% was 25.8% in 2005. See comments above about denominators. Table 5 below shows these indicators for 2005 in the districts visited.

Table 6: DTP3 < 1 Coverage rate and Drop Out rate per district

District	DPT3 < 1 Coverage 2004	DPT3 < 1 Coverage 2005	Change Coverage (CR)	DOR (DPT1-DPT3 2005
Idemili-North	60.0%	70.4%	10.4%	4.2%
Enugu South	26.7%	27.2%	0.5%	37.6%
Adavi	56.0%	57.9%	1.9%	10.4%
Ose	20.7%	55.1%	34.4%	- 12.0%

The table above shows that the DPT3<1 coverage rates (CR) are higher in 2005 for all selected Districts in comparison to 2004. Whereas the CR changes in Enugu South and Adavi are negligible, Ose shows the highest CR change with a 34.4% increase in rate. With a 10.4% increase, Idemili-North has made more efforts in 2005 for vaccinating the children with DTP3 than in 2004. However, Ose district figures are based on a lower denominator in 2005 compared to 2004-dropped from 5,468 to 4,667 or -801 or -14.6%.. The denominators for the other three districts increased with 2.8%, 2.9% and 3.0%, which makes the figures more accurate for these districts).

The drop-out rates (DORs) were highest in Enugu South. From the table it can be observed that Idemili-North (particularly) and Adavi are doing well. The negative DOR in Ose does not have a clear explanation. Naturally, this means that more than 12.9% of all children vaccinated with DPT1 were vaccinated later with DPT3. However, this does not reflect the real situation in the field. The auditors suspect that this negative DOR in Ose was the result of data error or the result of the multiple vaccine campaign, which was carried out in January 2005 in this LGA. Some children already vaccinated with DPT3 had been vaccinated again during this campaign.

NB: Data presented in Table 5 comes from calculations done with the GAVI Excel spreadsheet from central level reports, and are not necessarily identical to data obtained from the district health management team during the audit (please refer to page 22, in the appendix). Data from the two sources should be consistent, but poor documentation and data processing deficiencies in some districts led to the differences observed.

3.6 Changes since last DQA

Due to lack of DTP3<1 data being available at the National level, it was not possible to calculate the verification factor during the last data evaluation (DQA) for the year 2002, which took place in 2004. Efforts have been made since 2004 and these have contributed to the improvement of data management at various levels. Whereas the comparison between recounted and reported DTP3<1 values at HU level/District level was relatively low (at around 50% in three of the four districts and 93% in the fourth district in 2002), the situation was better in 2005 (around 100% in three districts and only around 67% in the fourth district).

The table below shows the comparison of other data at national level between the last and current evaluation. Although there is increase in DPT3 coverage rate in 2005 in comparison to 2002, the rate still remains low (about 34.3%).

Table 7: Changes in Core Indicators 2002 (last audit year) and 2005 (current audit year)

	2002	2005
DPT3 Coverage rate	< 30%	34.3%
QSI National	51%	75.5%
QSI District	43%	63.6%
QSI HU	37%	69.95%

4. Recommendations

4.1 Priority Recommendations

- To ensure a high-performing immunisation programme in Nigeria, priority issues include:
  - systematically record all routine vaccinations in printed immunisation registers;
  - record each child (in the immunisation register) only once;
  - disseminate printed stock cards for daily and monthly monitoring of movements of vaccines and injection materials;
  - monitor both drop-out and wastage rates, alongside vaccination coverage;
  - improve the monthly report form to specify vaccinations activities in different strategies, AEFI declaration in one form;
  - performance results should be made public by displaying on a board;
  - provide written guidelines for dealing with late reports;
  - provide health units with information and knowledge necessary to estimate both the total population and target populations for NPI and other public health programs;
  - train heads of health units to do self-assessment of their activities, which would augment the benefits of supportive supervision;
  - improve calculation of denominators and ensure use of same figures at all levels;
  - training and refresher courses on the guidelines of the NPI.

4.2 Other Recommendations

System Design

- Put in place written guidelines for back-up of computer data files and handling of late reports;
- Training in NPI guidelines for health workers at all levels;
- Review the instructions and form for the surveillance of Adverse Events Following Immunisation (AEFI);
- Revise the report format to provide for the insertion of some essential indicators and information such as DPT3 coverage, drop out rates, vaccine wastage rate and declaration of AEFI.

Denominator

- Consensus on the total population figures at all the levels. This will permit the uniform calculation of different targets at different levels.
- The country should define and vulgarise the vaccination target groups and their percentage in a given population. The difference between the total number of live births and surviving infants should be made clear. These demographic figures should change every year according to agreed growth rate;
- Each vaccinating health facility should be assigned a specific geographically determined population for its responsibility;

- The number of children to be vaccinated in different strategies and the annual targeted should be known by all especially those immunising on the field;
- Micro-planning of activities should be elaborate at peripheral level for each year.

Monitoring and Evaluation

- Since physical reports are not kept at the national level, this activity should be rigorously followed-up at the lower levels;
- Core indicators such as vaccination coverage rates, drop out rates and completeness and timeliness of reporting are to be monitored with written supports;
- The NPI should ensure regular publication of its bulletin which gives current information on its activities, recent developments and performances of the programme at all the levels;
- The country should calculate the global vaccine wastage rate, take actions against it and share the information with the international community through the JRF;
- A feedback format should be designed and implemented at all levels;
- Supportive supervision should be well planned (documented), executed regularly and monitored at all the levels;
- Insist on periodic monitoring meetings at all levels especially at Local Government Area level for the personnel of vaccinating centres.

Recording Practice

- Dates of receipt of reports at different levels should be indicated by signature and stamp;
- The revised summary (report format) should be regularized to be uniform everywhere and at all levels;
- Vaccine ledgers should be uniform and implemented at all levels;
- Records should also be well kept at all levels on injection materials such as syringes, safety boxes etc.

Storing and Reporting

- Keep tally sheets and registers for children as well as for pregnant women up-to-date;
- The staff have to be trained on registering the children and pregnant women once in the vaccination register;
- Follow-up the storing of physical reports in the States;
- Implement computer networking in the national office of the NPI to ensure a better back-up system.
- There should be a specific guideline on data handling and storage. Data managers at all levels should be trained for this purpose.
- Insist on data processing and consumption on the spot and provide the material for that, such as introducing the computer at LGA.

Annexes

I. **Key Informants** - names and functions of those seen/visited and place and time of each visit to a facility : includes central and district staff, those attending the debriefing, and a list of the facilities visited*, but not* the names of each HU staff.

II. **Quality Index Analysis Table**

III. **Core Indicator Tables** (national and 4 Districts)

a. National, district and HU performance indicators (any additional analysis that is not presented in the body of the report) represented by facility, district and country of the data quality questionnaire.

Annex I

Key Informants (District and National) and Health units visited

Health Units by District

District 1	District 2	District 3	District 4
Immaculate Heart Hospital NKPOR	UWANI H/C	BHC Kuroko	CHC Ifon
OBOSI Health Post	OBEAGU H/C	Oziokutu Maternity	BHC Elegbeka
HEBREW Maternity OGIDI	IBEZIM	Osisi Maternity	BHC Arimogija
ADINMA HM NKPOR	AMECHI H/C	PHC Ozuri	BHC Ute
DIVINE MERCY Hospital AWADA	IKIRIKE H/C	Ohiani Clinic	BHC Idoani
AGBAJA ABATETE Health Post	AKWUKE H/C	FSP Kuroko	BHC Imeri

District 1

Name	Position
Mr. Osuji Emmanuel C.	LGA NPI Manager
Mrs. Obianyo Helen C.	LGA Cold Chain Officer
Mrs.Obanye Clara O.	State NPI Manager

District 2

Name	Position
Mrs. Ani Christiana	LGA NPI Manager
Mrs. Eneh Cordellia	LGA Cold Chain Officer
Mrs. Ugwu Ogechukwu	LGA Social Mobilisation Officer
Hon. Esther Ede	Supervisor for health
Dr Festus Uzo	State Commisioner for health
Dr E. Ezeilo	State Director of Public Health
Mr. Elemuwa Chris	NPI Zonal Technical Officer
Miss Joy Anorue	NPI Zonal Desk Officer

District 3

Name	Position
Dr. Makoju Martins B. A.	Permanent Secretary Ministry Of Health Kogi
Mrs Balogun Funmi Confort	State Epidemiologist Kogi
Mr Shuaibu Amedu	State EPI Manager Kogi
Hadj Obaje Rabi	State Routine Immunization Desk officer, Adavi
Mrs Obajulu F.	Primary Health Care Coordinator
Mall Siyaka A. Zubairu	NPI Manager LGA
Mall Salami M. J.	Data Officer

District 4

Name	Position
Dr. Ajewole Olu	Permanent Secretary Ministry Of Health Ondo
Mr Aragbaye Dare	Director of Finance and Administration MOH Ondo
Dr. Olawale, G. A.	Director Primary Health care/DC Ose
Mr. Agboola S. B.	State Immunization Officer Ose
Mr. Adejoro A. O.	State Monitoring and Evaluation Officer Ose
Mr. Olowu Samual Ola	LGA Immunization Officer

National Level	
Name	**Position**
Dr. Edugie Abebe	Interim Coordinator/Chief Executive NPI
Dr. Tukur Abba	Deputy Director RI, NPI
Dr. Oteri A. J.	Assistance Director/GAVI Desk
Dr. (Mrs) Craig Kehinde T.	RI Technical Consultant/EU PRIME
Dr. Ibrahim O. Yisa	RI Consultant NPI North Central Zone
Mr. Amaefule Kelechi	Senior Monitoring and Evaluation Officer NPI
Hajiya Wosilat. Giwa	Director of Communication & essential Service, NPI
Pharm. M. S. Adamu	HOD, Planning Research & Development. Dept.
Dr. E. Abanida	HOD, Technical Department
Dr. Adamu Nuhu	HOD, Monitoring, Evaluation & Surveillance Dept.
Pharm. Amaka G. Nwoha	Planning officer
UN BUILDING	
Dr. Belhocine Mohammed	WHO, WR
Dr. Pamela Mitula	WHO
Dr. Edward Dede	WHO
Dr. Babara Reynold	UNICEF, Deputy Country Rep.
Dr. Felix Akhibi	UNICEF
Dr. Jane Bameke	UNICEF
Debriefing	
Name	**Position**
Dr. Edugie Abebe	Interim Coordinator/Chief Executive NPI
Dr. Tukur Abba	Deputy Director RI, NPI
Dr. Oteri A. J.	Assistance Director/GAVI Desk
Dr. Alex Gasasira	WHO EPI Team Leader
Dr. Dede Edward	WHO, RI Officer
Mr. Adeboye Simeon	WHO
Akua Akwateng-Addo	USAID Team Leader
Dr. Felix Akhibi	UNICEF
Dr. Shehu Umar	EU – PRIME
Dr. Ibrahim O. Yisa	GAIVI Internal Auditor
Mr. Amaefule E. Kelechi	GAVI Internal Auditor
Dr. Etsano A.	AD NSCS, NPI
Dr. Nriagu R. O.	NPI SEZ
Mr. Dare E. Jimoh	Assistant Director Data, ME&S, NPI
Dr. Bienvenu Tollo	GAVI External Auditor
Mr. Jet Njwepi	GAVI External Auditor
Garuba Onose	Data Officer NPI
Yunusa Medugu	Data Officer NPI
Laide Alimi	Data Officer NPI
Taiwo Adebesin	Technical Officer NPI
Pharm. Amaka G. Nwoha	Planning Officer NPI
Dr. Charles Mamman	Deputy Director, PRD, NPI
Hajiya W. Giwa	Director, Communication & essential service

Annex II

Core indicators tables

Core indicators at National level

	JRF	Reported at time of audit
Districts with DPT3<1 coverage > 80%	6	
Districts with measles<1 coverage > 90%	61	Na
Drop-out rate	61 District with DOR greater than 10%	Na
Type of syringes	NON AD	NON AD
Districts with AD syringes	Na	Na
Introduction HVB	Yes	Yes
Introduction Hib	No	No
Vaccine wastage DPT	Na	Na
Wastage rate HVB	Na	Na
Wastage rate Hib	Na	Na
Interruption in vaccine supply 2005		Yes
Number of Districts with interruption in vaccine supply 2005	Na	34
% District disease surveillance reports received/expected	Na	Na
% District coverage reports received/expected		100%
% District coverage reports received on time		30%
Number of District supervised at least once in 2005		100%
Number of Districts which supervised all HUs in 2005	Na	Na
Number of Districts with microplans including routine immunisation	Na	Na

Core indicators at District level

		D1	D2	D3	D4
District DPT3 coverage	At national	75%	37%	57%	72%
	At District	70%	27.7%	48%	76.20%
District measles coverage	At national[1]	60%	74%	59%	52%
	At District	63%	41%	71%	65.40%
District Drop-out DPT1-3[2]	At national	1%	Na	4%	- 14%
	At District	-1%	33.8%	11.5%	- 0.12%
Syringes supplied in 2005	At national	Na	Na	Na	Na
	At District	Na	Na	4800	Na
Number of District coverage reports received/sent	At national	12/12	10/12	11/12	12/12
	At District	12/12	12/12	12/12	12/12
Number of coverage reports received on time/sent on time	At national	10/12	Na	7/12	6/12
	At District	12/12	Na	12/12	12/12
Number of HU coverage reports received/sent	At national				
	At District	12/12	12/12	12/12	12/12
Number of HU reports received/sent on time	At national				
	At District	9/12	Na	12/12	12/12
District vaccine stock out	At national	No	No	Yes	No
	At District	No	Na (not monitored)	Yes (OPV, BCG, DPT)	No
Has the District been supervised by higher level on 2005	At national	Yes	Yes	Yes	Yes
	At District	Yes	Yes	Yes	Yes
Has the District been able to supervise all HUs in 2005	At national				
	At District	Yes	No	Yes	Yes
Did the District have a microplan for 2005	At national				
	At District	No	No	Yes	No

[1] Information not collected at national level.
[2] Unable to estimate due to the fact that the HMIS does not routinely collect DPT1 data.

Annex III

Quality Index Analysis Table

District Quality Indices and District average (%) by component

	Recording	Stor/Repo	Monitoring	Demo/Pla
D1	66.6	100	63.6	50
D2	44.4	0	18.2	70
D3	88.8	100	81.8	60
D4	55.6	100	81.8	70
District Average	**63.8**	**75**	**61.4**	**62.6**

HU Quality indices and HU average (%) by component

	D1				D2		
	Record.	Stor/Rep.	Mon/Eval		Recording	Stor/Repo	Mon/Eval
HU 1	80	100	33.4	**HU 1**	73.4	100	44.4
HU 2	80	100	33.4	**HU 2**	60	75	33.4
HU 3	73.4	100	44.4	**HU 3**	66.6	25	33.4
HU 4	66.6	100	33.4	**HU 4**	66.6	75	33.4
HU 5	66.6	100	33.4	**HU 5**	40	75	33.4
Hu 6	80	100	33.4	**Hu 6**	80	75	33.4
HU average	**74.4**	**100**	**35.2**	**HU average**	**64.4**	**70.8**	**35.2**

	D3				D4		
	Record.	Stor/Rep.	Mon/Eval		Recording	Stor/Repo	Mon/Eval
HU 1	53.4	100	66.6	**HU 1**	60	100	88.8
HU 2	80	100	77.8	**HU 2**	86.6	100	77.8
HU 3	53.4	100	77.8	**HU 3**	86.6	75	88.8
HU 4	80	100	77.8	**HU 4**	86.6	75	77.8
HU 5	73.4	100	77.8	**HU 5**	86.6	100	88.8
Hu 6	73.4	100	77.8	**Hu 6**	73.4	75	88.8
HU average	**68.8**	**100**	**76**	**HU average**	**80**	**87.6**	**85.2**