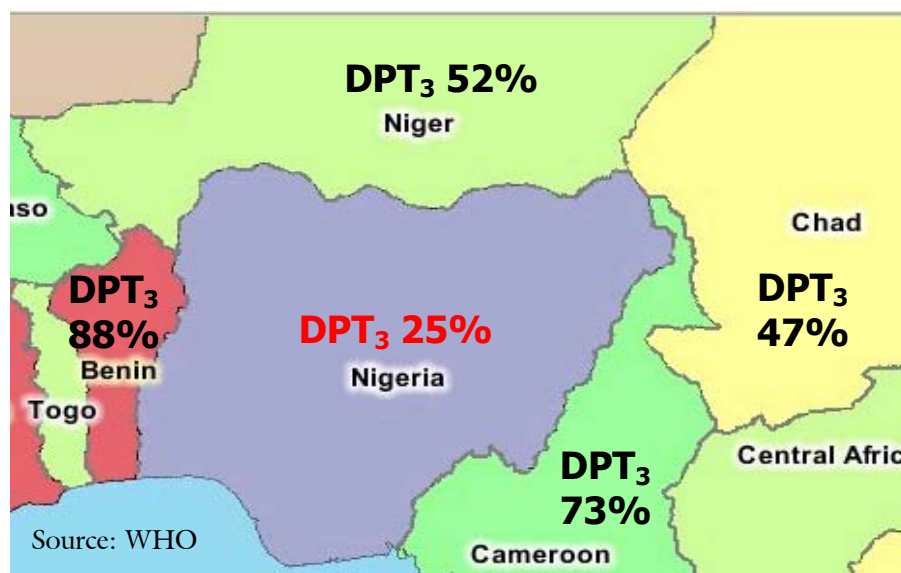


# The State of Routine Immunization Services in Nigeria and Reasons for Current Problems

FBA Health Systems Analysts



Revised Version

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## **Responsibility**

Any opinions expressed or recommendations made in this report are those of the FBA consultants and not necessarily those of the Department for International Development (DFID).

## Executive Summary

### 1 Current Status

#### Coverage

Routine immunization against DPT, measles, polio and TB is proven to be one of the most cost-effective interventions for reducing childhood illness and mortality, especially with the addition of other vaccines such as CSM and yellow fever in endemic areas and TT injections for pregnant women. And yet national coverage in Nigeria for full immunization is less than 13%, one of the lowest rates in the world, even lower than many countries in conflict, such as DRC. Some states in northern Nigeria have coverage rates below 1%, and the average for the whole North West Zone is just 4%. These coverage figures are much worse than in the neighbouring countries of Benin, Niger, Chad and Cameroon. Both the Nigeria Demographic and Health Survey (NDHS 2003), conducted by the National Population Commission, and the Nigeria Immunization Coverage Survey (NICS 2003), conducted by the National Programme on Immunization (NPI), provide the same irrefutable evidence. Nigeria's performance on routine immunization has continued to decline since the high point achieved around 1990.

#### Vaccine-preventable deaths

In Nigeria, one child in five dies before its fifth birthday. This represented about 872,000 childhood deaths in 2002. Vaccine-preventable diseases (VPDs) account for about 22% of deaths. Therefore over 200,000 children a year are dying needlessly of VPDs.

#### Safety

Fieldwork, reviews and audits conducted on behalf of several international agencies (DFID, EC, GAVI, USAID) reveal that internationally agreed standards relating to injection and immunization safety are routinely ignored throughout Nigeria. This is partly as a result of NPI policy (e.g. the policy of procuring and supplying vaccines without syringes and safety boxes, or the continuing refusal to use auto-disable syringes). It also reveals a failure of training and supervision in the field, with unsafe and dangerous practices being practised widely (e.g. re-use of syringes, incorrect handling of vaccines and syringes, unqualified personnel giving injections). These practices pose a severe health risk to the public and to health workers and also reduce (or destroy) the efficacy of the vaccines.

#### Data availability

Nigeria has only submitted one annual report to WHO on immunization coverage since 1999, despite the requirement to do this annually. A Nigeria Immunization Coverage Survey was commissioned by NPI and completed in 2003. However, the report was suppressed and the results withheld. It was not until 2004 when the National Population Commission published the NDHS that Nigeria's poor performance on immunization became widely known. In April 2005 the Honourable Minister of Health ordered NPI to make the document available to partners, and as a result NPI released an abridged version of the NICS in June 2005. The NICS, having

a much larger sample size than the NDHS, gives much better information disaggregated by State and LGA. Through suppression of the NICS States have been deprived of an important planning tool. Within the routine data reporting system there is evidence of systematic falsification of data at the local level in order to meet centrally set targets. NPI's financial reporting has been seriously flawed and there remain unanswered questions raised by international audit teams, including those of the EC and the WB.

### **Cost effectiveness**

Nigeria's immunization programme is by far the most expensive among developing countries around the world. NPI's 2005 budget according to the 2004-2008 5-Year National Strategic Plan works out at over \$28 per child under 1. However, if the budget is set against the internationally accepted denominator of children fully immunized before their first birthday, it amounts to \$226 per fully immunized child. NPI's budgeting and financial management procedures lack transparency, with different official documents giving conflicting figures, and some documents having arithmetical errors adding up to billions of Naira. However, even if the lowest available figure for 2005 is used, this still comes to \$56 per fully immunized child, more than double the norm for developing countries. This represents a waste of scarce national resources. Furthermore, recent fieldwork has revealed excessively high rates of vaccine wastage. For instance, the relatively expensive Yellow Fever and Hepatitis B vaccines account for half of Nigeria's vaccine expenditure, but recent evidence from several northern states shows that 80% of Hepatitis B vaccine is wasted or unused. This is a vaccine that is in short supply globally, and these wasted vaccines could have been put to good use in other countries.

## **2 Reasons for Current Problems**

### **Users' perspectives**

The NICS 2003 asked parents and caregivers why children were not fully immunized. "Vaccine not available" was given as by far the most important reason. It was the dominant reason in all geopolitical zones except the South South and the North East. The second most important reason was "place of immunization too far". (This was the dominant reason in the North East.) These results show that it is the failure of service provision that is primarily responsible for Nigeria's poor immunization coverage. Demand-side factors are also important, but secondary.

### **Vaccine supply, storage and handling**

According to NPI's legal mandate, as stated in Decree 12 of 1997, its first responsibility is to "support the States and Local Governments in their immunization programmes by supplying them with vaccines, needles, syringes, cold chain equipment and other things and logistics as may be required for those programmes." Prior to 2003 there was a chronic shortage of vaccines in Nigeria, largely due to late or non-release of funds. In 2003 UNICEF took over the job of international procurement and now there are adequate vaccines in the country. However, despite the presence of vaccines in Abuja, there are still chronic shortages in the states and LGAs. Syringes and safety boxes are not being supplied at all. Attempts to establish private-sector vaccine delivery have failed in many states, largely due to centrally-controlled, cumbersome and impractical

procedures for operation, certification and payment. NPI operates six zonal cold stores in addition to its central store, but some of these are functioning very inadequately and most states still have to go to Abuja to collect their supplies. The cold chain is poorly maintained, and priority investment has been in freezers for polio vaccine. (Some other vaccines are destroyed by freezing.)

### **Accessibility of facilities**

Inaccessibility of functioning facilities is a result of the collapse of primary health care in most of the country. The capacity of States and LGAs to plan the location of services rationally is weak, and often subverted to political agendas. State Governments often prefer to invest in highly visible urban hospitals and fail to allocate adequate resources to the much more cost-effective primary health care services. Catchment area mapping and micro planning capacity have been developed for polio campaigns, but these have not been applied to routine immunization or other aspects of primary health care. As a result, facilities are not well distributed and many of them have ceased to offer any effective service.

### **Role of the Polio Eradication Initiative**

The PEI has absorbed almost all the attention of NPI for several years. Polio “fatigue” has set in across much of the country, with widespread resentment at the quantity of human and financial resources being thrown at a single disease that, both in public health terms and in popular perception, is relatively unimportant in Nigeria. National Immunization Days (NIDs) take health staff away from their regular work. Some key staff spend up to 35 days on each NID, and there are five NIDs plus one Sub-NID planned for 2005. Thus NIDs contribute to the continuing dysfunction of the primary health care system. Furthermore, the large financial payments made for NIDs (e.g. N5,000 per day for central facilitators) have distorted the incentive structure and provided opportunities for patronage.

### **Politicization of appointments**

Some positions offer potential for patronage due to the large payments for NID activity. This has led to political appointments and frequent changes in personnel as some LGA chairmen wish to bestow or repay political favours. Some Governors have, with good reason, questioned why so many immunization staff have to be trained again and again due to frequent changes in personnel. Even at State Government level there is reported to be increased political interference in the appointment of civil servants, also resulting in frequent changes of staff and the appointment of inappropriately qualified staff.

### **Institutional arrangements**

A widespread consensus has emerged that many of the current problems have their roots in inappropriate and outdated institutional arrangements. State Governments have failed for many years to prioritize primary health care, including immunization. NPI was created to address the problem of poor immunization coverage, but after almost 8 years of its existence has failed to make any impact on the situation, which continues to deteriorate. Due to lack of capacity at State and LGA level, NPI has extended its role and activities far beyond its original mandate. This highly top-down,

centrally-driven programme results in a continuing abdication of responsibility by State Governments, who see immunization as a Federal Government responsibility. This is inappropriate from both technical and political perspectives. There is also an unhelpful duplication of roles between various agencies, including competing Federal Parastatals. In 2004 the Honourable Minister of Health set up a committee to look into the institutional arrangements of the FMOH and its Parastatals, and their relationships with the other tiers of government and other key health sector players. This is a necessary part of the Health Sector Reform Programme. A key component of any institutional reorganization has to be an enhanced role for State Governments. The mandates and roles of Federal Parastatals, especially NPI and NPHCDA, vis-à-vis the mandates and roles of the various Directorates of the FMOH also need to be re-examined. NPI's management structures need to be reviewed and overhauled. The NPI Board was abolished in 2004, but it is not clear who is to fulfil the originally mandated roles and responsibilities of the Board in NPI's governance. Currently there is considerable confusion and overlap between the roles of NPI and those of the Inter-agency Coordinating Committee (ICC), with international partners now playing several of the key roles originally intended for NPI (e.g vaccine procurement and some aspects of data collection and disease surveillance). NPI's technical and financial activities need to become more transparent.

### **3 The Way Forward**

It is not the purpose of this report to set out detailed recommendations. It is clear that decisive and strategic action has to be taken in order to save the lives of Nigerian children and to restore Nigeria's dignity and honour in the international public health arena. Minor adjustments to the current status quo will not achieve the drastic turnaround that is required. The purpose of this report is to advance discussion by helping achieve a shared and informed picture of the current situation. Once this report has been circulated, commented upon and discussed, it would be useful for recommendations to be made on the basis of this shared picture.

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## Acronyms

AD	Autodisable
AFP	Acute Flaccid Paralysis
BASICS-II	Basic Support for Institutionalising Child Survival
BCG	Baccille Calmette-Guerin
CAPA	Catchment Area Planning & Action
CSM	Cerebro-spinal Meningitis
DFID	Department for International Development, UK
DPHC	Director, Primary Health Care (at LGA)
DPHCDC	Department of Primary Health Care & Disease Control
DPT	Diphtheria-Pertussis-Tetanus
DQA	Data Quality Audit (GAVI)
EU-PRIME	EU Partnership to Reinforce Immunisation Efficiency
FCT	Federal Capital Territory
FIC	Fully Immunised Child/Children
FMoH	Federal Ministry of Health
FOMWAN	Federation of Muslim Women's Organisations
GAVI	Global Alliance for Vaccines & Immunisation
HBV	Hepatitis B Vaccine
HU	Health Unit
ICC	Inter-agency Co-ordination Committee
ICHCS	Integrated Child Health Cluster Survey
IMR	Infant Mortality Rate
LGA	Local Government Area/s
M&E	Monitoring & Evaluation
NAFDAC	National Agency for Food & Drugs' Administration & Control
NC/CE	National Co-ordinator/Chief Executive (NPI)
NDHS	Nigeria Demographic & Health Survey
NC	North Central
NE	North East
NGO	Non-governmental Organisation
NICS	Nigeria Immunisation Coverage Survey
NID	National Immunisation Day/s
NPC	National Planning Commission
NPHCDA	National Primary Health Care Development Agency
NPI	National Programme on Immunisation (Nigeria)
NW	North West
OPV	Oral Polio Vaccine
PAFA	Population Activities' Fund Agency

PATHS	Partnership for Transforming Health Systems
PEI	Polio Eradication Initiative
PHC	Primary Health Care
PSVD	Private Sector Vaccine Distributor
PTF	Petroleum Trust Fund
RI	Routine Immunisation
SE	South East
SIA	Supplemental Immunisation Activities
SMoH	State Ministry of Health
SMoLG	State Ministry of Local Government
SNID	Sub-national Immunisation Day/s
SS	South South
TT	Tetanus Toxoid
VPD	Vaccine-preventable Disease/s
UN	United Nations
UNDP	United Nations' Development Programme
UNICEF	United Nations' Children's Fund
USAID	United States' Agency for International Development
WHO	World Health Organisation
YF	Yellow Fever
ZSDO	Zonal State Desk Officer (NPI)

# The Current State of Routine Immunisation Services in Nigeria

## 1 Introduction

In 1979 Nigeria's Expanded Programme on Immunization (EPI) was initiated,<sup>1</sup> and was placed within the Department of Public Health and Communicable Disease Control within the Federal Ministry of Health (FMOH). It was relaunched in 1984 due to poor coverage.<sup>2</sup> In 1996 it became the National Programme on Immunisation (NPI), launched by the then First Lady, Mrs Abacha. Following a review of EPI, Decree 12 of 1997 created NPI as a parastatal.

This desk review considers performance over the last decade from the perspectives of the clients, service providers, managers, donors and decision makers. DFID has commissioned the Design Team that prepared the Project Memorandum for revitalizing routine immunization to prepare this review, based on available information, with recommendations for a way forward. It is not exhaustive and highlights where information is incomplete.

## 2 Context

Routine immunisation (RI) is provided largely through the public health system, with significant variations between the 36 States and Federal Capital Territory (FCT); private or NGO providers are the source of up to one-third of RI in some States in the south<sup>3</sup> (refer to Table 2). Public sector provision is by health staff based at facilities run by Local Government Areas (LGAs) who have a Director of Primary Health Care (DPHC), an NPI Officer and a Cold Chain Officer. These staff are under the control of the elected LGA Chairman and are employees of the State Government (Ministry of Local Government or Local Government Service Commission). The elected Governor controls the State's budget. In the State Ministry of Health (SMOH) the Director of PHC, State Epidemiologist, NPI Manager and Cold Chain Officer – all civil servants – are currently working alongside a Vaccine Security and Logistics Officer and a Social Mobilisation Officer working for UNICEF but contracted through Deloitte Touche, a State Coordinator and a Surveillance Officer contracted by WHO (sometimes from other countries), and a Zonal State NPI Officer and a Zonal NPI Officer employed by NPI and based at one of NPI's six zonal offices. Some States and LGAs have additional coordination with other donors supporting aspects of RI and PHC. Each State has its own vaccine store. In addition there are six zonal stores which are not shared with the States where they are located. The national store moved from Lagos to Abuja in 2002.

NPI's national staff work in four units (Technical; Monitoring, Evaluation and Surveillance; Administration and Finance; Coordinating Unit) each with subsidiary units and are directed by the National Coordinator/Chief Executive (NC/CE) who was appointed to run NPI in 1998; she started her second five year term on 1<sup>st</sup> June 2003,

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<sup>1</sup> Document 2: Structure of Government Health Services in relation to immunization (from GAVI)

<sup>2</sup> Dr (Mrs) A. Awosika. *Boosting Routine Immunization in Nigeria: Issues and Proposed Action Points*. Powerpoint presentation developed by NPI and BASICS Nigeria post September 2000.

<sup>3</sup> In seven States more than 20% of infants receive their routine immunisations from private or NGO providers: Anambra, Ebonyi, Enugu (SE); Lagos, Ogun (SW); Edo (SS); Benue (NC). NICS (2003).

having been reappointed by the President of Nigeria. NPI is a parastatal, although it has no revenue raising function and its staff are civil servants. It has a mandate (see Annex 1) and had a Board headed by a Chairman.<sup>4</sup> Another parastatal, the National Primary Health Care Development Agency (NPHCDA), has responsibilities pertaining to immunisation. Both parastatals are under the control of the Permanent Secretary in the FMOH and hence of the Minister of Health.

There are 774 LGAs and within these there are 5,450 Districts; within the Districts are wards and villages. (Nigeria has 9,555 wards.) For the purposes of WHO and UNICEF's Joint Reporting Form, the LGAs are the "districts" for which completeness of reporting is analysed.<sup>5</sup> These civil jurisdictions do not necessarily coincide with the territories of traditional leaders (e.g., sultans, emirs, lamidos, princes, chiefs) whose influence in health matters is significant, as demonstrated during 2004 regarding the safety of OPV used in the Polio Eradication Initiative (PEI). National activities for polio eradication started in 1996, and the global effort to eradicate polio has made PEI National Immunisation Days (NIDs) and Sub-NIDs the main focus of NPI's attention since 1998.

<p>"One of the problems with NIDs is that routine is non-existing. Nigeria is doing things differently." WHO State Coordinator (international)</p>
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As cases of polio genetically linked to the wild polio virus endemic in Nigeria have been found not only in 13 African countries but also in Indonesia and Yemen,<sup>6</sup> the emphasis on PEI will continue with five NIDs and one SNID scheduled for 2005. Each round takes from a week of staff time up to 35 days, depending on their function. The Inter-Agency Coordinating Committee (ICC) coordinates national, state and donor efforts for PEI; recently RI has received some attention. In Nigeria the ICC has four levels: the ICC chaired by the Minister of Health, the Core Group chaired by NPI's NC/CE which meets weekly; the Operations Group headed by NPI which meets daily; and four working groups (Social Mobilisation led by UNICEF, Logistics led by NPI, Training led by EU PRIME, and Monitoring, Evaluation and Surveillance led by WHO) which meet weekly or fortnightly.

Nigeria's immunization schedule<sup>7</sup> contains tetanus toxoid (TT), BCG, Hepatitis B vaccine (HBV), OPV, DPT, measles, cerebro-spinal meningitis vaccine (CSM) for types A and C, and yellow fever (YF). CSM is administered in an annual campaign in susceptible areas in the north, to age groups which vary according to the quantity of vaccine supplied.

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<sup>4</sup> The Board has not met since June 2003 and has been dissolved; there is currently no Chairman.

<sup>5</sup> See <http://www.who.int/vaccines/globalsummary/immunization/CountryProfileResult.cfm>

<sup>6</sup> Benin, Burkina Faso, Botswana, Cameroon, Central African Republic, Chad, Côte d'Ivoire, Ethiopia, Ghana, Mali, Niger, Sudan and Togo. Confirmed cases from 1 January to 30 May 2005: 16 in Indonesia, 179 in Yemen and 77 in Nigeria. Source: WHO.

<sup>7</sup> NPI. *National Immunization Policy*. May 2003.

### 3 Coverage from 1989 to 2005

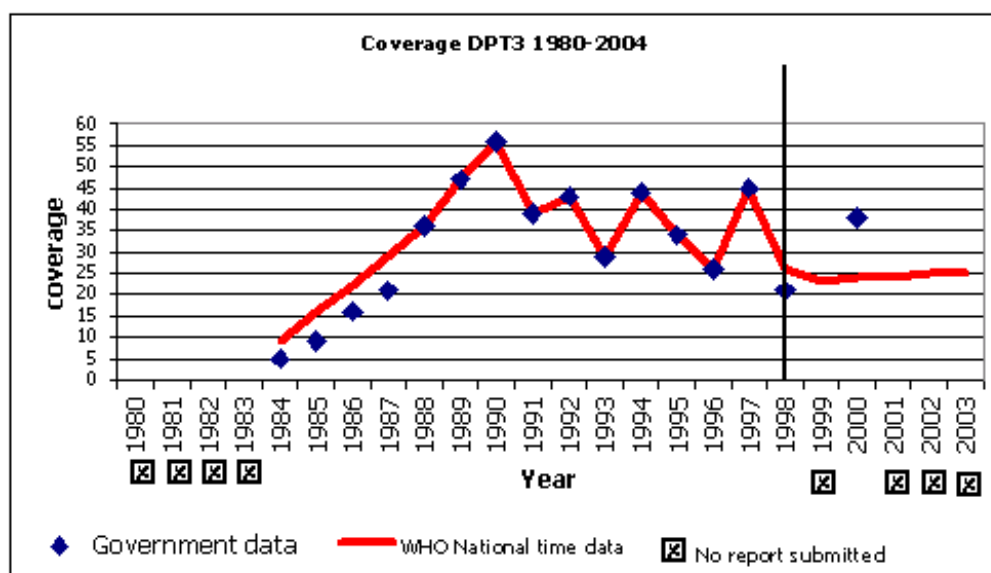
#### 3.1 Trends in DPT3 coverage over time

Countries are supposed to send their WHO Regional Office an annual report of coverage based on service statistics, using the Joint Reporting Form. WHO assesses this information and uses data from additional sources to estimate trends. In the report for Nigeria,<sup>8</sup>

“... The estimate since 1998 is based on recent surveys, DHS 1999, MICS 2000, DHS 2003, EPI review 2003 [i.e. National Immunization Coverage Survey].”

Data are given for BCG, DTP3, Pol3 and Measles; no data appear for HBV. We show DPT3 because it reflects both penetration and continuity of routine service delivery (see Figure 1).

Figure 1 Trends in DPT3 coverage from 1980 to 2003



Nigeria’s health authorities submitted reports for service activity from 1984 until 1998. From 1999 until today Nigeria has submitted only one report on RI coverage to WHO’s Regional Office, despite repeated informal and formal requests.<sup>9</sup>

The National Immunization Coverage Survey (NICS) was commissioned by NPI and conducted in 2003. The NICS report includes *Table b: Routine immunization coverage for 1998 to 2001*, for which NPI’s M&E Department is cited as the source;<sup>10</sup> there are data on BCG, DPT3, OPV3 and Measles for every year. However, WHO received data only for 1998 and 2000. A comparison of DPT3 data for these years shows no concordance between the two sets of service statistics (see Table 1).

<sup>8</sup> WHO/UNICEF Review of National Immunization Coverage 1980-2003: Nigeria. August 2004.

<sup>9</sup> Sample of e-mail traffic from M. Birmingham.

<sup>10</sup> National Programme on Immunization, Federal Republic of Nigeria. *Immunization Coverage Survey 2003 Report* (Draft Report: Restricted). Consultants: ICS Consortium, Abuja, Lagos and Kaduna.

**Table 1 Comparison of data on DPT3 coverage**

Source of data on DPT3 coverage:	1998	1999	2000	2001
Received by WHO (see Footnote 8)	21%	no data	38%	no data
M&E Dept, NPI cited in NICS (2003)	26%	19%	24%	28%
Discrepancy	+5%	?	-14%	?

Under *Functions and Powers of the Programme, Section 7(f)*, NPI's mandate<sup>11</sup> states that it will “compile and publish relevant data resulting from the performance of its functions under this Decree or from other sources.” If this does not include compiling data from the States and making available Nigeria's annual report on RI coverage, then the mandate needs to be revisited to make clear who is responsible for compiling and publishing the data that should be reported to WHO.

### 3.2 Coverage survey data for 1999, 2002 and 2003

In constructing the trend line in Figure 1, WHO has used a variety of coverage survey data<sup>12</sup> for identifying firm points for 1993, 1998, 1999 and 2002. Between the Demographic and Health Surveys (DHS) for 1999 and 2003 the percentage of children aged 12-23 months who received at least one dose of the traditional vaccines<sup>13</sup> by their first birthday rose from 60.9% to 69.4%, indicating that access and uptake had improved. Yet the percentage fully immunized with all doses before 12 months of age fell from 14.3% in 1999 to 11.3% in 2003, and drop-out between first and third dose of DPT increased from 45.7% to 48.1%, indicating growing problems with the continuity of RI services.<sup>14</sup>

This profile of high drop-out rates was also evident in a smaller study conducted as part of the BASICS II/Nigeria Project. Despite much national attention being directed towards PEI, between 2000 and 2002 coverage for the routine third dose of OPV fell in three areas – Abia (2 LGAs), Kano (9 LGAs) and Lagos (9 LGAs) – covered by the project. In the 9 Kano LGAs, OPV0 rose from 25% to 39%, and OPV1 rose from 30% to 35%, but OPV3 coverage fell from 32% to 15% during this period.<sup>15</sup>

‘The WHO standard is that a drop-out rate greater than 10% is unacceptable. In none of the three states for which data are presented were drop-out rates within that allowable maximum. Indeed, an inspection of drop-out rates from DPT1 to DPT3 indicates that completion of coverage is weak in all three states (Figure 3.7). Completion rates appear stronger in Lagos where the DPT1–DPT3 drop-out rate is 20%. The rate of completion is the weakest in Kano, indicating a failure in the routine system to identify, follow-up, and monitor drop-outs.’

BASICS II/Nigeria (2003), p23

<sup>11</sup> National Programme on Immunization. Decree No. 12 (commencement 12<sup>th</sup> August 1997).

<sup>12</sup> Federal Republic of Nigeria Multiple Indicator Cluster Survey (MICS) 1995; Demographic and Health Survey 1999; MICS 1999; DHS 2003; NICS 2003.

<sup>13</sup> BCG, three doses of DPT and OPV, Measles.

<sup>14</sup> Data from DHS 1999 Table 8.7 (p.114) and DHS 2003 Table 9.10 (p.128) respectively. Drop-out from DPT1 to DPT3 was  $(45.7-24.8)/45.7=45.7\%$  in 1999, and  $(38.7-20.1)/38.7=48.1\%$  in 2003.

<sup>15</sup> BASICS II/Nigeria (March 2003). *Report of the Integrated Child Health Cluster Survey (ICHCS)*. Lagos: BASICS II/USAID.

The NICS interviewed a far larger sample<sup>16</sup> in 2003 and found that coverage for fully immunized children (FIC) was 12.7%, similar to the DHS estimate. The wide variation between the Zones shown in Table 2 reflects even wider inter-state variations: Lagos had the highest FIC at 40.2% whereas coverage in Jigawa and Sokoto was zero FIC.

**Table 2 Percent of children aged 12-23 months who were fully immunized before first birthday, by Zone, showing source of service in each Zone**

Geographic area	FIC <sup>a</sup> in 2003	Source of immunization service:			
		Govt	Private	NGO	Supplemental
National	12.7%	75.6%	8.4%	1.7%	14.4%
South-East	25.2%	79.3%	19.3%	1.3%	0.1%
South-West	24.1%	82.4%	14.4%	1.0%	2.2%
South-South	13.3%	88.1%	5.6%	2.0%	4.2%
North-Central	10.9%	85.1%	4.7%	2.8%	7.4%
North-East	4.7%	62.5%	0.2%	3.2%	34.1%
North-West	3.7%	49.3%	1.8%	0.2%	48.7%

Source: National Immunization Coverage Survey 2003.

a) Fully immunized before first birthday with valid doses of BCG, DPT1, 2 and 3, OPV1, 2 and 3, and Measles, from card and/or history. HBV was not included in the survey.

Table 2 shows that supplemental immunisation activities (SIAs) were the source of one-third of the RI services in the NE Zone and almost half in the NW Zone; use of this strategy had not made a significant impact upon increasing RI coverage among infants.

### 3.3 Why was your child not (fully) immunised?

The NICS (2003) interviewers asked parents or carers of surveyed children who had not completed their immunizations why the child was not fully immunized, or (if no doses were recorded) why the child was not immunized. Answers were recorded in pre-coded categories: one response per child. The NICS reports the four leading reasons in each State,<sup>17</sup> and we have used these data to provide a national ranking of the most frequently recorded reasons from the parents' perspective. Of 24,116 reasons accounted for, the most frequently mentioned were:

- Vaccine not available (4,360)
- Place of immunisation too far (2,919)
- Unaware of the need, or unaware of the need for 2<sup>nd</sup> or 3<sup>rd</sup> doses (1,858)
- Fear of side reactions (1,383)
- Mother too busy (1,049)
- Place and/or time of immunization unknown (862)
- No faith in immunization (704)
- Rumours (687)

<sup>16</sup> The classic coverage survey of 30 clusters of 7 children aged 12-23 months was carried out in 194 LGAs, giving State specific estimates; the total number of children in the sample was 40,777.

<sup>17</sup> NICS (2003), Figure 12, pp99-118 has data for 35 States plus FCT; Kaduna's data are not shown.

The full list is shown by Zone in Annex 2. The largest category is “Other” (9,209) which is a result of the report showing data on only the four highest ranked reasons in each State. NPI has not yet officially released the full NICS report but most donors appear to have gained access to the draft version marked “restricted.” (An abridged version was made available by NPI in June 2005.) To reap the benefit of the investment already made, the full survey results should be made available to the States and the data should be available for further exploration.

After further examination of demand side issues, the supply side components of immunisation are explored.

#### **4 Routine immunisation: the user perspective**

This section considers decision-makers’ and caregivers’ knowledge, attitudes and behaviour. A routine immunisation decision-maker makes the final choice as to whether a child receives immunisation, whether a single intervention or the full course. While the decision-maker is often the father, especially in the North, this is not always so, e.g. in households where parents share responsibility for health-seeking behaviour decisions, in female or child-headed households, or where the father is absent. The caregiver will chiefly be the mother; if she is dead another female household member usually takes on responsibility.<sup>18</sup> A distinction between decision-maker and caregiver is necessary to examine how best to facilitate the participation of women as well as men in community activities to revitalise routine immunisation, and to address gender and equity issues.

##### **4.1 Routine immunisation and equity**

Public health specialists see immunisation as one of the most equitable primary health interventions. In many countries routine immunisation coverage for the poorest quintile is lower than for higher income groups, but the disparity is less marked than for other health interventions. In Nigeria widespread inequities persist in immunisation coverage. The child of parents in the lowest socio-economic quintile is nearly 12 times less likely to be immunised than children of parents in the highest. There is a positive correlation between mothers’ education and the fully immunised child: nationally 31.1% of children of mothers with secondary education are fully immunised; the figure for children of mothers with no education is 3.9%. Children in rural areas, especially in the north, are particularly disadvantaged. The NICS states that nationally 7% of rural children and 25% of urban children have been fully immunised. Full immunisation coverage is less than 13% nationally, and below 4% in the North West Zone.<sup>19</sup> Among the population as a whole, only 70% of Nigerians had access to health care of any description (public, private, traditional; primary, secondary, tertiary) in 2001. This figure is lower in rural areas.<sup>20</sup>

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<sup>18</sup> For discussion of health-seeking behaviour decisions, see also Orubuloye, I.O. & D Olu Ajakaiye 2002: *Health-seeking behaviour in Nigeria*. Ibadan: Nigerian Institute of Social and Economic Research.

<sup>19</sup> National Population Commission (NPC) and ORC Macro 2004: *Nigeria Demographic and Health Survey 2003*. Abuja & Calverton, Maryland: NPC & ORC Macro. NPI 2003: *National Immunisation Coverage Survey: Report*. Abuja: National Programme on Immunisation. (NICS: not yet published).

<sup>20</sup> United Nations’ Development Programme 2004: *Human Development Report*. New York: UNDP.

Barriers to equitable routine immunisation access and uptake remain insurmountable for all too many Nigerians. ‘Access’ requires careful attention: barriers may be gender-linked (e.g. women not wishing to see a male health worker; women not being given permission to visit a health facility with their child); financial (e.g. inability to pay for transport, vaccine and/or syringes); physical (e.g. terrain and amount of time needed to trek to the nearest health facility). There may be opportunity costs (e.g. time taken out from wage labour). Reliable Nigerian data on these issues are virtually non-existent.

#### **4.2 Misperceptions of routine immunisation**

Incorrect knowledge as to the preventive role of routine immunisation is widespread in Nigeria. Quantitative research conducted in six States in 2004 reveals that in rural Enugu, diarrhoea, fever, convulsion, vomiting and malaria are believed to be vaccine-preventable diseases (VPDs), while in rural and urban Kano, malaria, teething problems, vomiting, convulsion and pneumonia are listed.<sup>21</sup> During pilot community research in March 2005 a number of immunisation decision-makers and caregivers in Katsina State stated polio immunisation is all that is required: once a child has received its polio ‘drops’, it is immunised against any childhood illness, including those for which there is no vaccine available, e.g. acute respiratory infection.<sup>22</sup> Those least likely to demonstrate high levels of correct knowledge include people who do not use public facilities for the treatment of common illnesses, those who lack easy access to public health facilities, and illiterates.<sup>23</sup>

#### **4.3 Reasons for rejection of routine immunisation**

##### **Fear and confusion**

Many decision-makers and caregivers reject routine immunisation due to rumour, incorrect information, and fear. The NICS report describes such perceptions as ‘wrong ideas’: this is an inadequate interpretation. Attempts to increase coverage must seek to understand people’s attitudes and the influence of these on behaviour.

Fears regarding routine immunisation are expressed in many parts of Nigeria. Fathers of partially immunised children in Muslim rural communities in Lagos State see hidden motives, linked with attempts by NGOs sponsored by unknown enemies in developed countries, to reduce the local population and increase mortality rates among Nigerians. Belief in a secret immunisation agenda is resonant in Jigawa, Kano and Yobe States, where many believe activities are fuelled by Western countries determined to impose population control on local Muslim communities.<sup>24</sup>

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<sup>21</sup> Babalola S & O Aina 2004: *Community and systemic factors affecting the uptake of immunisation in Nigeria: a qualitative study in five states: national report*. Abuja: PATHS. Babalola S & Adewuyi A 2005: *Factors Influencing Immunization Uptake in Nigeria: A Theory-based Research in Six States*. Abuja: PATHS.

<sup>22</sup> Feilden Battersby Analysts (FBA) (forthcoming): *Project Memorandum for Revival of Routine Immunisation*. Bath UK: FBA for DFID. See also Brieger, W.R., K.K. Salami, & B.P. Ogunlade 2004. *Catchment Area Planning and Action: Documentation of the Community-based Approach in Nigeria*. Arlington, Va.: BASICS II for USAID.

<sup>23</sup> Babalola & Adewuyi 2005.

<sup>24</sup> Babalola & Aina 2004 & Babalola & Adewuyi 2005.

Confusion remains high in Katsina, with several issues emerging: not only lack of correct knowledge, but uncertainty as to the reasons why a healthy infant should receive an injection. Understanding of the links between preventive health care and good health are often weak; as a result, fears as to the possibility of infection and disease can grow.<sup>25</sup>

Other factors contributing to rejection of routine immunisation include an apparently deep-rooted suspicion in Kano State of western-style health services, dating from the 1980s. These suspicions link to national population policy: some northerners continue to see routine immunisation as a means of covert fertility control. The situation is said to have been exacerbated by drug trials by an American company, apparently conducted without proper ethical standards and approval, that led to children's deaths.<sup>26</sup>

### **Low confidence and lack of trust**

Lack of confidence and trust in routine immunisation as effective health interventions appear to be relatively common in many parts of Nigeria.<sup>27</sup> A 2003 study in Kano State found that 9.2% of respondents (mothers aged 15-49) evinced 'no faith in immunisation', while 6.7% expressed 'fear of side reactions'.<sup>28</sup> For many, immunisation is seen to provide at best only partial immunity, e.g. in Kano and Enugu.<sup>29</sup>

"We hope that once our children are immunised against measles they won't become too ill, that they won't die from measles. We know the injection does not completely protect them against measles."

FOMWAN member, Katsina Town (FBA 2005)

The widespread misconception that immunisation can prevent all childhood illnesses reduces trust: when, as it must, immunisation fails to give such protection, faith is lost in immunisation as an intervention, for any or all diseases.<sup>30</sup>

"User confidence in the immunisation services is...extremely low. The indifference to routine immunisation is probably more destructive than the ignorance that is associated with it."

Euronet Consultancy 2005: p5

### **The impact of PEI**

Many negative attitudes towards routine immunisation in the North can be traced to what are widely perceived to be intrusive and culturally insensitive polio S/NIDs.<sup>31</sup> Concerns, rumours and disquiet are commonplace; moreover, many decision-makers

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<sup>25</sup> FBA (ibid) & FBA 2005: *Design of Routine Immunisation Initiative - Trip Report for DFID*. Bath UK.

<sup>26</sup> Brieger *et al* 2004. See also the discussion re Pfizer's 1996 activities in Achebe C. C. 2004: *The polio epidemic in Nigeria: a public health emergency*. www.nigeriavillagesquare1.com

<sup>27</sup> Babalola & Adewuyi 2005. PATHS 2005: *Addendum to existing qualitative and quantitative immunisation survey*. Healthlink International for PATHS: London & Abuja.

<sup>28</sup> Yola, A.W. 2003: *Report on Child Immunisation Clusters (CICS): Conducted in 12 LGAs of Kano State*. Lagos: BASICS II.

<sup>29</sup> Babalola & Aina 2004; Brieger *et al* 2004; PATHS 2005.

<sup>30</sup> PATHS 2005.

<sup>31</sup> For discussion of the negative impact of S/NIDs, see e.g. Babalola & Adewuyi 2005; Babalola & Aina 2004; Brieger *et al* 2004; FBA 2005; PATHS 2005; Taylor 2003.

and caregivers are well aware of the negative impact of PEI focus on delivery of routine immunisation services.

“The conflict over polio vaccine campaigns in Kano State has been reported worldwide. Fears that vaccines carry fertility drugs or HIV were widespread. The problem was partly exacerbated by NPI with its stress on such campaigns to the neglect of routine immunization”.

(Brieger *et al* 2004: p34)

S/NIDs have led some northern decision-makers and caregivers to reject all routine immunisation, for fear that all antigens induce sterility and/or transmit HIV. Another frequently expressed view linked to the number of NIDs is that routine immunisation must be unimportant. ‘Polio fatigue’ has led to ‘routine immunisation fatigue’, according to personal communication from UN and SMOH staff in Bauchi and Kano States in January 2005. The pilot community research reveals that several decision-makers in Katsina had rejected OPV for their children in the 1<sup>st</sup> 2005 NID Round, including a community health educator.<sup>32</sup>

Many people will never have seen or known a person with polio. Therefore, they cannot understand the overwhelming weight placed on this one intervention, to the detriment of all routine immunisation. Other vaccine-preventable diseases, e.g. measles, an outbreak of which in February-May 2001 saw 100,000 cases nationally and eight deaths a day in one hospital in Kano State, are widely felt to be far more prevalent and dangerous to the health of the child than polio.<sup>33</sup> In January 2005 there was a measles epidemic in Bauchi, yet all focus remained on polio.

An explanation given in Bauchi State in January 2005 as to why PEI is resented by so many is that its delivery has never collapsed, unlike routine immunisation. This is despite the fact that many of the same health workers are engaged in both activities, and routine immunisation is known by many to be an element of primary health care.

#### **4.4 Reasons for acceptance of routine immunisation**

##### **Correct knowledge**

Adamawa mothers demonstrate significantly greater correct knowledge of both individual antigens and the complete immunisation schedule. Similarly, despite observably greater poverty in the Adamawa communities, mothers there evince more willingness than their counterparts in Katsina State to incur both monetary and opportunity costs to assure their children’s immunisation. A greater number of Adamawa mothers retain Child Health cards, and it was here that the one fully immunised child (card + history) was met; more women in Adamawa had received at least part of the full tetanus toxoid course of immunisation. The primary reason for this greater knowledge and commitment appears to be the presence of the Garkida community-based health programme: Garkida town is less than 20 km from each of the

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<sup>32</sup> FBA (forthcoming).

<sup>33</sup> Battersby A & J Gruber 2003: Report to PATHS – Planning & Co-ordination of CAP/PATHS’ immunisation initiatives (output 3) – PATHS/0014/03). Abuja: PATHS.

two villages.<sup>34</sup> Similar benefits of focused, small-scale and situation-specific interventions are demonstrated by the experiences of the BASICS-II CAPA work.

“ [Before], we are ignorant of the causes and prevention of common childhood diseases, but now we know. On the part of the people, they are now more informed than before, and they attend Health Center more than before [Warawa, Kano Chairman].”

‘A woman leader from Jaba [Dara LGA, Kano State] described [how] ‘We educated women in *purdab* to attend clinic and make sure that their children are immunized’.”

(Brieger *et al* 2004: pp 39-40)

#### 4.5 Perceived benefits of routine immunisation

Key benefits include the good health and survival of the child. Another is the cost-saving benefit of immunisation from lower incidence of disease and less frequent visits to the hospital. In 2004 parents in both Lagos and Enugu stated that immunisation reduces mortality and morbidity, helps to minimise the anxiety associated with rearing children, and helps to maximise use of time and money.

#### 4.6 Community-based approaches

Findings from the March 2005 community pilot research indicate that where there has been dissemination of information tailored to community members’ needs, as in the villages served by the Garkida Health Project and by the Community-based Bamako Initiative activities supported by the Adamawa State SMOH, there is potential for greater engagement with routine immunisation. Findings suggest that even where barriers to uptake persist, such as unavailability of vaccine and/or syringes, informed caregivers will make more effort to gain access. It was noticeable in Adamawa State that caregivers seem to have kept on trying to get their children immunised, to a degree not seen in Katsina. The key differences appear to be greater knowledge and more trust in efficacy.

### ##5. Shortage of Vaccines and Immunisation Supplies

#### 5.1 Procurement

Under NPI’s mandate the first responsibility is to “Support the States and Local Governments in their immunisation programmes by supplying them with vaccine, needles, syringes, cold chain equipment and other things and logistics as may be required for those programmes”.<sup>35</sup> However supply of vaccine has always been problematic for Nigeria, primarily because funds were not sufficient and were not released on time. For example in 2001 the whole amount was approved but only 61% was released;<sup>36</sup> the late release of funds (April 2001) meant that vaccine had to be bought on the spot market at inflated prices. In 2002 no funds were released and by March 2003 the funding cycle had only reached the stage of getting the budget approved. NPI has not supplied any syringes for RI in 2005, and the only safety boxes

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<sup>34</sup> FBA (forthcoming).

<sup>35</sup> National Programme on Immunisation Decree 1997 No. 12, section 7(a).

<sup>36</sup> NPI/UNICEF March. 2003 *Assuring Vaccine Security in Nigeria Report of NPI/UNICEF vaccine security mission..*

that have been supplied are the limited quantities given by donors for SIAs. Following an assessment in 2003<sup>37</sup> it was decided that UNICEF would supply vaccines in future. In the last quarter of 2003, UNICEF began supplying vaccines through a procurement services agreement, and this arrangement continues to date. However it has not solved the problem of vaccine shortages. For example CSM vaccine was not supplied in time to allow CSM immunisation to take place before the cerebro-spinal meningitis season and some States<sup>38</sup> had to buy their own stocks of CSM using State funds. Measles vaccine also arrived too late to limit the effects of a measles outbreak in the north, and too little measles vaccine was supplied to Abia.

“There will be a measles campaign from 21 March 2005 for one week. Abia had just received 298,000 doses without syringes and needles for a target group of 556,000.”<sup>39</sup>

Estimation of vaccine requirements is dogged by:

- a) Lack of data. In 2005 UNICEF was unable to get stock balance figures from NPI and so assumed zero stock at national level for all vaccines. Based on data supplied by NPI, UNICEF ordered 17,122,166 doses of hepatitis B vaccine. This quantity represents over 20% of hepatitis B vaccine bought by UNICEF for global requirement in 2005.<sup>40</sup>
- b) Unrealistic expectations of coverage. The estimate for 2005 is based on coverage of 80% (assuming 25% wastage). In one State coverage for 2004 had been 35% for first dose, 11% for second dose and 2% for third dose. It is unrealistic to base procurement on projections that take coverage to 80% in one year.

The status of Hepatitis B vaccine (HBV) is quite unclear. HBV was first acquired by Nigeria in 2000. A DFID mission in early 2001<sup>41</sup> found HBV being kept in freezers in the Zonal Store at Kano. It was unclear if the vaccine was to be added to the schedule or kept only for use on high-risk clients and medical staff. It is unclear if the vaccine has ever been formally added to the schedule. It does not appear on the list of diseases in the NPI mandate and no Ministerial order adding it to the list has been found. However in a presentation in 2000 hepatitis B appears on the list of target diseases.<sup>42</sup> HBV is also included in the schedule in the NPI *National Immunisation Policy*, May 2003. The NPI *Basic Guide for Routine Immunisation Service Providers*<sup>43</sup> also includes a section on hepatitis B. *The Draft National Health Policy 2004* makes a specific objective for the National Policy on Immunisation, “to consolidate the integration of new vaccine such as ..Hepatitis B.. into the routine system in phased manner by 2007”. Some immunization cards include Hepatitis B on the schedule while others do not show it on the schedule but do include space to record the doses. Nonetheless hepatitis B immunisation performance in 2004 was not reported by 3 of the 8 States visited and

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<sup>37</sup> Ibid

<sup>38</sup> E.g. Jigawa

<sup>39</sup> PRIME *Review Mission March-April 2005*

<sup>40</sup> Personal communication from UNICEF Supplies Division Copenhagen

<sup>41</sup> Battersby, A. *Aspects of immunisation in Nigeria*. DFID. 2001

<sup>42</sup> Awosika, A. *Boosting Routine Immunization In Nigeria: Issues And Proposed Action Points*

<sup>43</sup> NPI. 2004

there has never been any National reporting. At the time of the 2003 coverage survey<sup>44</sup> HBV was specifically excluded from the survey. HBV does not appear in the coverage survey carried out by USAID/Basics.<sup>45</sup>

During fieldwork in March 2005 the Design Team interviewed nurses who reported that they did not use HBV because they have never been instructed to use it and did not know anything about it.<sup>46</sup>

## 5.2 Distribution

Vaccine distribution is based on a top down 'push' system, which relies on accurate reports being received by NPI Abuja. The system is not working well because accurate data are not available and coverage estimates are not realistic. For example, using data from the NICS (2003) the number of doses administered per year was 6.6 million; the estimate for 2005 contains sufficient vaccine to administer 12.8 million doses.<sup>47</sup>

By 2002 NPI had established Zonal stores where vaccines could be stored for supply to the States in the Zone. However during the fieldwork in January 2005 all the States visited reported that they had to go to Abuja to collect their vaccines. By March 2005 the Zones had received vaccine but States were then having to collect from the Zone.

In an attempt to improve the poor quality of vaccine distribution (for example Katari Pharmacy recovered 736,555 doses of mixed antigens lying unused at LGA stores<sup>48</sup>) a Private Sector Vaccine Delivery (PSVD) scheme was introduced in 2003. The scheme is still working in Osun but only to LGA level and the contractor is complaining that he has not been paid.<sup>49</sup> In Kano State where it is also still running the contractor has not been paid on time.<sup>50</sup> It has collapsed in all other states of operation in the NW and NE Zones for a variety of reasons. Payment is by a flat rate of N10 per dose for vaccine delivered (according to staff in the NE Zone), or doses administered (according to staff in the NW Zone). Contracts are signed with NPI at national level, which is also responsible for payment. The rate per dose is the same throughout the Federation, irrespective of terrain and local situation. This is unrealistic, unfair and uneconomic. The contractor is expected to deliver vaccine to the LGA store and on another day deliver to the health facilities. He is also expected to recover any vaccine which has not been used; this means making two visits to the recipient facility on the same day. A cumbersome certification process requires the Zonal State Desk Officer (ZSDO) to visit the State and randomly sample 20% of the LGAs and within these 15% of the rural facilities and 5% of the urban facilities. From this sampling a completion percentage is calculated from which the payment to the contractor is calculated. No one could explain to the team how such sampling (which might not include a facility served) could be accurate. The validation may take a full month to do if the ZSDO

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<sup>44</sup> NPI. *National Immunization Coverage Survey (NICS)*. 2003

<sup>45</sup> Basics II *Nigeria. Report of the Integrated Child Health Cluster Survey (ICHCS)* March 2003

<sup>46</sup> Borno State

<sup>47</sup> Figure calculated assuming a wastage rate of 25%

<sup>48</sup> Katari Pharmacy & Stores *Report of Activity July 2003-September 2004* p.12

<sup>49</sup> PRIME *Review Mission March April 2005* p. 43

<sup>50</sup> *ibid* p. 15-16

works full time but as all have other duties, the work is spread over several months. The result of this process is that it can take six months before the contractor is paid. The process also offers many opportunities for false accounting. One sample of invoices from Jos showed that the contractor should receive N105,900 for delivering vaccines to 17 different facilities. As it costs N10,000 a day to run a delivery vehicle it is unlikely that he would cover his costs. This poorly designed, over complicated and over centralised scheme has failed to assure vaccine supply.<sup>51</sup>

At State and especially at LGA and health facility level vaccine supply is severely constrained by lack of funds and resources. Distance is a major issue in many LGAs. For example in Toro LGA, Bauchi State, the most distant health facility is 150 km from the LGA headquarters.

“no funds are made available on a regular basis to pay for material and services. ... Personnel travel at their own expense to collect and return vaccines from the LGA cold store.”<sup>52</sup>

The problem of funding is exacerbated in many States and LGAs by the “one-line budget”, i.e. the whole budget is under control of the Governor or in the case of the LGA its Chairman. The DFID Team was given frequent examples where managers were unable to discharge their responsibilities because they had no funds to organise expenditure, e.g. for transport. Even Commissioners of Health in some States have no authority to spend money.

## **6 Place of immunisation too far**

### **6.1 Finite number of facilities**

In 1999 there were 18,258 PHC facilities of which 67% were state owned and 3,275 secondary facilities of which 25% were state owned. The proportion of households living within 10 km was 88% in SWZ, 87% in SEZ, 82% in NCZ, 73% in NEZ and 67% in NWZ.<sup>53</sup> However not all of these facilities were functioning. Since then NPHCDA has embarked on a building programme and plans to build at least another 600. It is unclear how many facilities are not functioning. Unfortunately the location of new facilities is often determined by political constituencies and “jostling” by the influential rather than by transparent criteria based on detailed location planning.<sup>54</sup>

### **6.2 Improve access by increasing outreach services**

Few facilities in the north possess a map of their catchment area. Although maps have been prepared for the PEI they are not used as a basic planning tool for RI. The capacity to conduct strategic planning at State level is weak and weaker at LGA level. Except in the States where CAPA has been used there does not appear to have been any detailed attempt to carry out the sort of strategic planning needed to work out how to reach communities that should fall within the catchment area of each existing facility.

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<sup>51</sup> FBA *Reviving Routine Immunisation in Nigeria Design Team Trip report* March 2005

<sup>52</sup> NPI/UNICEF, *Assuring Vaccine Security in Nigeria*. March 2003

<sup>53</sup> AFRO, *WHO Country Cooperation Strategy: Federal Republic of Nigeria 2002-2007*. Brazzaville. SS Zone had not yet been formed.

<sup>54</sup> Dr Sorungbe, NPHCDA Chairman, and HRH the Emir of Shonga (HERFON Chairman), personal communications.

Until this is done and until politicians can be persuaded to operate within a transparent location planning process adhering to relevant criteria, it will be very difficult to build a logical network of fixed facilities to serve the population. At the same time it is vital that the community be involved in the planning process both to gather ideas and also to obtain community contribution to provision of facilities.

### 6.3 What does “too far” mean?

In the NICS (2003) the second most frequently cited reason for a child not being immunised was that the service was “too far;” in the NW Zone this was the most often given reason. Unfortunately there are no data to indicate what people consider a reasonable distance to travel, nor is there any indication whether “too far” refers to time or distance. Conventionally planners consider 5 km or 1 hour reasonable, but this rule of thumb must be verified in Nigeria’s settings. Once the time/distance preference of the served population has been identified it will be possible to complete the location planning exercise, which leads into identifying the communities that will have to be served by either outreach or mobile services.<sup>55</sup>

Virtually all the planning that has been undertaken by NPI has been devoted to PEI. For example the logframe labelled Track A developed at the National Meeting at Lokoja in December 2004 had two columns: one for PEI and the other for RI. The RI column is completely blank.

Until detailed location planning is carried out it will not be possible to plan viable and affordable strategies to make immunisation services accessible to the population. That planning process must include the community as a major contributing resource.

## 7 Injection safety

The PRIME Review Mission report contains many references to injection safety, and some of these are listed below. In only one State did that mission find a bundling policy being followed.

“**Safety of Injections and Vaccine Safety (AEFI):** is best ensured by (1) the use of autodestructive [sic] (AD) syringes, (2) the use of safety boxes for their disposal and (3) the compliance with technical procedures. AD syringes were not available in any of the HUs visited. Safety boxes were generally not available and safety practices were strikingly poor in some HUs [Health Units]. In one HU, staff had left old syringes used in the current Meningitis vaccination campaign on one of the HU beds, with the needles recapped.”<sup>56</sup>

“The distribution of the syringes and needles is taken care of by the SNPI manager; there is no bundling system and provisions are short having last been done by the SNPI in November 2003 (!).”<sup>57</sup>

“However they had not received syringes and needles together with the vaccines and the **HOD of Health of Bende LGA** had ordered to borrow from the pharmacy and see later how to pay;”<sup>58</sup>

<sup>55</sup> In the early 1980s much of the immunisation service was provided by mobile teams which went out for a week at a time. This strategy has now been abandoned. It is not known why.

<sup>56</sup> GAVI, *Immunisation Data Quality Audit (DQA) Nigeria 2004* p.17

<sup>57</sup> PRIME, *Review Mission March-April 2005*. 2005

“Mothers have to pay 20 Naira for the syringes and needles every time they bring their children for immunisation”<sup>59</sup>

“Expired syringes were in use to administer the vaccines to the children”<sup>60</sup>

“No safety boxes for disposal of used syringes which were lying on the table within prickable distance”.<sup>61</sup>

NPI's National Immunization Policy states:<sup>62</sup>

3.3.1

“Autodisable syringes should be the equipment of choice for immunization by the end of 2005.

3.3.2

Regular Disposable syringes (plastic)

This equipment should no longer be used for immunization by the end of 2004

The Federal government shall ensure the provision and availability of acceptable equipment for injection.

3.5.1

All disposable syringes and needles, including auto-disable equipment, should be disposed of immediately following use in a designated safety box or sharps puncture-proof container.”

The NPI *Basic Guide for Routine Immunization Service Providers 2004* states p. 51:

“3.0.2b Injection equipment/consumables

Syringes and needles:

You must have at least one single-use syringe and needle, including autodisable (AD) syringe for each client expected

You must use one sterile syringe and one sterile needle, including auto-disable (AD) syringes, for each vaccine given to the client”

A NPI poster urges

“Do use autodisable autodistruct syringes and needles where available”

WHO/UNICEF policy<sup>63</sup> states that vaccines should be bundled with syringes, needles and safety boxes.

Despite requests from UNICEF, NPI is not purchasing any syringes for immunisation in 2005, and has refused to purchase AD syringes until they are manufactured in Nigeria.<sup>64</sup>

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<sup>58</sup> Ibid p.12

<sup>59</sup> Ibid p.20

<sup>60</sup> Ibid p.37

<sup>61</sup> Ibid p.37

<sup>62</sup> Chapter Three injection safety p. 12

<sup>63</sup> WHO-UNICEF-UNFPA *Joint statement on the use of auto-disable syringes in immunizaion service.s* WHO/V&B/99.25

<sup>64</sup> UNICEF Supplies Division Copenhagen personal communication

During fieldwork by the DFID Design Team (January and March 2005) it became clear that northern States were unaware that NPI was not going to supply any syringes in 2005. One State had bought a supply of syringes in the absence of any being delivered by NPI, but unfortunately they were all BCG syringes. (i.e. too small to administer an intramuscular or subcutaneous dose of vaccine). It was clear to the DFID team that NPI had failed to explain to these States that they should buy their own syringes. NPI has not bought safety boxes for several years. These are not easily available in Nigeria so it is very difficult for the States to buy safety boxes themselves. Consequently the only safety boxes available are those imported by GAVI for use on measles and CSM campaigns. During visits to 8 States the only safety boxes found were 275 in a state vaccine store; they were not being distributed.

A review in 2001<sup>65</sup> identified serious deficiencies in the way immunisations were carried out and recorded:

“Injection safety is seriously neglected. The WHO definition<sup>66</sup> is not being met on all three counts.

The following are examples of how a recipient may be put at risk:

- if the injectable is suspect,
- if the syringe is suspect
- if a needle is contaminated before an injection is administered,
- if the technique used by the nurse is wrong,
- if the syringe or needle is used on more than one person,
- if an unqualified person administers an injection

Examples of all these were witnessed during the fieldwork and they are illustrated in Appendix 3.[not attached]

In particular many nurses have developed bad injection technique, they touch the needle, use the wrong site, leave the needle piercing the septum .. and reuse reconstituted vaccine at a subsequent session.”

Observations by the DFID team indicate that the above concerns still apply today.

## 8 Cold Chain

### 8.1 Equipment

A comprehensive cold chain audit was carried out in 2000 and updated in 2003; NPI reported to GAVI in 2004 that the rehabilitation was 66% complete<sup>67</sup>. However the PRIME *Review Mission 2005* report found that

“At State level, the cold stores are poorly equipped and badly managed. More than half of the refrigeration equipment is either broken or worn out.”

The DFID mission in January and March<sup>68</sup> also found that:

<sup>65</sup> Battersby A. *Aspects of Immunisation in Nigeria*. DFID. 2001.

<sup>66</sup> A safe injection (i) does no harm to the recipient, (ii) does not expose the health worker to avoidable risk, and (iii) does not result in waste that puts other people at risk

<sup>67</sup> NPI, *Progress Report to GAVI*. September. 2004,

“Over the years Nigeria has received huge quantities of cold chain equipment. Despite this support much of the cold chain appears to be beyond economic repair. This is partly due to the focus on polio eradication, which uses freezers. In one zonal store only one of the three cold rooms was working, with only a single compressor operational. Substantial numbers of solar refrigerators have been bought in the last few years; these are a useful addition but they are expensive (\$5,000 each) and prone to break down. In the eight States visited 47% [see Table 3] of the installed solar fridges were broken and \$205,000 worth of solar equipment remained uninstalled.”

**Table 3 Status of Solar Refrigerators**

Status	Zamfara	Sokoto	Katsina	Yobe	Borno	Adamawa	Taraba	Bauchi	NE Zone
Working	15	29	42	18	51	10	11	36	
Broken	21	21	24	5	0	9	8	11	
% of installed broken	58%	42%	36%	22%	0%	47%	42%	23%	
Uninstalled	2	1	4?	4?	2	2	16	0	10

Source: UNICEF cold chain inventory

Confusion remains over how solar units are supposed to be maintained. In Bauchi the LGA staff were told to call a mobile phone number if the unit needed repair. This number turned out to be for a technician based in Abuja six hours drive away. In the NW Zone staff had been told by NPI that they must not touch the solar units which could only be installed by a contractor hired by NPI.<sup>69</sup> In Yobe and Borno, which have benefited from the North East Arid Area Project, local technicians are installing the solar units.

In March 2003 the NPI/UNICEF report on *Assuring Vaccine Security in Nigeria* proposed that one solar refrigerator should be provided to every LGA store and one solar, Sibir, or icelined refrigerator to every health facility. By May of 2003 when NPI published the *National Immunization Policy*, this level of provision had been increased to two solar refrigerators per LGA, one per District and one per health facility. It is not known why the standard escalated in this way. Such a level of provision is highly ambitious, and as noted by the DFID Team the existing provision is not working well. In addition for the solar units that remain uninstalled the batteries will have to be replaced before the units can be used because having been uninstalled for a year the batteries will no longer work.<sup>70</sup> Replacement batteries cost \$200 each and must be imported. To fully implement the standards as set down in the *National Immunization Policy* will be expensive; Table 4 shows the likely cost of fully implementing such a standard.

<sup>68</sup> FBA, *Project Memorandum: Project to Revive Routine Immunisation in Nigeria*. April 2005

<sup>69</sup> Personal communication

<sup>70</sup> S. Davison of Minus 40: personal communication.

**Table 4 Cost of equipping with solar refrigerators (US\$)**

Level	Number	Quantity	Cost (\$) per Level	Total (\$)
LGAs	774	2	10,000	7,740,000
Districts	5,450 <sup>a</sup>	1	5,000	27,250,000
Facilities	13,052 <sup>b</sup>	1	5,000	65,260,000
<b>Total</b>				<b>100,250,000</b>

a) Awosika, A. *Boosting Routine Immunization In Nigeria: Issues And Proposed Action Points*.

b) AFRO, *WHO Country cooperation strategy: Federal Republic of Nigeria 2002-2007*. Brazzaville.

The standard does not take account of local electricity supply and in one LGA visited the only location in the LGA which has reliable electricity was also the location designated for the LGA's solar refrigerator. After a recent visit to Borno by the NPI's NC/CE, three solar refrigerators were promised to one LGA. In several locations the effect of delayed installation of the solar units was noted; batteries fail to hold their charge and therefore must be recharged from line electricity sources. For an LGA like Mafa in Borno this means taking the batteries to Maiduguri, leaving them overnight, coming back to Maiduguri the next day to collect them and then return them to Mafa.

In reality at the LGA level some LGAs are buying their own domestic refrigerators in the local market because they are so short of refrigerator space. Domestic refrigerators are not suitable for storing vaccines in Nigeria because they are insufficiently insulated to keep vaccine safe during the frequent breaks in electricity supply.

Heavy reliance on solar units is neither realistic nor affordable. Solar equipment should only be used if there is no other alternative.

## 8.2 Staffing

It is reported that there is a high turnover of cold chain officers<sup>71</sup> and as a result new appointees lack skills and experience; training investments in the health system do not bring the expected benefit. It seems that posts of NPI managers and cold chain officers have come to be regarded as ones where patronage can be exercised and where friends can be given lucrative jobs in PEI. As a result these posts have become politicised and the occupants are changed on the whim of the LGA Chairman.

## 9 Vaccine Storage and Handling

There has been an improvement in vaccine storage since 2001 when stocks of frozen vaccines were found at many locations including frozen Hepatitis B vaccine in the NW Zonal store.<sup>72</sup> However, frozen Hepatitis B vaccine was still found during the DFID mission in March 2005. Because of the weakness of the stock management system<sup>73</sup> UNICEF introduced Vaccine Security and Logistics Officers into the system in 2004;

<sup>71</sup> For example as reported by WHO & UNICEF in Taraba State March 2005

<sup>72</sup> Battersby, A. *Aspects of Immunisation in Nigeria*. DFID. February 2001.

<sup>73</sup> The DQA carried out for GAVI in 2002 was unable to calculate a Verification Index because DPT3 <1 data were not available at National level. The same report recorded a Quality of System Index of 54% at National level 43% at LGA level and 37% at Health facility level

since then monthly vaccine utilisation reports are supposed to be prepared as well as a monthly report of routine immunisation. These reports are based on routine vaccine utilisation forms. One spot check compared the figures on the vaccine utilisation form with the same data on the State's own record, and the number of children immunised had changed from 130 to 292. The explanation for this discrepancy was that the vaccine utilisation form records the vaccine supplied which is pre-determined by NPI Abuja; there is perceived pressure to avoid recording an unreasonably high level of wastage, so the administered doses are adjusted to suit.<sup>74</sup>

At the facility level there are so few records that it is almost impossible to calculate wastage.

"The UNICEF consultant was of the opinion that vaccine wastage rates were not calculated in any meaningful sense".<sup>75</sup>

Table 5 shows the percentage of Hepatitis B vaccine which appears to have been wasted or unused in 2004, based on the *Monthly Routine Immunization Report State Summary* reports from eight northern States. However in the preparation of the estimates for vaccine supply in 2005 UNICEF records zero balance of stock at the end of 2004 for HBV, because no data were forthcoming from NPI. So vaccine was either wasted or in the pipeline below State level. At least two of the States visited were out of stock of HBV at the beginning of 2005.

**Table 5 Hepatitis B vaccine wasted or in the pipeline at the end of 2004**

	Zamfara	Sokoto	Katsina	Yobe	Borno	Adamawa	Taraba	Bauchi
<b>HBV</b>	81.8%	No data	No data	96.8%	82.2%	82.6%	No data	67.4%

(Data were obtained from nine other States but it was not possible to calculate wastage because of missing data.) If these wastage rates are extrapolated to the rest of the country, a total of 5.5 million doses were wasted in 2004; that amount of Hepatitis B vaccine would be enough to meet the needs of the four adjacent countries (Benin, Niger, Chad and Cameroon) plus Togo, Guinea Bissau, Burkina Faso and Central African Republic.<sup>76</sup>

Nigerian vaccine wastage rates are out of proportion to the number of its eligibles.

<sup>74</sup> Personal observation and communication

<sup>75</sup> PRIME, *Review Mission March-April 2005*. 2005 p.26

<sup>76</sup> Based on coverage for DPT3 2002

**Table 6 Nigeria’s share of UNICEF’s world estimate for vaccine in 2005 compared to Nigeria’s share of the children in the 73 poorest countries where most of that vaccine is used.**

Vaccine	Percent of Vaccine	Percent of Children
DPT	13%	4%
Hepatitis B	26%	4%
Measles	9%	4%
Yellow Fever	39%	21%

Source: FBA, *Project Memorandum: Project to Revive Routine Immunisation in Nigeria*. April 2005

## 10 Generating and using data

### 10.1 The Child Health Card

A recurring theme in the reports of coverage surveys is how few child health cards are produced. Although 69% of children aged 12-23 months had received at least one dose of vaccine, only one-third of the children with any immunization had cards.<sup>77</sup> The NICS found slightly higher card ownership (28%) with a wide variation between States, ranging from 70% in Cross-River down to 2% in Jigawa.<sup>78</sup> Reasons for the cards not being available included the fact that the children’s fathers kept them, that the health facilities kept them, and that LGAs had not printed them.<sup>79</sup> In the BASICS II project areas, card ownership dropped in all three sites between 2000 and 2002.

“In part, the decline in ownership of immunization cards is due to a lack of reprinting and replenishing the necessary supply of cards. The LGAs are expected to provide additional stock of immunization cards after that provided by the state/NPI is exhausted, but most LGAs have not printed additional stock.”  
BASICS II/Nigeria  
(2003), p.27

The system for supplying cards described above is fraught with problems, not least of which is lack of clarity over who is responsible for supplying the Child Health Card. Cards now in circulation show fundamental errors in content, such as a shared box for recording both DPT and OPV,<sup>80</sup> and boxes for HBV to be given “at birth” in one format, but at 6 weeks in another version (which shows no HBV in its “Immunization and Vitamin A Schedule”). This card should be the record not only of immunizations but also of the child’s growth; in many countries it is called the Road to Health Card, the child’s passport to health.

### 10.2 Formats for recording and reporting

There is no client-held card for recording the five lifetime doses of TT that women of childbearing age should receive. This is a serious omission, especially as the confusion of function in the newest registers for TT makes it unlikely that health workers will be

<sup>77</sup> Percentage with a vaccination card: DHS (1999): 19.7%; DHS (2003): 21.3%.

<sup>78</sup> NICS (2003), Table 21.

<sup>79</sup> NICS (2003) p.47.

<sup>80</sup> FBA. *Reviving Routine Immunization in Nigeria: Design Team Trip Report*. 28 Feb-20 March 2005.

able to maintain a coherent record of TT doses administered during a client's previous pregnancies.

“The new TT Register is intended to be used both as a register and as a report (it is printed with carbonless paper); the top copy should be torn out and submitted as a monthly report. However, if a woman subsequently receives another of her five lifetime doses, a new entry must be started (and her personal details repeated on a new page) so that the subsequent dose gets reported.”

“The layout of the Child Health Register recently printed by NPI allows insufficient space for writing the date of the dose, yet includes columns that will never be used; for example a child only needs one space for recording its BCG dose, whereas the Register provides two columns: BCG<12 months and BCG 12-23 months. This age distinction is repeated for each antigen; the space could have been used to make the columns wide enough to write a date.”

“Both the Child Health Register and the TT Register reflect confusion in their design between how a register should be used and what is required for reporting aggregated data. NPI has printed 8,000 hardbound copies of each register and distributed them to States, apparently as an untested “zero” draft.”

Report, March 2005

Design Team Trip

### 10.3 Surveillance and disease reporting

The absolute necessity of having accurate surveillance of acute flaccid paralysis (AFP) as part of the PEI has boosted certain surveillance functions at State level and below, but the officers in charge are WHO contract staff. Sometimes the reporting processes developed for PEI by these and UNICEF contract staff do not routinely include the State epidemiologist; capacity is not best built in these parallel reporting systems. The formal route for reporting outbreaks is convoluted and therefore slow; in practice news of outbreaks about which the population is sensitive (e.g., measles) is taken straight to the highest authorities, bypassing the formal system. The formal reporting route can be made more effective if the discontinuities in line management between SMOH and SMOLG are addressed and if structures for managing immunization and primary health care are reorganized. The fact that some State Epidemiologists are without formal and practical training in this discipline has been identified as an issue requiring attention.<sup>81</sup>

### 10.4 Quality of data

As a universal service, an immunisation programme is able to monitor performance monthly by relating activities to eligibles. In Nigeria there are considerable problems with knowing the number of eligibles (denominators) from which performance is measured. For example in 2000 there was a difference of 3.08 million between the number of under-1s projected from the last Census (1991) and data collected for PEI.<sup>82</sup> At the periphery, antenatal registers and child health registers would provide health staff with local denominators.

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<sup>81</sup> FBA. *Project Memorandum* (in draft). April 2005.

<sup>82</sup> Awosika (2000) op.cit. Projections from Census data: 4,684,198; from 1999 NIDs: 7,761,092.

“Prior to BASICS II project implementation in the focal LGAs in Abia, Kano and Lagos, registers were not available in most primary health care facilities, and if available, they were not being used appropriately.” The project provided not only standard registers (approved by the NPHCDA) but also training in record keeping and collation of data for reporting purposes. Within two years, 79% of 166 facilities were meeting all of the following criteria:

- Possesses a standard register as approved by NPHCDA
- Demonstrates that the register is used routinely to record all immunization activities
- Maintains up-to-date and complete immunization records
- Has established a method of obtaining a new register before the existing one is full
- Has evidence of submission of their immunization reports to the LGA

BASICS II/Nigeria, *Report on the ICHCS*, March 2003

Given the problems with the formats of the hardbound registers produced by NPI, there is a need for clarification of where responsibility and authority lies for designing and approving such essential stationery.

Pressure to meet targets (such as accounting for vaccine supplied) has led to over-reporting; the Design Team found examples of reports containing more doses administered than recorded in the registers for the corresponding period of work, and columns of numbers being incorrectly added, even at zonal level.<sup>83</sup> The data do not appear to be used by those who fill in the reports; incompleteness and inaccuracies are widespread and accumulate up the health system. The item on the WHO/UNICEF Joint Reporting Form that shows the proportion of districts (i.e. LGAs) reporting DPT3 coverage is 0% for all five deciles, and the “Proportion of districts not reporting DPT3 coverage” is 100%.<sup>84</sup> The responsible authority is supposed to submit the JRF to WHO/AFRO by 15 April each year.

“Nigeria’s immunization reporting system has to respond to the needs of the NHMIS, the National Programme on Immunisation (NPI) as well as other programmes and stakeholders. This has resulted in duplicity [sic] of forms and pathways of reporting with an overall deterioration in recording and reporting practices. These factors translate to relatively poor Quality of the System Index (QSI) score:

- 51% at National level,
- 43% average for the 4 LGAs and
- 37% average for the 24 HUs visited.

Due to lack of DPT3 <1 data being available at the National level, it was not possible to calculate the verification factor.”

GAVI. Immunization Data Quality Audit (DQA). February 2004

## 11 Organisation, structures and management approaches

NPI was launched by Mrs Abacha in July 1996 to replace EPI. At that time it was a department within the FMOH. The plan for NPI had three major activities:

<sup>83</sup> FBA. *Reviving Routine Immunization in Nigeria: Design Team Trip Report*. 28 Feb-20 March 2005.

<sup>84</sup> <http://www.who.int/vaccines/globalsummary/immunization/CountryProfileResult.cfm> 01/06/2005

- “a) Strengthening of routine NPI services through accelerated social mobilisation campaigns to boost routine immunisation coverage
- b) Surveillance for NPI target diseases
- c) National Immunisation Days (NIDs) for eradication of poliomyelitis in Nigeria”<sup>85</sup>

In 1997 NPI was separated from FMOH and became a parastatal answerable to its Board and the Minister. By 2000<sup>86</sup> Parastatals in general were described as follows:

“There are four activities managed by parastatals in the health sector; viz:

- National Agency for Food and Drugs Administration and Control (NAFDAC),
- National Primary Health Care Development Agency (NPHCDA)
- National Programme on Immunisation (NPI)
- Population Activities Fund Agency (PAFA)

These bodies have their own legislation and (in theory) independent Boards. They are designed to be able to generate revenue independently and are empowered to open bank accounts (except NPI which has a different structure and was receiving funding from the Petroleum Trust Fund - PTF).

In practice they are a part of the Civil Service and no funds are generated, staff are working as if they are part of a government department and the decrees provide for their continuation in the pension and privileges arrangements of the civil service. This seems to defeat the object of establishing a parastatal rather than just having implementing functions in the FMH and saving on the costs of the Boards. The NPHCDA has had no Board for a long time.”

NPI in particular was described thus:

*“National Programme on Immunisation (NPI)*

Strictly speaking the NPI is not a parastatal. It was established independent and parallel to the DPHCDA<sup>87</sup> and outside of NPHCDA to manufacture, procure and distribute vaccines. It has had a turbulent history. We were not able to meet the Executive Director. NPI has vaccine stores in the state pharmaceutical warehouses. There seems to be a very serious disjunction between the flow of information related to disease control and the distribution of vaccines. Not all vaccines are distributed through NPI, some are managed by the DPHCDA. There is very significant donor support for vaccines supply. This means that the co-ordination of the donor activities amongst donors and between the donors and government is very important.”

Under its mandate as set out in Decree 12 NPI is governed by a Board. This Board is responsible for the determination of policy. The Chief Executive/National Co-ordinator is a member of the Board. However in December 2004 the Federal Government abolished the Boards of a number of parastatals, including NPI. It is not clear which organisation has taken over the NPI Board’s responsibility for setting

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<sup>85</sup> FMOH. *National Review of the National Programme on Immunization in Nigeria (NPI)* January 1997.

<sup>86</sup> Crisp, N. Onwukwe, I. *Institutional Audit of the Nigerian Health System (Federal Level)*. DFID. September 2000.

<sup>87</sup> Department of Primary Health Care and Disease Control

policy. Ideally, to ensure proper accountability, Chief Executives of Parastatals should not be members of their Boards but should report to the Boards.

NPI has become an organisation which is characterised by being highly centralised and secretive. Reports are not made available. For example WHO has only received two annual reports of immunisation coverage since 1998 and the full report of the 2003 coverage survey has yet to be released. It is so centrally controlled that at one point in early 2005 a pin board could not be screwed to the wall until the CE/NC had approved the proposed location of the pin board.<sup>88</sup>

Recently NPI's status as a parastatal has been questioned.<sup>89</sup> In July 2004 under the aegis of the present Minister of Health a major reorganisation of the FMoH was developed. This proposed reorganisation includes a Department of Community Health within which the Child Health and Immunisation Division is located. This Division replaces the NPI parastatal. Reabsorbing the NPI into FMoH will begin to address the problem of discontinuity, which creates problems for line management of immunisation services. At present the two parastatals most involved in primary health care, NPHCDA and NPI, barely speak to each other and relevant departments in the FMoH are ignored. At the State level responsibility is split between SMOH and SMO LG with line management responsibilities resting with SMO LG while officers such as the State Epidemiologist being answerable to the SMOH.

NPI has a large staff, about 100 people at National level plus about 150 working at the Zonal level. It is a vertical service focused principally on the eradication of polio, shifting to the eradication of measles and to a much lesser extent RI. While this vertical approach encourages duplication of activities at the national level, at the State level it has a highly detrimental effect on the provision of health services. As one Commissioner for Health commented,

“Polio has polluted the minds of those giving routine immunisation”<sup>90</sup>

and the Governor of Sokoto was reported to have said

“People do not want to eradicate polio because it doubles your salary”

As the WHO/UNICEF staff commented at one meeting,

“Everybody thinks you do not have to do anything between NIDs”<sup>91</sup>

Immunisation should be an integral part of child health care. It has currently acquired a disproportionately high profile; this situation is not conducive to having a balanced and successful primary health care service. Disease prevalence rates for diseases such as malaria (919/100,000), dysentery (386,000) and pneumonia (146/100,000) far outstrip those for vaccine preventable diseases such as measles (89/100,000)<sup>92</sup>. Unless

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<sup>88</sup> Personal communication January 2005

<sup>89</sup> FMoH Proposed Federal Ministry of Health Organisational Structure July 2004

<sup>90</sup> Personal communication to DFID team March 2005

<sup>91</sup> Personal communication to DFID team March 2005

<sup>92</sup> AFRO, *WHO Country cooperation strategy: Federal Republic of Nigeria 2002-2007*. Brazzaville.

there is integration of child health services, including treatment, mortality rates will remain high.

The complexity woven into NPI's management structure spills over into the structure of the ICC, which is over-complicated with too many layers. This has partly come about because over the years failures by NPI have been picked up by external donors: for example the supply of vaccines (picked up by UNICEF); the collection of immunisation data (picked up by UNICEF); the establishment of AFP surveillance and the payment of staff taking part in NIDs (both picked up by WHO).

## 12 Politicisation, Patronage and Monetisation

The DFID team in its March 2005 report<sup>93</sup> noted:

Concern was expressed in several States over the perceived increased involvement of Governors in appointment and re-allocation of Permanent Secretaries and other senior civil servants. This was described as a recent phenomenon; the greatest worry is that such involvement would inevitably lead to an expansion of patronage based on political allegiance and networks, as well as to inappropriate appointments. One senior civil servant emphasised that it is not within the remit of Governors to appoint civil servants. The team was told on several occasions that the post of NPI manager at LGA level is coveted because of its potential for patronage, thanks to payments made through PEI. Consequently there can be frequent post changes as LGA chairmen reward their friends.

The PEI involves offering significant financial payments for S/NIDs activity; for example Central Facilitators at LGA level get N5,000 per day. The payments are at a sufficiently high level compared with basic salaries that they have had three effects: first, those who appoint NIDs workers wield considerable patronage, especially at LGA level; second, some health staff who work on NIDs become unwilling to perform any immunization related activity unless they get supplemental payments; and third (as noted by the Governor of Sokoto) there is a financial interest in not eradicating polio. A State Commissioner of Health said "Polio has polluted the minds of those giving routine immunization. Now they want payment."

## 13 Cost-effectiveness

This topic has received little attention in Nigeria's immunization service. In the absence of data from households, communities, facilities, LGAs and States, a rough and ready indication of cost-effectiveness was developed<sup>94</sup> using planned budgets for part of the central level only: i.e., NPI's budget for 2005.<sup>95</sup>

After subtracting the amounts budgeted for polio eradication in 2005<sup>a</sup> it is possible to calculate some indicative amounts budgeted for the NPI to spend on routine immunization.

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<sup>93</sup> FBA *Reviving Routine Immunisation in Nigeria Design Team Trip report*. March. 2005.

<sup>94</sup> FBA. *Project Memorandum: Project to Revive Routine Immunization in Nigeria*. 2005. Annex 3.

<sup>95</sup> National Programme on Immunization, 5-Year National Strategic Plan 2004-2008. Federal Republic of Nigeria, Federal Ministry of Health.

- 6.2.1 The amount in NPI's 2005 budget is the equivalent of \$28.78 per child under 1. This does not include any of the funds used by States or LGAs, which are the levels where supplies are stored and distributed, and services provided.
- 6.2.2 The budgeted amounts can be connected with coverage; using the number of children who got all their routine immunization doses<sup>b</sup> as the denominator, the budget per child with all doses is \$89.95.
- 6.2.3 Using the internationally accepted denominator of child fully immunized before first birthday, the budget per fully immunized child (FIC) is \$226.65.
- 6.2.4 In the second undated document containing a budget for 2005, the total figure is 7,465,338,064 Naira. No amounts can be identified that are specific to polio eradication. If this budgeted amount were spent then the budget per FIC for the NPI alone [HQ and Zonal offices] would be \$56.38.
- 6.2.5 It must be stressed that if either of these budgeted amounts were spent, then the final cost per FIC would be higher because the figures above represent only NPI's budget.
- 6.3 These budgeted amounts make Nigeria's routine immunization by far the most costly and least cost-effective in the developing world. The usual range of figures for the older vaccines (i.e., excluding hepatitis B and yellow fever) are in the range of \$21.47 for FIC coverage of 54% (Bangladesh 1997-8) to \$24.29 for FIC of 65% (Côte d'Ivoire 1998).<sup>c</sup>
- 6.4 It is not only the size of the NPI budget that appears out of control. The presentation, as noted above, turns out to be opaque, mixing strategies and activities across cost centres, making it difficult to use the budget as a management tool to track (for example) what is happening with cold chain equipment investment or with monitoring and evaluation. The details are chaotic ... and inaccurate - in the course of this brief look at the budget, errors of addition have been identified amounting to billions of Naira.<sup>d</sup> These findings raise doubts, not only about the accuracy of the whole budget plan but also about the financial competence of an organization that wishes to be in charge of a budget that is out of all proportion to the task in hand.
- a) Polio NIDs have 9,702,144,105 budgeted for 2005; this figure consists of 8,025,801,830 Naira for conducting polio S/NIDs, 1,646,342,275 Naira for mop-up activities, and 30,000,000 Naira for NIDS training.
- b) Excluding Hepatitis B and Yellow Fever for which there are no coverage data from the NCS.
- c) Trostle M, Steinglass R, Fields R, Favin M, Ballou S. *Immunization Essentials: A Practical Field Guide*. USAID: October 2003.
- d) The 5-year grand total for Cost Centre E (programme management) on page 71 of the document is 4,527,820,191 Naira less than it should be; the incorrect figure (74,763,406,910) is repeated in the summary table on page 62.

If coverage with good quality services were high, immunization would be effective. But in Nigeria immunization is not preventing VPDs effectively.

## 14 VPDs not prevented

“International comparative data show that Nigeria's immunization coverage rates are among the worst in the world.”<sup>96</sup>

<sup>96</sup> POLICY Project/Nigeria. *Child Survival in Nigeria: Situation, Response and Prospects: Key Issues*. October 2002.

In Nigeria, vaccine-preventable diseases (VPDs) currently account for about 22% of deaths for children aged under five.<sup>97</sup> In 2002 deaths in Nigerian children aged 0-5 are estimated to have been 872,000; therefore, in that year UNICEF estimates that close to 200,000 Nigerian children died from VPDs.<sup>98</sup> The DHS (2003) reported that “Malnutrition contributes to 52% of deaths of children under 5.” The prevailing levels of malnutrition raise the case fatality rate for childhood illnesses. Systemic failures also contribute to morbidity and mortality:

“Chaotic coordination results in millions of vaccine-preventable deaths every year.”<sup>99</sup>

“The failure of the system translates into close to half a million preventable child deaths in Nigeria each year from VPD alone.”<sup>100</sup>

At least 17,000 Nigerian infants are estimated to have died in 2000 due to neonatal tetanus. Deaths from measles have been estimated at 96,000 per year.<sup>101</sup> The north is prone to epidemics of cerebrospinal meningitis; in 1996 more than 75,000 cases of CSM were treated and 8,440 people died.<sup>102</sup> None of these figures consider potential adverse health sequelae, e.g. blindness resulting from measles. An effective immunization service would enable people to reap the benefits offered by vaccines.

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<sup>97</sup> NPI 2003: *National Immunization Coverage Survey: Report*. Abuja: National Programme on Immunisation.

<sup>98</sup> UNICEF 2004: *Extra financial resources needed to achieve the health MDGs in Nigeria: preliminary findings (draft 2)*. Abuja: UNICEF.

<sup>99</sup> Hargreaves S. “*Time to right the wrongs: improving basic health care in Nigeria.*” *The Lancet* 2002; Vol. 359, pp.2030-35.

<sup>100</sup> Country Strategic Plan for USAID's Program in Nigeria 2004-2009. Vol 1, Aug 2003: p.54.

<sup>101</sup> Miller M. “*Introducing a novel model to estimate national and global measles disease burden.*” *International Journal of Infectious Diseases* 1999; 4: pp.14-20.

<sup>102</sup> Vecken H, Ritmeijer K, Hausman B. “*Priority during a meningitis epidemic: vaccination or treatment.*” *Bulletin of World Health Organization* 1998; Vol. 76, pp.135-41.

## Annex 1 NPI's Mandate

### Part II Objective and functions of the programme

6. The objective of the Programme is to effectively control through immunisation and provision of vaccines, the occurrence of the following deadly diseases, that is-
  - a) Tuberculosis;
  - b) Poliomyelitis;
  - c) Diphtheria;
  - d) Whooping Cough;
  - e) Tetanus;
  - f) Neo-natal tetanus;
  - g) Measles;
  - h) diseases of women of child bearing age; and
  - i) such diseases as the Minister may by order, from time to time, determine.
7. For the purpose of carrying out its objectives under section 6 of the Decree, the Programme shall-
  - a) support to States and Local Government in their immunization programmes by supplying them with vaccines, needles, syringes cold chain equipment and other such things and logistics as may be required for those programmes;
  - b) monitor and evaluate the execution and implementation of immunisation performance nation wide;
  - c) provide training facilities to the States and Local Governments for persons involved in their immunization programmes;
  - d) mobilise support from the United Nations Organisation, World Health Organisation, United Nations Children's Fund, non-Governmental organisations, voluntary organisations and other concerned groups and individuals towards the realisation of its objective;
  - e) advise Federal, State, and Local Governments, the private sector and other interested bodies regarding the quality, safety and regulatory provisions on issues relating to immunisation;
  - f) compile and publish relevant data resulting from the performance of its functions under this Decree or from other sources; and
  - g) perform such other functions and exercise such other powers not inconsistent with its objectives and functions under this Decree at the Minister may, from time to time assign to it.
- 8.-(1) The Board shall-
  - a) determine the overall policies of the Programme including its financial and operative procedures and ensure the effective implementation of those policies and procedures
  - b) assess from time to time, the research, consultancy and training programmes relative to the immunization programmes conducted by the various associated institutions with a view to-

- i) ascertaining their suitability and
  - ii) offering those institutions such assistance, either alone or in co-operation with other related bodies, including the United Nations Organisation, the United Nations Children's Fund, the World Health Organisation and other international humanitarian bodies, the non-Governmental organisations and other concerned groups as may improve the quality and content of immunisation in Nigeria.
- (2) The Board may, subject to such conditions as it may impose; delegate any of its functions and powers under this Decree to any of its committees or to the National Co-ordinator of the Programme
- (3) Nothing in this section shall prevent the Board from performing or exercising any of the functions and powers so delegated.

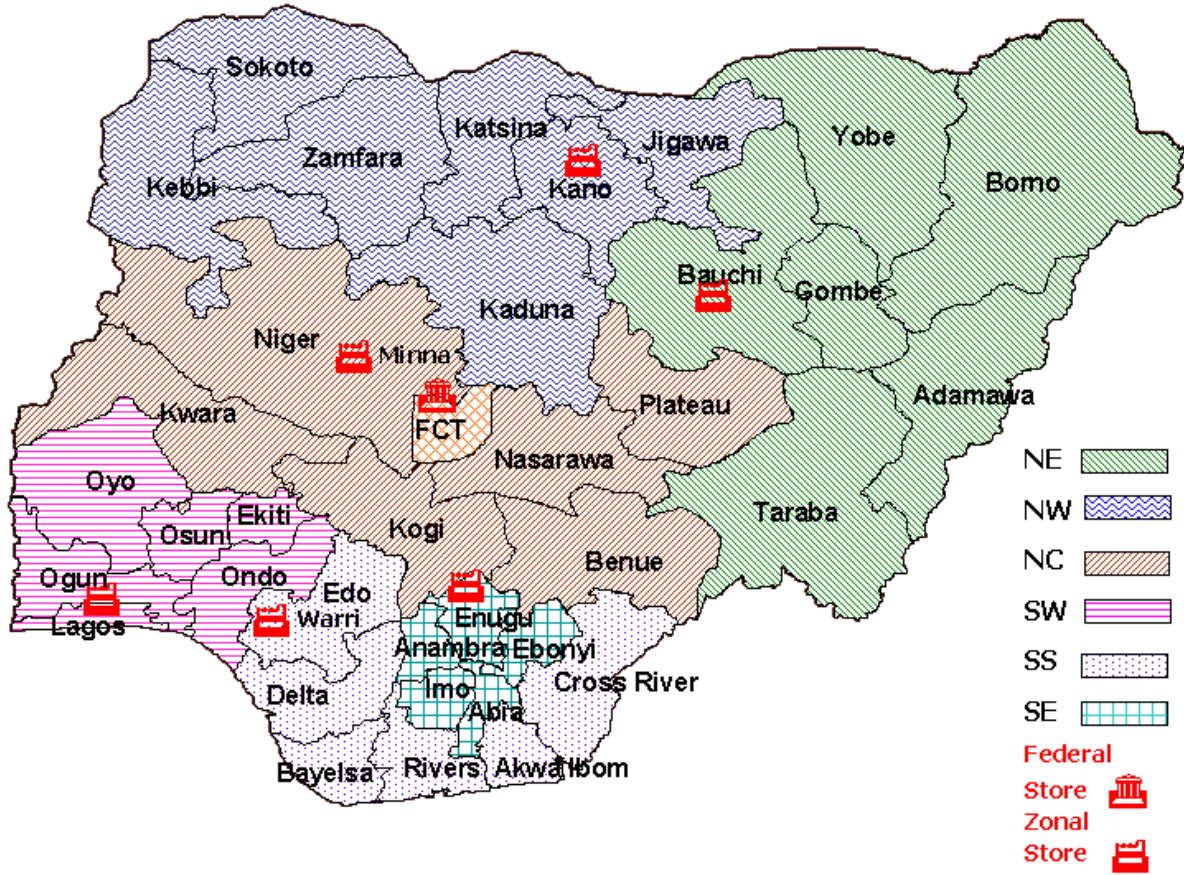
**Annex 2 Data from NICS (2003) on reasons why child was not (fully) immunized, by Zone**

	States	National	SE	SW	SS	NC	NE	NW
Sample size	37	40,777	4,828	7,131	6,718	6,266	5,789	10,045
Crude coverage, card or history (BCG, DPT3, OPV3, Measles)		32.0%	65.5%	47.8%	36.5%	31.9%	17.6%	9.8%
Valid doses, by 1 <sup>st</sup> birthday		12.7%	25.2%	24.1%	13.3%	10.9%	4.7%	3.7%
Valid doses by 1st birthday with card		4.3%	9.0%	10.1%	6.0%	3.9%	1.4%	0.6%
One or more doses missing:-								
Expected total for reasons	37	27,728	1,666	3,722	4,266	4,267	4,770	9,061
Data on reason why not immunized	36	24,116*	1,663**	3,266	3,343	3,901	4,533	7,410*
Ranking of the reported reasons								
1 Vaccine not available	31	4,359	367	942	257	1,255	1,034	503
2 Place of immunization too far	23	2,919	87	58	155	387	748	1,484
3 Unaware of the need for imm.	20	1,858	55	152	239	210	302	900
4 Fear of side reactions	9	1,383	139	62	1,104	78	-	-
5 Mother too busy	14	1,049	29	520	186	101	213	-
6 Place &/or time of imm. unknown	6	862	-	-	372	16	-	474
7 No faith in immunization	6	704	15	-	116	-	184	389
8 Rumours	7	687	-	131	-	38	-	518
9 Child ill; contraindications	8	333	202	63	68	-	-	-
10 Vaccinator absent	5	274	-	-	75	89	110	-
11 Postponed until another time	5	190	87	72	-	-	31	-
12 Family problems	2	174	-	-	-	64	110	-
13 Time of immunization inconvenient	1	114	-	-	-	114	-	-
Total reasons accounted for above		14,906	981	2,000	2,572	2,352	2,732	4,268
14 Other reasons given, not published	36	9,210	682	1,266	771	1,549	1,801	3,142
Missing data on reasons why child not (fully) immunized	37	4,683*	3**	456	923	366	237	2,698*
Percent of expected total		16.9%	0.2%	12.3%	21.6%	8.6%	5.0%	29.8%

\* Data from 1,047 parents in Kaduna (NW Zone) on reasons for child not being (fully) immunised were not given in NICS (2003) draft report.

\*\* In SE Zone, data on the denominator for reasons why not immunised are reported only for Abia; for Anambra, Ebonyi, Enugu and Imo the denominator has been calculated from the percentage of children not fully immunised (crude; card and/or history).

## Zonal Map of Nigeria



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