

 **BASICS II**

**Basic Support for
Institutionalizing
Child Survival**

BASICS II/ Nigeria

**Report of the
Integrated
Child Health
Cluster Survey
(ICHCS)**

MARCH 2003

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ACRONYMS

ACF	appropriate complementary feeding
BASICS	Basic Support for Institutionalizing Child Survival
BCG	Bacillus of Calmette and Guerin (tuberculosis vaccine)
CAPA	Catchment Area Planning and Action
CAPAC	Catchment Area Planning and Action Committee
CBC	communication and behavior change
CHAG	Child Health Advocacy Group
CHP	community health promoter
CPH	Community Partners for Health
DFID	Department for International Development (United Kingdom)
DPT	diphtheria-pertussis-tetanus vaccine
EA	enumeration area
EBF	exclusive breastfeeding
EPI	Expanded Program on Immunization
FMOH	Federal Ministry of Health
GAVI	Global Alliance for Vaccines and Immunization
HMIS	health management information system
ICC	Interagency Coordinating Committee
ICHCS	Integrated Child Health Cluster Survey
ICHS	Integrated Child Health Survey
ITN	insecticide-treated mosquito net
IVACG	International Vitamin A Consultative Group
JHU	The John Hopkins University
KAP	Knowledge, Attitude and Practices
LGA	local government area
MOH	Ministry of Health
NIDs	National Immunization Days
NPC	National Population Commission
NPHCDA	National Primary Health Care Development Agency
NPI	National Program on Immunization
RBM	Roll Back Malaria
RMS	Research and Marketing Services
TBA	Traditional Birth Attendant
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WHO	World Health Organization

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EXECUTIVE SUMMARY

The initiative to improve the health of children under five years of age in Nigeria has begun to yield real results. Preliminary findings from a population survey recently conducted by a team of experts revealed progress in the implementation of the BASICS II work plan in Nigeria:

Nutrition

- Since beginning implementation in mid-2001, BASICS II has witnessed improvements in the proportion of women of childbearing age who are aware of appropriate infant breastfeeding practices. On average, about one-half of the women studied in three states (Abia, Kano, and Lagos) reported being aware that children should be exclusively breastfed (that is, breast milk only without water given) for the first six months of life. Even in Abia, where the program has had the shortest implementation span, the percent of women aware of exclusive breastfeeding (EBF) increased by a third. Kano and Lagos saw increases of 52% and 106%, respectively, over baseline estimates obtained in 2000.
- Increases were also obtained in the proportion of children less than six months of age whose caregivers reported that they were exclusively breastfed. The rate of EBF more than doubled in the project area. Although Kano State still has the lowest percentage of children less than six months of age exclusively breastfed, it experienced the greatest percentage change, as the rate of EBF in that state at the inception of program implementation was almost zero.
- These findings lend credence to the fact that BASICS II/Nigeria's community-based strategies are working. As envisioned by BASICS II/Nigeria, caregivers have become advocates for child health. Evidence from this survey reveals that one in two women surveyed have encouraged other caregivers on EBF.
- The survey also highlights areas that require improvements. For instance, early initiation of breastfeeding has declined from a high of 56% in 2000 to a low of 34% in 2002. The proportion of children less than six months of age who are exclusively breastfed, overall, is less than a third of eligible children. Only a quarter of children 6–8 months of age are receiving complementary foods in the surveyed areas. Studies have demonstrated that the provision of two annual doses of vitamin A can reduce mortality in children 6–59 months of age by about 23% (WHO/UNICEF/IVACG). BASICS II/Nigeria should, therefore, intensify efforts to promote routine delivery of vitamin A in the country.
- Although the ultimate locus of programs that will bring about large changes in key nutrition behavior is still the communities, BASICS II/Nigeria should work with key partners to use the mass media (print, video, and audio outlets) to promote healthy nutrition messages. Such interventions will also strengthen community-based efforts and reinforce the practice of early EBF and complementary feeding in the surveyed populations.

Immunization

- The survey revealed that efforts to strengthen routine immunization have begun to yield results in some aspects of this important activity. About four-fifths of the primary health care facilities in the BASICS II focus areas now maintain standard immunization registers. At the inception of program implementation in 2000, very few of the facilities in the target areas kept proper immunization records.
- Coverage with the early doses of polio vaccine (polio0 and polio1) has increased across the project sites as a result of polio eradication efforts.
- However, overall decreases in DPT3 coverage are disturbing. In Lagos State, the survey documented significant declines in immunization (DPT3) coverage, although evidence from survey and routine sources show that the rate of decline is lower in BASICS II-supported local government areas (LGAs) than elsewhere in the state. While this suggests that immunization coverage would have decreased much more in the state as a whole were it not for the involvement of BASICS II, it nevertheless shows that much remains to be done.
- Vaccine stock-outs, both chronic and sporadic, continue to plague routine immunization efforts in BASICS II project areas. BASICS II and other partners working in the Nigeria immunization program have signaled the problem to the Federal Government of Nigeria and are working through the Interagency Coordinating Committee (ICC) to resolve it. The National Program on Immunization (NPI), the body responsible for vaccine procurement and distribution in Nigeria, attributes the problem to inefficiencies in internal distribution, and plans to contract vaccine distribution to a private vendor to improve this vital function. Although NPI assures that vaccine is available in zonal cold stores, even when it is not available at the LGA or health facility level, there have been occasions when no vaccine was available even at the zonal level.
- In a program area such as immunization, which depends on the availability of government-furnished supplies, little can be accomplished when the supply line fails (no product, no program). Declining immunization coverage stands in contrast to the significant progress in nutrition and malaria documented in this survey and demonstrates the importance of a reliable government logistics and supply system.

Malaria Treatment and Prevention

- Much can be done to improve home-based management of childhood malaria. Very high percentages of women know that fever is a sign to seek care (78%) and provided their febrile child with some type of drug (84%). Only 12% of all children with fever received the recommended treatment—chloroquine within 24 hours of the onset of fever.
- Evidence from the Integrated Child Health Cluster Survey (ICHCS) suggests that BASICS II's and partners' malaria prevention efforts have percolated communities in the country. Over two-thirds of women of reproductive age in Lagos State reported being aware that use of an insecticide-treated mosquito net (ITN) can prevent malaria. Even in Kano State, over a third of the women reported knowledge of malaria prevention through

ITNs. On average, about one-half of the women studied understood the preventive benefits of ITNs. Although knowledge does not always translate into action, awareness is nevertheless a precursor to behavior change. If increased knowledge is translated into actual demand for ITNs and they are accessible, we should expect to see significant improvements in ITN use in BASICS II target areas in the immediate future. However, prompt action needs to be taken to address the issue of high tariffs on ITNs so that the demand created by BASICS II and its partners can translate into real gains in the use of child health and child survival services in Nigeria.

The information presented in this report is drawn primarily from a household survey (the ICHCS) that was conducted in Nigeria in November 2002. The survey used multiple and simultaneous cluster sample surveys to provide estimates for several types of study domains. BASICS II works in 20 LGAs in three states: Lagos, Kano, and Abia. Since October 2002, those LGAs have been categorized as either “depth” or “breadth” project areas. The ICHCS was designed to provide estimates for each type of project area (depth or breadth) for each of the three states where BASICS II works. Fieldwork was conducted between November 24 and 29, 2002. The sample was drawn from women of reproductive age (15 to 49 years) with at least one child under two years of age. Using conventional Expanded Program on Immunization (EPI) cluster sample methods, 2,664 such women were interviewed on a wide range of child health and nutrition behaviors and practices. The ICHCS 2002 provides interim results data for the BASICS II/Nigeria program. Through this report, results from the ICHCS 2002 are compared with the Integrated Child Health Survey (ICHS), a similar household survey conducted in 2000.

1. INTRODUCTION AND METHODOLOGY

Background

As part of an overall strategy to assist Nigeria's transition to economic, social, and political stability, USAID/Nigeria supports efforts to improve maternal and child health practices through the BASICS II Project. This initiative has two components: polio eradication and child survival. The focus of the polio eradication initiative was to provide support to the Government of Nigeria's polio campaign efforts. Although the accomplishments of those campaigns are not the focus of the current report, existing data indicates that successes have been recorded in parts of the country. The northern parts of the country are virtually the only areas where cases of wild poliovirus are still being reported and where most polio resources are being directed.

Programs in child survival focused on making proven technical interventions available to children less than five years of age in three focus areas: routine immunization, nutrition, and malaria treatment and prevention. BASICS II/Nigeria employs a participatory, community-based approach to improving child health practices through a process known as Catchment Area Planning and Action (CAPA). The primary health center is the operational unit of CAPA activities. Under the CAPA strategy, health workers and community members come together to improve child health through capacity-building and mobilization of resources and work toward strengthening of service delivery. BASICS II supports this process by assisting CAPA committees (CAPACs) in thinking about constraints to child health in their communities, designing activities for addressing the specific problems identified, and developing work plans oriented toward bringing about improvements in infant feeding practices, immunization coverage, and care-seeking behavior.

In immunization, the key objective is to increase immunization coverage among children prior to their first birthday and to strengthen the responsiveness of the health system to the needs of children. Key activities include:

- Assessing the cold chain equipment available and determining needs with a view to meeting them;
- Building health workers' capacity through training and other means so that they are better able to respond to clients' needs;
- Preparing members of multisectoral committees to facilitate CAPA training; and
- Conducting CAPA for community members to improve care-seeking behavior with regard to immunization, nutrition, and malaria.

In nutrition, the objective is to promote key behaviors in appropriate infant and child feeding, namely: exclusive breastfeeding (EBF) for children under six months, complementary feeding among children 6–23 months of age, and vitamin A supplementation for children 6–59 months of age. At the Federal level, BASICS II/Nigeria, in collaboration with other partners, has continued to support the National Program on Immunization (NPI) to integrate vitamin A with National Immunization Days (NIDs).

BASICS II works to strengthen health services at the state, local government area (LGA), and health facility levels through integration of key nutrition messages and services into existing maternal and child health contacts using the communication and behavior change (CBC) materials. BASICS II is building capacity for institutionalizing improved child feeding practices through the development and implementation of a Child Health Advocacy Group

(CHAG). Through the CHAG, BASICS II is promoting infant nutrition using multiple media channels, while involving media groups in the process.

At the community/LGA level, BASICS II promotes optimal infant feeding practices by carrying out workshops and building the capacity of community health promoters (CHPs) to counsel on EBF and appropriate child feeding and mobilize mothers to immunize their children.

Malaria prevention and treatment is another technical area of focus. Consonant with the national Roll Back Malaria (RBM) objective, BASICS II works in communities to create awareness and demand for insecticide-treated mosquito nets (ITNs), improve the counseling and prescribing practices of patent medicine vendors and key community partners in the treatment of fever, and improve the ability of health workers to recognize, treat, and counsel mothers on appropriate management of fever in children less than five years of age.

Study Objectives

The overall objective of the survey was to assess child health services and behaviors in the 20 LGAs where BASICS II is implementing community-based programs. The immediate objectives were to:

- Obtain data for meeting BASICS II/Nigeria reporting requirements on interim program results for the United States Agency for International Development (USAID) Mission in Nigeria; and
- Obtain estimates that can be shared with State Ministries of Health (MOHs) and other partners in order to accelerate the scaling-up and handing-over process in each of the three project states.

Performance Indicators and Targets

In 2001, BASICS II and USAID/Nigeria agreed upon key indicators that formed the basis for assessing performance toward the strategic objectives. These indicators, which are published in the USAID program-monitoring plan, include:

- DPT3 vaccine coverage in target areas;
- Rate of EBF in target areas;
- Awareness (knowledge) of appropriate (exclusive) breastfeeding practices in target areas; and
- Maintenance of a standard immunization register by health facilities in target areas.

The performance indicators, baseline values, and targets for 2002, based on preliminary data from the Integrated Child Health Survey (ICHS) and accompanying Knowledge, Attitude and Practices (KAP) study, are presented in Table 1.1. The ICHS and KAP study were conducted in 2000 to provide baseline values for a range of performance indicators and to evaluate the likely effect of the Community Partners for Health initiative of BASICS I/Nigeria.

Table 1.1: Performance indicators, baselines, and targets for year 2002

State	Awareness of Appropriate BF Practices		Exclusive Breastfeeding Coverage		DPT3 Vaccine Coverage		Maintenance of Standard Register	
	Baseline 2000	Target 2002	Baseline 2000	Target 2002	Baseline 2000	Target 2002	Baseline 2000	Target 2002
Abia	43	50	8	12	22	30	0	20% for project area average
Kano	12	15	3	8	5	15	0	
Lagos	22	30	19	25	31	40	0	

Note: The baseline figures presented in Table 1.1 were based on preliminary tabulations. The final baseline figures appear in Table 1.2 below.

Targets were established based on the preliminary survey result. Final survey figures differed substantially from these early estimates. The reader will note differences in baseline figures for DPT3 coverage, rate of EBF, and awareness of appropriate breastfeeding practices presented in Tables 1.1 and 1.2. The preliminary estimates that appear in Table 1.1 were calculated in order to produce a quick and rough estimate and were not based on the entire sample of women and children surveyed. Table 1.2 presents final baseline values that have since been shared with USAID/Nigeria and appear in the final ICHS report. Targets will now have to be revised based on these final figures.

Table 1.2: Performance indicators: Final baseline figures

State	Awareness of Appropriate BF Practices	Exclusive Breastfeeding Coverage	DPT3 Vaccine Coverage
	<i>Baseline-KAP</i>	<i>Baseline-ICHS</i>	<i>Baseline-ICHS</i>
Abia	45	11	40
Kano	21	15	6
Lagos	29	30	47

The current study was conducted to assess interim accomplishments in the performance indicators. In keeping with BASICS II's commitment to integrated child health, we have also examined awareness of the preventive qualities of ITNs in the focus areas. In addition to the household survey, a facility assessment was conducted to determine the status of immunization record-keeping in public health facilities in target LGAs. The procedures for obtaining the data are described below. Findings are presented later in the paper.

Study Design

The internal review of BASICS II/Nigeria conducted in September/October 2002 recommended a need to focus resources on a two-pronged approach in order to produce public health impact. This recommendation provides for increased scope, range, intensity, and duration of interventions (depth) in selected sites and less intense support in all other sites (breadth), in the short term. Areas earmarked for the more intensive support in the short-term are described as the “depth project areas.” Other projects areas are described as “breadth project areas.” Selection into the depth project areas was implemented on an LGA-by-LGA basis. Inclusion criteria for the depth areas were:

- Duration of implementation (that is, the length of time since the first intervention was initiated in the LGA);
- Potential for making complete and measurable investments in all technical focus areas and across all project components in the shortest possible time; and
- Potential to obtain maximum public health impact in all three technical focus areas (immunization, nutrition, and malaria prevention) before the end of the project.

Based on these criteria, two LGAs in Abia, four LGAs in Lagos, and four urban LGAs in Kano States were classified as depth project areas. The potential for making complete and measurable investments across all project components was given more weight in the selection of the four depth LGAs in Kano State.

A 30-cluster survey design was utilized for measuring performance indicators in the BASICS II project areas. Based on the program implementation plan described above, cluster sample surveys were conducted to represent a) the depth project areas within each state and b) the breadth project areas within each state. In Lagos and Kano States, two cluster surveys were done, one to represent depth areas and one to represent breadth areas. In Abia, the two LGAs represent depth areas. In total, five cluster sample surveys were conducted (see Table 1.3).

Please note that the survey was conducted only in the LGAs where BASICS II supports program implementation. Therefore, references to state-level averages are not representative of the entire state but only of BASICS II-supported LGAs within that state.

Table 1.3: Number of 30-cluster sample surveys in ICHCS 2002

State (No. of LGAs)	Depth	Breadth
Abia (2 LGAs)	One sample representing 2 LGAs	
Kano (9 LGAs)	One sample representing 4 LGAs	One sample representing 5 LGAs
Lagos (9 LGAs)	One sample representing 4 LGAs	One sample representing 5 LGAs

Sample and Sampling

The sample plan was designed to select the minimum number of respondents to document a 10% increase in performance indicators. Stata software (StataCorp, 2000) was used for this

purpose. A minimum of 500 children aged 0–23 months was required for each cluster sample, assuming a 20% non-response rate. The sample plan ensured that adequate data were obtained for children 0–5 months, 12–23 months, and 0–23 months in order to calculate EBF rates, immunization rates, and indicators of malaria prevention and treatment. Study participants were selected using conventional Expanded Program on Immunization (EPI) 30-cluster survey methods. In the first step, 30 census enumeration areas (EAs) were randomly selected for each of the five samples. Census EAs were selected using a sample interval based on the cumulative population of all of the EAs within each of the five study domains (i.e., with probability proportional to size). The procedure resulted in selection of 30 EAs within each of the five study domains, with each EA representing a cluster.

In each cluster, households were selected starting from a central point in terms of population location. The first household was randomly selected and interviewers then moved in a single direction to the next household, interviewing eligible women in subsequent households. This procedure was used until the required number of respondents was found in each cluster.

In each household, only one eligible woman was identified and interviewed. Where there was more than one eligible woman within a household (e.g., polygynous households), one was selected using a simple ballot. Similarly, in buildings with multiple households, the starting household was selected by simple ballot. A woman was eligible if she was between 15 and 49 years of age and had at least one child under two years of age. Using these criteria, 1,070 women aged 15–49 years of age and who had at least one child under two years of age were interviewed in Kano, 1,074 in Lagos State, and a total of 520 women in Abia State. The resulting sample had a confidence level of 95% and 80% power.

The analysis presented in this paper pooled the two surveys in Lagos and Kano for summary estimates on relevant indicators by state. Figures presented as project area averages are simple weighted averages based on the number of respondents in the combined project sites in each of the three states.

Questionnaires

The survey questionnaire (Annex A) was administered to the study sample. The questionnaire was used to collect information on the following topics:

- Routine immunization;
- Infant and child feeding practices and vitamin A supplementation; and
- KAP with regard to malaria treatment and prevention.

The questionnaire was pretested for relevance, focus, simplicity, feasibility, and length of time it will take to complete one interview. Based on the findings of the pilot test, the questionnaire was revised and a final copy was produced. The final version was translated into the dominant local language in each state. The translation was done by the interviewers during the training sessions. The use of interviewers rather than a professional translator ensured that the translation benefited from several opinions; the interactive process resulted in one agreed-upon meaning for each question. In the process, the interviewers learned the best way to ask the questions. Each interviewer carried the questionnaire in English with the local language translation of the questions.

Fieldwork, Supervision, and Data Handling

Training of the interviewers, field supervisors/editors, and state coordinators was conducted simultaneously in the three states between November 21 and November 23, 2002. The three-day training sessions included review and clarification of the questionnaire, role-plays, and field trials. An additional orientation was conducted for the field supervisors and State Study Coordinators in the evening hours of each day. The fieldwork was conducted between November 24 and November 29, 2002. Both the training and fieldwork in all three states was overseen by the Study Director with the assistance of State Study Coordinators. BASICS II staff provided technical and infrastructural support for both the training and the fieldwork.

Given the short span of fieldwork, strong supervision was very critical to obtaining credible data. BASICS II adopted a two-pronged approach to ensuring data quality in the field:

1. Interviewers worked in teams of two to quickly cross-check the completed questionnaires. While one interviewer was conducting the interview, the other checked previously completed interviews for errors and completeness. If errors were detected, the interviewers clarified and corrected the error before leaving the area.
2. One supervisor was assigned to four teams of interviewers. As interviewers within a team did not conduct interviews independent of one another, the supervisor-to-interviewer ratio was 1:4. Supervisors helped to obtain community permission to conduct the survey (particularly in Kano), assisted with locating the census EAs, and checked all completed questionnaires by his or her team.

The field team in each state was assisted by a cartographer and three EA guides to read and translate the EA maps and to physically locate each EA in the field. After each day's work, the supervisor collected the questionnaires and submitted them to the State Study Coordinator. Before the questionnaires were handed over to the Study Director, the State Study Coordinator randomly selected and checked 10% of the questionnaires completed each day for consistency and completeness. If notable errors were detected, more intensive checking was conducted, and appropriate measures were taken to correct them. Once the questionnaires were certified completed by the State Study Coordinator, they were sent by DHL to the Study Director in Lagos. Additional checks were conducted by the Study Director and completed questionnaires transported to Research and Marketing Services (RMS), Ojodu, Ikeja, Lagos, for editing and data entry.

Data entry and editing were contracted to RMS. However, to ensure that estimates were provided to USAID/Nigeria in a timely fashion, a rapid result form was developed. This form was adapted from the Cluster Form developed by the World Health Organization (WHO, 1991) and conventionally utilized for reporting EPI coverage survey results. The forms were used to manually summarize data in order to provide preliminary estimates to meet USAID/Nigeria's reporting deadline. Further interpretation and firm conclusions based on the final analysis of the survey data are provided below.

Data Collection at the Health Facility

The objective of BASICS II is to improve the quality of child health services in public health facilities and at the community level. An indicator to measure performance at the health

facility is the percentage of public health facilities in the target states maintaining standard immunization registers. A facility maintaining a standard register is defined as one that meets the following criteria:

- Possesses a standard register as approved by the National Primary Health Care Development Agency (NPHCDA);
- Demonstrates through observation and/or recorded entries that the register is used routinely and habitually to record all immunization activities in and by the facility;
- Maintains up-to-date and complete immunization records;
- Has established a method of obtaining a new register before the existing one is full; and
- Has evidence of submission of their immunization records to the LGA.

In order to gather data on the above indicator, a checklist was developed to obtain relevant information from the health facilities. Also, information was obtained from the quality of service supervisory checklist used by the LGA health staff while on supervisory visits to the facilities in their jurisdiction. The results presented in this report were obtained by BASICS II consultants during the monitoring visits conducted between October and November 2002, using the Health Facility Register Quality Assessment Checklist (Annex B). The result of the assessment is presented below. Data on the fourth criterion above was not used in the present assessment as some health facilities had just introduced the use of standard registers and had no need to plan for replenishment or had sufficient stock for two or more years.

2. NUTRITION

Summary of Findings

The ICHCS 2002 found that:

- Notably higher rates of EBF are seen across the three project sites, with the project area average increasing from 10% (in 2000) to 26%;
- While program recommendations are to continue breastfeeding until the end of the second year, in Abia and Lagos, breastfeeding rates declined sharply early in the second year;
- Complementary feeding of children between the ages of 6 and 11 months is quite low, with only one-quarter of children 6–8 months of age receiving breast milk and pap/cereal or solids; and
- Survey findings provide early indication that the BASICS II strategy to turn mothers into advocates for child health through the platform of CAPA has percolated communities. In Lagos, three of every four women have provided encouragement for EBF.

Background

BASICS II promotes appropriate infant feeding practices nationally through input into policy and in communities through programs that engender improved infant feeding practices. The benefits of EBF cannot be overemphasized. The child health literature indicates that infants who are exclusively breastfed in the first six months of life have a lower risk of mortality and morbidity associated with childhood illnesses (acute respiratory infection, diarrhea, and fever) than those who are not exclusively breastfed (WHO, 2001).

Four indicators of progress in this technical focus area were examined: (1) appropriate breastfeeding, (2) awareness of appropriate infant feeding practices, (3) adequate child feeding practices, and (4) coverage with vitamin A and awareness of its benefits.

Prevalence of Exclusive Breastfeeding

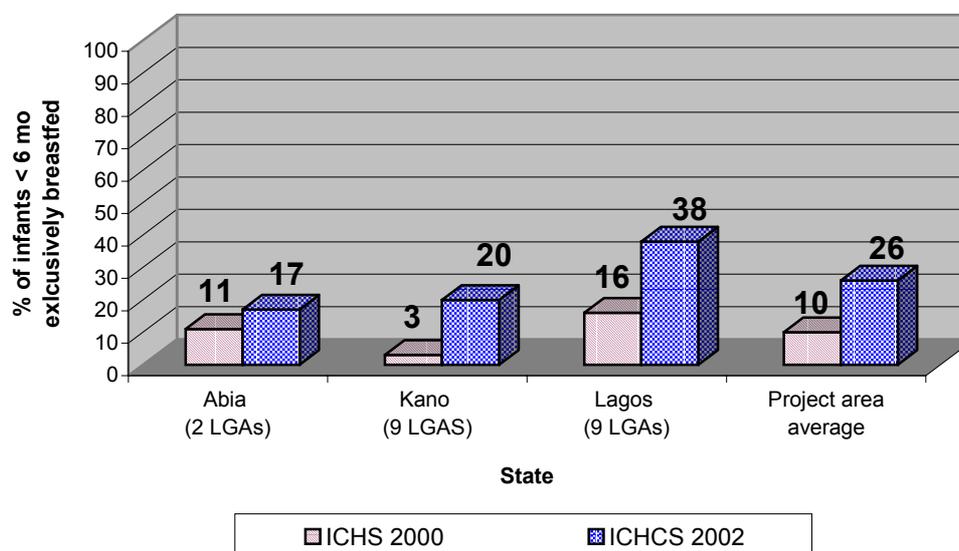
Breastfeeding is universally high in the project area; the proportion of children 0–23 months of age that are being breastfed at the time of the surveys was 76% on average (Table 2.1). The practice of EBF is much lower than expected. The results presented in Figure 2.1 reveal that the proportion of children less than six months of age whose mothers reported they were exclusively breastfed is 26% on average. The corresponding figures for Abia, Kano, and Lagos, respectively, are 15%, 20%, and 39%. While these rates leave room for improvement, they are higher than those rates found in the previous survey conducted in 2000. Notably higher rates of EBF are seen in Kano and Lagos.

Table 2.1: Prevalence of breastfeeding in target population, BASICS II/Nigeria ICHCS 2002

State	% women breastfeeding their child 0–23 months	Number of women 15–49 years
Abia (2 LGAs)	66	520
Kano (9 LGAs)	85	1,070
Lagos (9 LGAs)	72	1,074
Project area average	76	2,664

Note: State-level figures are not representative of the entire state but are limited to BASICS-supported LGAs within that state. The project area average is a simple weighted average based on the number of respondents in the combined project sites in each of the three states.

Figure 2.1: Exclusive breastfeeding among infants less than 6 months of age (24 hour recall), 2000 and 2002



Source: BASICS II/Nigeria, ICHCS 2002 Results.

Early Initiation of Breastfeeding

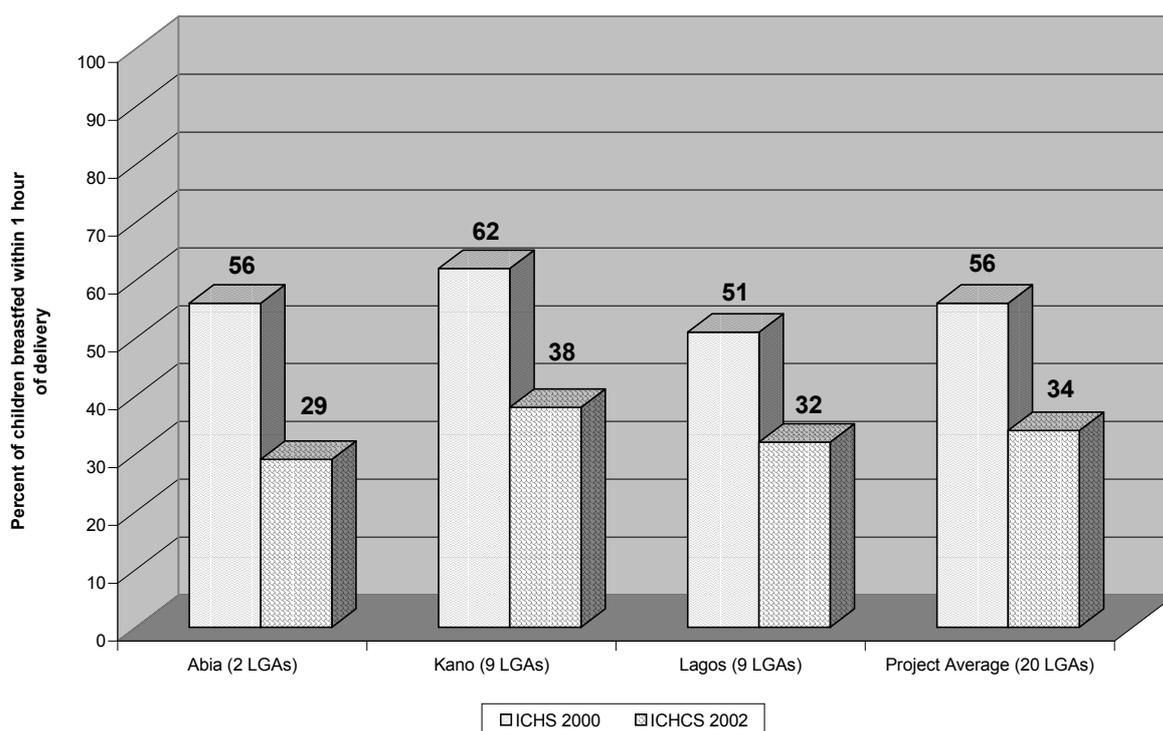
Although BASICS II has made progress in improving infant breastfeeding in the surveyed areas, the quality of infant feeding still lags behind expectations. An important marker for the appropriateness of infant feeding is the early initiation of breastfeeding. A key message promoted by BASICS II is that all infants should be put to the breast within one hour of delivery. An assessment of how well this message has resonated with mothers is tabulated below. Table 2.2 reveals that only one-third of children 0–23 months were put to the breast within one hour of delivery. The majority of children were put to the breast several hours or even days after delivery. A comparison of the rates for 2000 and 2002 reveals declining trends in the proportion of children put to the breast within one hour of birth from 56% in 2000 to 34% in 2002 (Figure 2.2).

Table 2.2: Percent of women initiating breastfeeding at different times after delivery in their last pregnancy, children 0–23 months, BASICS II/Nigeria ICHCS 2002

State/LGA	N	Percent ever breastfed	Percent Initiating Breastfeeding				Total	N
			Within 1 hour of birth	1–8 hours of birth	After 8 hours of birth	Don't know/missing		
Abia (2 LGAs)	552	98	29	40	26	4	100	543
Kano (9 LGAs)	1,096	97	38	32	29	1	100	1,067
Lagos (9 LGAs)	1,107	99	32	36	31	1	100	1,100
Project area average (20 LGAs)	2,755	98	34	35	27	2	100	2,710

Note: State-level figures are not representative of the entire state but are limited to BASICS-supported LGAs within that state. The project area average is a simple weighted average based on the number of respondents in the combined project sites in each of the three states.

Figure 2.2: Percent of children breastfed within 1 hour of delivery



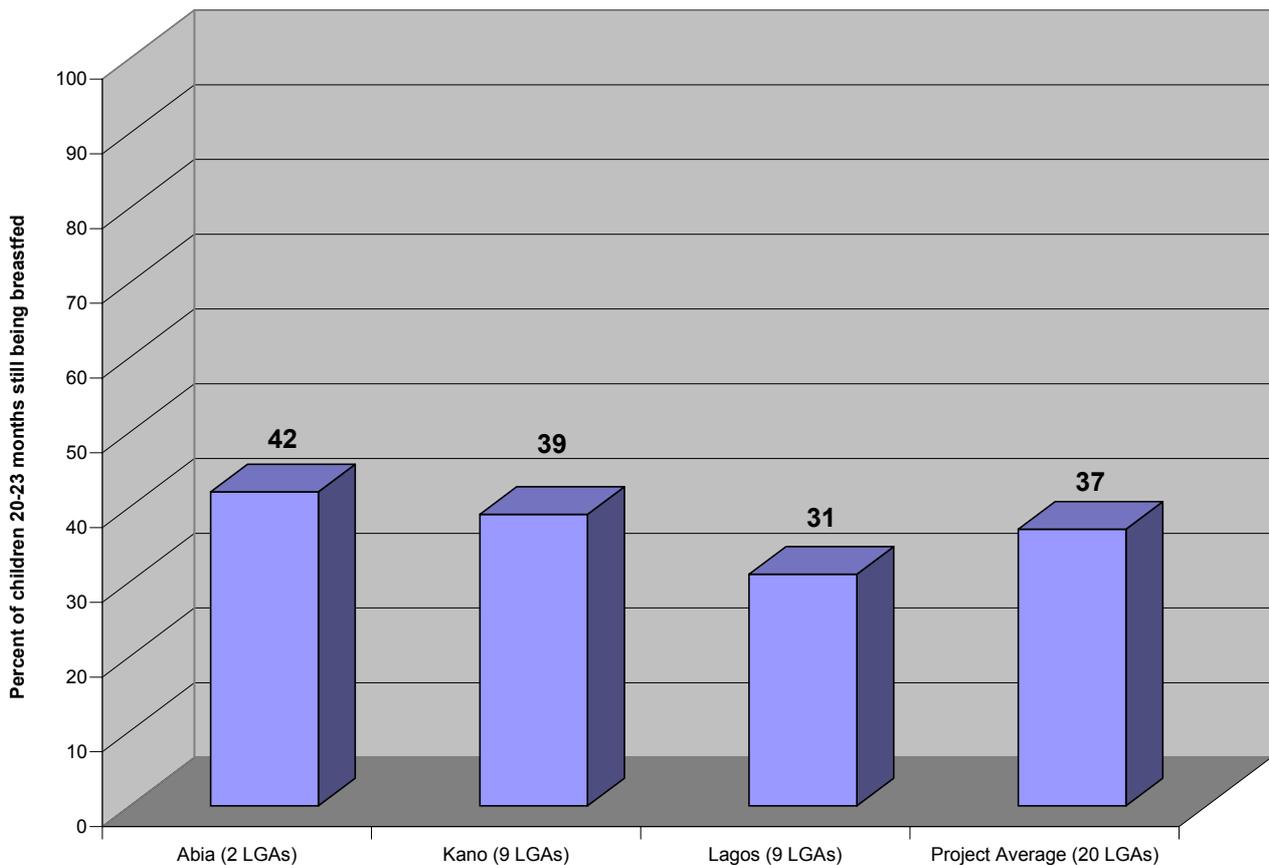
Source: BASICS II/Nigeria, ICHCS 2002 Results.

Continued Breastfeeding

Another important marker of whether infants are being fed correctly is the percent of children 20–23 months who were still being breastfed. The recommended practice is that infants should be breastfed until age 23 months and be introduced to complementary feeding from

age six months. Poor practice of continued breastfeeding is most notable in older children and is measured by the percentage of children in the 20–23 age group that are being breastfed. Early cessation of breastfeeding in the population is an issue requiring programmatic attention. Figure 2.3 shows that about one-third of all children 20–23 months of age are still being breastfed. Table 2.3 shows how levels of breastfeeding decrease with a child’s age. In Abia and Lagos project sites, breastfeeding rates decline sharply after 9–11 months and 12–15 months of age, respectively. In Kano, breastfeeding rates remain relatively high (77%) through 19 months of age. In sum, the majority of older infants may indeed not be getting the breast milk that they need. This is another important finding for programmatic attention.

Figure 2.3: Percent of children 20-23 months still being breastfed



Source: BASICS II/Nigeria, ICHCS 2002 Results.

Table 2.3: Percent of children 6–23 months of age who continued to be breastfed, by age group, BASICS II/Nigeria ICHCS 2002

State/ LGA	Percent being breastfed (age in months)					N
	6–8	9–11	12–15	16–19	20–23	
Abia (2 LGAs)	98	72	39	32	42	372
Kano (9 LGAs)	100	97	94	77	39	738
Lagos (9 LGAs)	94	86	60	35	31	792
Project area average (20 LGAs)	97	88	68	48	37	1,902

Note: State-level figures are not representative of the entire state but are limited to BASICS-supported LGAs within that state. The project area average is a simple weighted average based on the number of respondents in the combined project sites in each of the three states.

Awareness of Breastfeeding

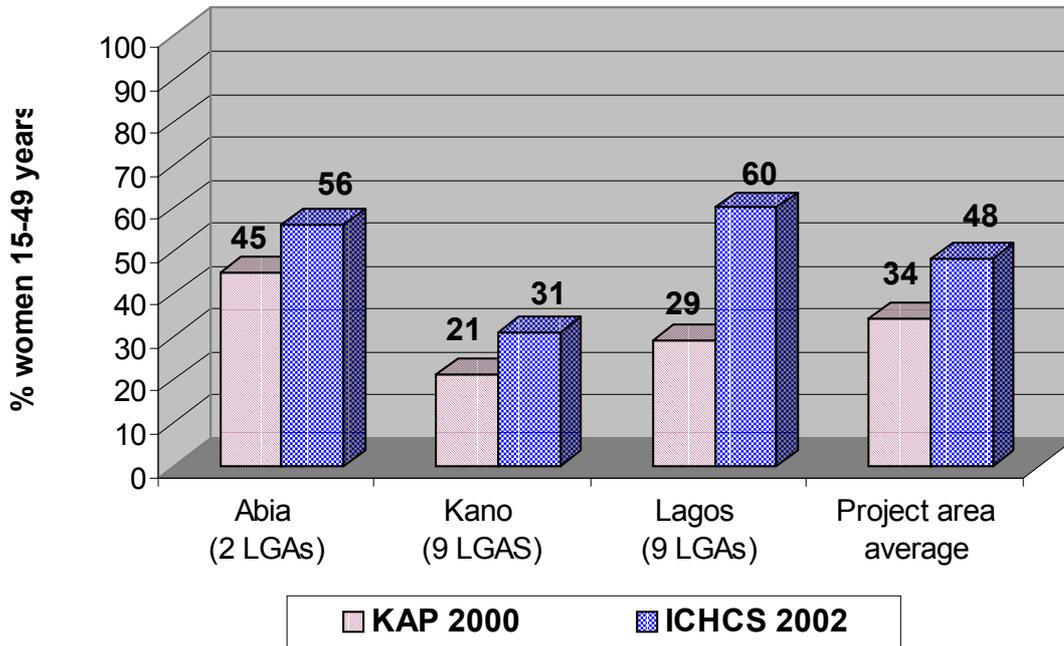
Knowledge of appropriate breastfeeding practices is assessed by first asking the respondent if she had ever heard of the expression “exclusive breastfeeding” as a filter question. Those respondents who answer affirmatively are then asked to describe what EBF means. Women who spontaneously reported that EBF means that infants under six months of age should be given only breast milk (without water) are considered to be knowledgeable of EBF. The findings of the survey on these two indicators are presented in Table 2.4 and Figure 2.4.

Table 2.4: Knowledge of exclusive breastfeeding practices in target areas, BASICS II/Nigeria ICHCS 2002

State/LGA	% heard of EBF	% know that children < 6 months should EBF (%)		Number of women 15-49 years (2002)
		KAP 2000	ICHCS 2002	
Abia (2 LGAs)	86	45	56	520
Kano (9 LGAs)	42	21	31	1,070
Lagos (9 LGAs)	76	29	60	1,074
Project area average	64	34	48	2,664

Note: State-level figures are not representative of the entire state but are limited to BASICS-supported LGAs within that state. The project area average is a simple weighted average based on the number of respondents in the combined project sites in each of the three states.

Figure 2.4: Respondents with knowledge of exclusive breastfeeding, 2000 and 2002

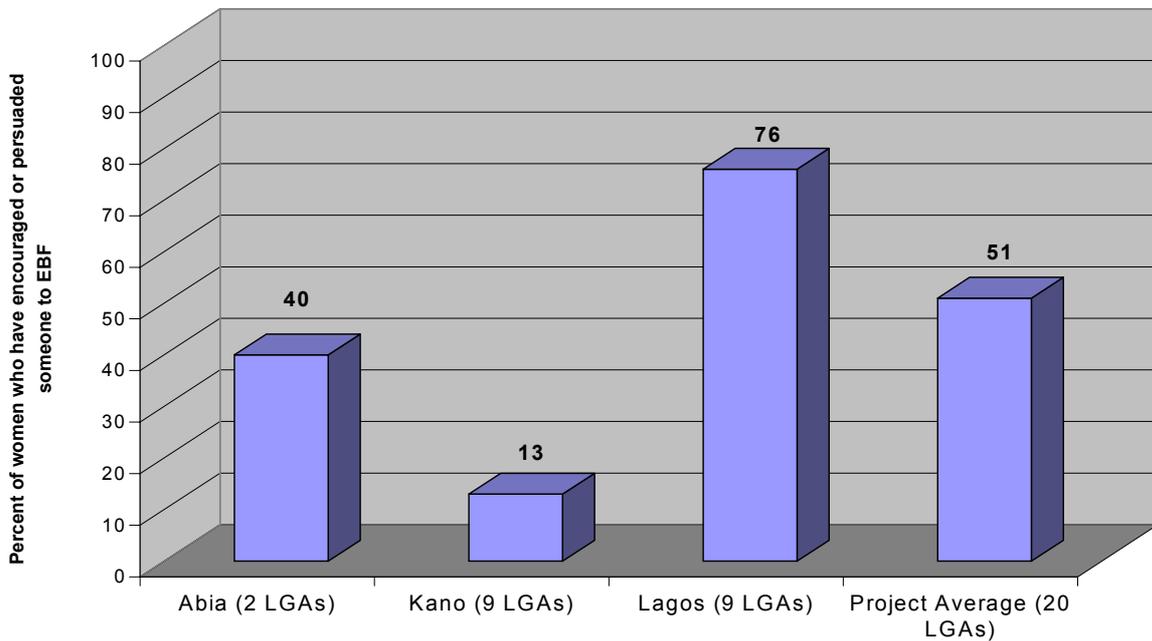


Source: BASICS II/Nigeria, ICHCS 2002 Results.

Study data presented in Table 2.4 indicate that more than two-thirds of the caregivers have heard of EBF in the three states where BASICS II is working. Among women of reproductive age interviewed, 48% knew that EBF means that all infants less than six months should receive only breast milk (with no water added). Kano had the lowest percentage of respondents who heard of EBF and who know the meaning of EBF (31% versus 56% in Abia and 60% in Lagos States). Kano is the one state where BASICS II has not yet completed the introduction of the program on nutrition. A comparison of the results of the ICHCS 2002 and baseline surveys conducted in 2000 (ICHCS and KAP) reveals improved awareness of the importance of EBF among caregivers in all three states.

Further analysis of data reveals that a few women who are knowledgeable about EBF have become advocates for positive behavior change in the area. One of the questions asked to mothers is whether they had encouraged or persuaded someone to practice EBF in the past 12 months. The results presented in Figure 2.5 reveal that, on average, about one in two women have encouraged someone to exclusively breastfeed within the past 12 months. The proportion who have encouraged someone to engage in EBF ranges from 13% in Kano, to 40% in Abia, to 76% in Lagos State. These findings provide early indication that the strategy—to turn every mother in the BASICS II-supported communities into advocates for child health through the platform of CAPA—has percolated communities. In Lagos, three of every four women have provided encouragement for EBF. In Abia, momentum is gathering. Kano is one place where progress in this indicator has not taken off.

Figure 2.5: Percent of women who encouraged or persuaded someone to exclusive breastfeed during the past 12 months, of those who have heard of exclusive breastfeed



Source: BASICS II/Nigeria, ICHCS 2002 Results.

Complementary Feeding

Consistent with MOH policy on child feeding, BASICS II/Nigeria recommends that children should be introduced to solids and other fluids from age six months and should continue to receive breast milk until they are 23 months. The ICHCS collected data on appropriate complementary feeding (ACF) practices for the youngest ages, 6–11 months.

As seen in Table 2.5, few children 6–8 months of age received breast milk in addition to pap/cereals or solids. Even among the children 9–11 months of age, only two in five children were breastfed and received pap/cereal or solids in the 243 hours prior to the survey. Although very limited in its response options, the ICHCS 2002 indicates that infant and child feeding in Nigeria largely reflect adult eating patterns—high starchy diet with few fruits, vegetables, or protein sources. Mothers need to know that children should be given adequate diets to promote healthy growth.

Table 2.5: Children 6–11 months breastfed and given other solid/semi-solid foods in the last 24 hours, BASICS II/Nigeria ICHCS 2002

State/LGA	Given breast milk and pap/cereals or solids		Number of children 6–11 months
	Age of child in months		
	6–8	9–11	
Abia (2 LGAs)	28	82	128
Kano (9 LGAs)	37	38	243
Lagos (9 LGAs)	12	25	312
Project area average (20 LGAs)	23	41	683

Note: State-level figures are not representative of the entire state but are limited to BASICS-supported LGAs within that state. The project area average is a simple weighted average based on the number of respondents in the combined project sites in each of the three states.

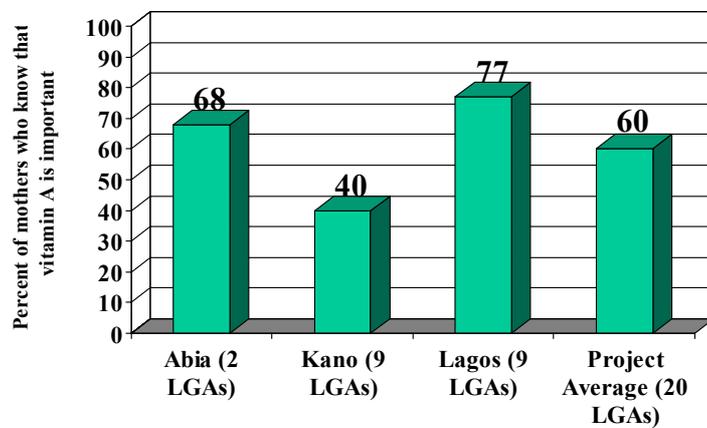
Coverage and Awareness of Vitamin A

Through the mechanism of the NIDs, coverage with vitamin A among Nigerian children has reached record levels. In the October 2002 NIDs, nearly two of every three children were reported to have received a dose of vitamin A. The ICHCS 2002 sought to examine coverage rates and providers of vitamin A in the BASICS II project sites. However, due to the speed with which the survey fieldwork was conducted, not all interviewers received vitamin A capsules. In asking questions about whether a child has received a dose of vitamin A, it is standard practice to show the mother a vitamin A capsule to avoid confusion with the oral polio vaccine administered at the same time. Due to the lack of these capsules in the hands of the interviewers, the vitamin A coverage rates in the ICHCS 2002 do not provide valid indication of true coverage. Among children 6–23 months, only 3% were reported to have received a vitamin A capsule.

Given the changing face of NIDs and the diminishing potential to use the NIDs platform to deliver vitamin A to children, BASICS II is exploring alternative ways of delivering vitamin A to children less than five years of age. In Lagos State, BASICS II/Nigeria, in collaboration with The Johns Hopkins University (JHU), is helping the MOH to develop a vitamin A supplementation strategy using child health weeks. Child health weeks have been largely successful in delivering vitamin A supplementation to children in countries including Madagascar, Ghana, and Uganda. To support this process in Nigeria, the ICHCS asked caregivers if they considered vitamin A important for children 6–59 months of age. The results can provide insight into the readiness of women to receive routine vitamin A and help in the design of the child health week program.

The results presented in Figure 2.6 show that two-thirds of the women considered vitamin A important for children. The proportion is much lower in Kano (40%) than the project area average, and is highest in Lagos (77%). In Kano, child health weeks may have to involve more activities oriented toward promoting awareness than in Lagos. In Lagos and Abia, the study suggests that a large unmet need for vitamin A exists and that programs can capitalize on this opportunity by improving access to vitamin A capsules.

Figure 2.6: Percent of mothers who know that it is important for children 6-59 months to receive vitamin A



Source: BASICS II/Nigeria, ICHCS 2002 Results.

3. IMMUNIZATION

Summary of Findings

The ICHCS 2002 found that:

- Significant increases have been secured in the early doses of polio vaccination (polio0 and polio1) between the 2000 and 2002 surveys for at least two project sites, Abia and Lagos;
- All other childhood vaccines have either remained at the same levels or decreased between the two surveys;
- To verify the apparent declines in immunization coverage, data from the health management information system for Lagos state was examined. It seems that the decline in immunization coverage has been much lower in BASICS II focus areas than other LGAs in Lagos State; and
- One plausible explanation for the declining immunization coverage rate is vaccine unavailability. Ensuring a sustained, uninterrupted supply of vaccines to health facilities is mandatory to increase coverage. This standard is yet to be achieved in the country.

Background

The goal of BASICS II interventions in immunization is to increase immunization coverage among high-risk infants and children with present EPI vaccines. To achieve these results, BASICS II/Nigeria collaborates with implementing and policy partners: NPI, State MOHs, the United Nations Children's Fund (UNICEF), WHO, JHU, the Global Alliance for Vaccines and Immunization (GAVI), and the Department for International Development (DFID). In conjunction with these organizations, BASICS II has defined a set of activities that is consonant with the Government of Nigeria's EPI objectives and reflects the system's ability to reach children with services. These include the development of CBC materials and their use in selected states, increased advocacy for immunization, and technical assistance to improve EPI data quality and monitoring in health facilities. BASICS II, through UNICEF, procured cold chain equipment for BASICS II focal states and LGAs. Three indicators of health system strengthening were examined in this study: (1) immunization coverage; (2) record-keeping by child caregivers; and (3) maintenance of immunization registers at the clinics.

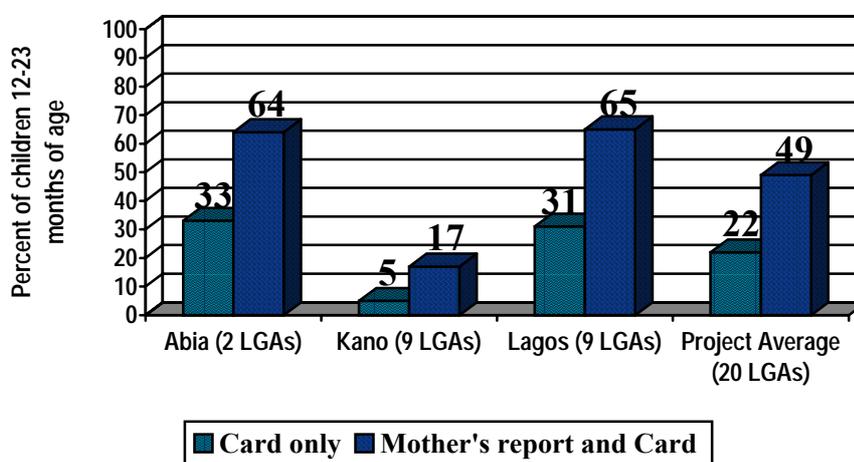
Immunization Coverage

The key indicator utilized to assess immunization coverage is the proportion of children ages 12–23 months that received DPT3. The most restrictive definition of this indicator is based on only those children for whom an immunization card was presented. For children who did not have cards, or whose cards were not seen, caretaker's recall of immunization is recorded. Data from both sources appear in Figure 3.1. Additionally, immunization coverage can be assessed for those children immunized by their first birthday or by the time of the survey. In this report, analysis will focus on those children who were immunized by the time of the survey.

It must be noted that the coverage figures presented throughout this report have been adjusted to facilitate comparability between the ICHCS 2002 and the ICHS 2000 data. The methods and detailed results of the adjustment procedure appear in Annex C.

On average, 49% of the children ages 12–23 months in the study area received DPT3 by the time of the survey. The percent who received DPT3 ranged from 17% in Kano to 64% in Abia and 65% in Lagos (Figure 3.1). When data based on cards only are considered, we see that only 22% of children received DPT3 prior to the survey. In Kano, only one in twenty children surveyed had evidence of DPT3 coverage based on a card. In Lagos and Abia sites, one-third of children had evidence of DPT3 coverage based on a card.

Figure 3.1: DPT 3 coverage among children 12-23 months old by the time of the survey according to card and mother's report & card



Source: BASICS II/Nigeria, ICHCS 2002 Results.

The results of DPT3 immunization coverage in the project area are key indicators of a weak system. DPT3 coverage rates are widely used to gauge the functioning of the routine immunization system, as three doses are required to be delivered through routine contacts. These data, reported based on card and recall by the time of the survey, provide the best-case scenario for immunization coverage in the project sites. Levels of polio vaccination provide a more positive trend. With the heavy emphasis on polio eradication, early doses of polio (polio0 and polio1) have reached seven out of ten children in the project sites. However, the coverage rates appear to decline with the second and third doses (Figure 3.2). Even where the system performs best (early doses of polio), failure to reach children with three doses compromises effective immunity. Data on coverage with each vaccine appears in Table 3.1.

Figure 3.2: Polio coverage among children 12-23 months old by the time of the survey according to mother's report & card

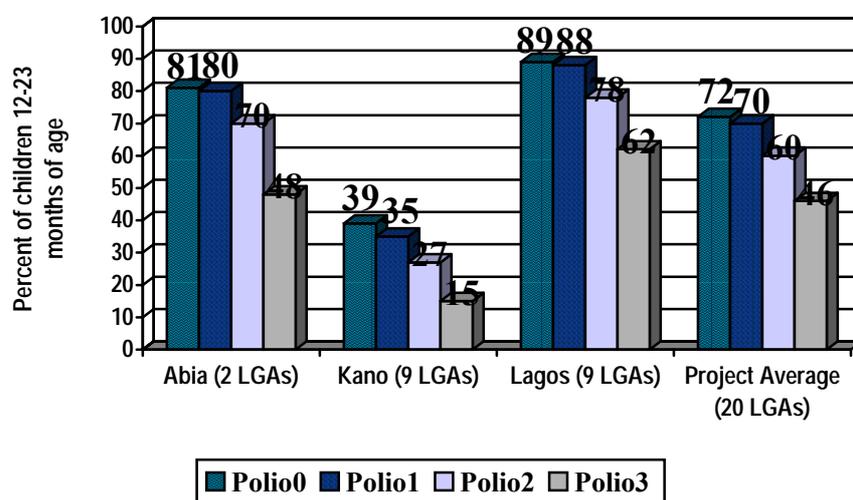


Table 3.1: Percent of children 12–23 months of age who received specific vaccines by the time of the survey according to source of information, BASICS II/Nigeria ICHCS 2002

State	Percentage of children who received:								Number of children 12–23 months	
	BCG	DPT			Polio			Measles		
		1	2	3	0	1	2			3
Abia (2 LGAs)										
Card	43	41	40	33	38	39	35	33	22	104
Mother's report & card	85	80	76	64	81	80	70	48	55	240
Kano (9 LGAs)										
Card	11	9	7	5	8	8	6	5	3	55
Mother's report & card	45	33	26	17	39	35	27	15	25	486
Lagos (9 LGAs)										
Card	37	36	35	31	34	36	34	32	26	193
Mother's report & card	92	81	75	65	89	88	77	62	67	472
Project area average (20 LGAs)										
Card	29	28	26	22	26	27	25	23	18	357
Mother's report & card	76	65	53	49	72	70	60	46	52	1,198

Note: State-level figures are not representative of the entire state but are limited to BASICS-supported LGAs within that state.

Because a key objective of this survey was to assess accomplishments by BASICS II/Nigeria- and USAID/Nigeria-agreed performance indicators, we compared immunization coverage rates found in the 2000 ICHS baseline survey with those found in the 2002 ICHCS survey. Differences in immunization coverage for all antigens are presented in Table 3.2 and Figures 3.3 to 3.6 by state and for the combined project area.

Table 3.2 suggests that coverage with most antigens declined between 2000 and 2002 except for polio, which increased. This increase in polio recorded mostly in mother's recall is likely due to immunization received during the numerous rounds of NIDs rather than during routine immunization. To determine whether these apparent changes were statistically significant, statistical tests were conducted and are reported in Annex C. All results discussed below are based on immunization coverage according to card and mother's recall.

Table 3.2: Percent of children 12–23 months of age who received specific vaccines by the time of the survey according to mother's recall and card, 2000 and 2002; BASICS II/Nigeria ICHCS 2002

State	Percentage of children who received:									Number of children 12–23 months
	BCG	DPT				Polio			Measles	
		1	2	3	0	1	2	3		
Abia (2 LGAs)										
2000	86	91	88	79	42	54	57	56	69	1,362
2002	85	80	76	64	81	80	70	48	55	1,198
Kano (9 LGAs)										
2000	57	52	44	33	25	30	45	32	37	1,362
2002	45	33	26	17	39	35	27	15	25	1,198
Lagos (9 LGAs)										
2000	93	92	88	82	62	72	72	66	74	1,362
2002	92	81	75	65	89	88	77	63	67	1,198
Project area average										
2000	81	79	74	66	48	57	62	55	62	1,362
2002	76	65	59	49	72	70	60	46	52	1,198

Note: State-level figures are not representative of the entire state but are limited to BASICS-supported LGAs within that state.

In Abia and Lagos States, we find that polio0 and polio1 coverage increased significantly between the two surveys. In Abia project sites, the increase in polio2 was also significant. In Kano project sites, no statistically significant changes in any of the polio antigens were found. Polio3 has either remained the same between the surveys (Lagos) or declined (Abia and Kano). In all three project sites, BCG remained unchanged between the two surveys. DPT1 and DPT3 declined significantly in Abia and Lagos States. Across all project sites, DPT1, DPT2, and DPT3 vaccination has declined.

Figure 3.3: Trends in immunization coverage, Abia project sites (2 LGAs), 2000 and 2002

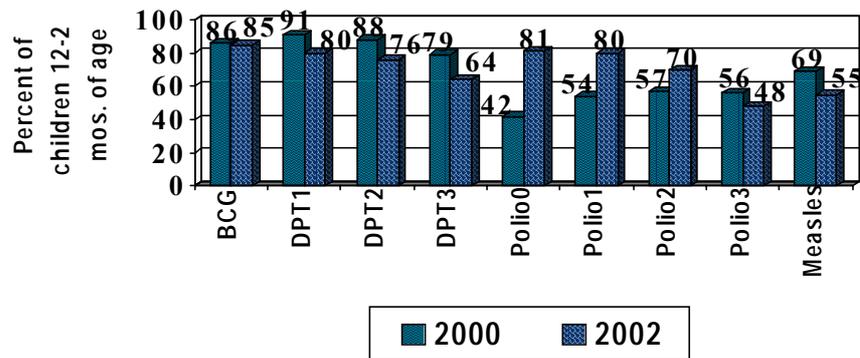


Figure 3.4: Trends in immunization coverage, Kano project sites (9 LGAs), 2000 and 2002

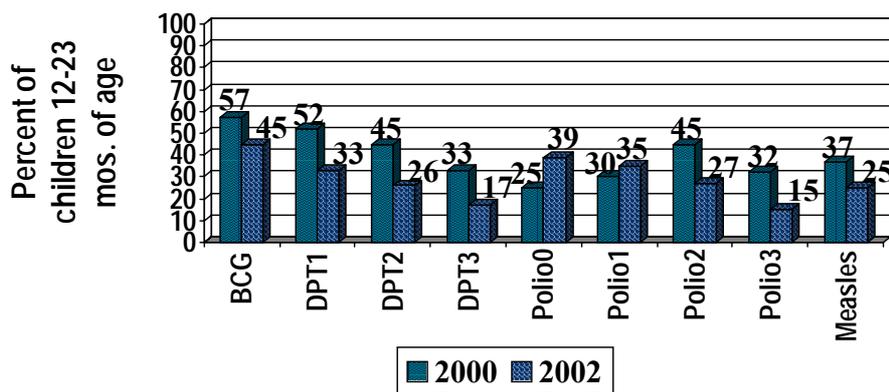


Figure 3.5: Trends in immunization coverage, Lagos project sites (9 LGAs), 2000 and 2002

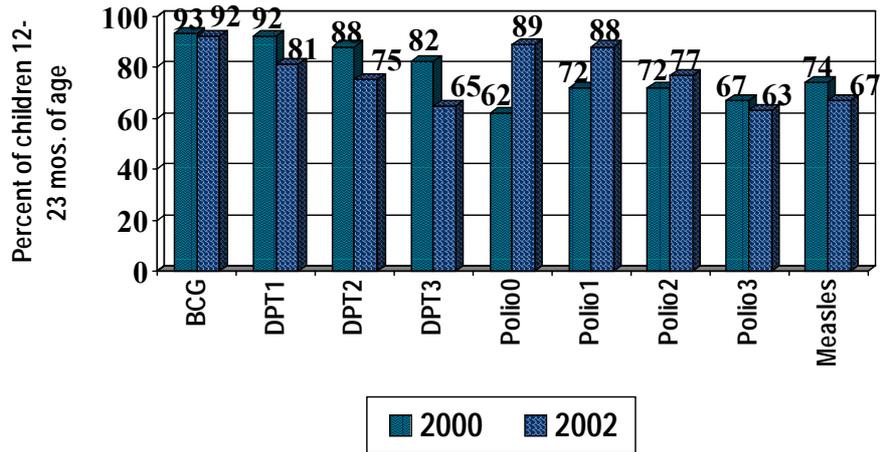
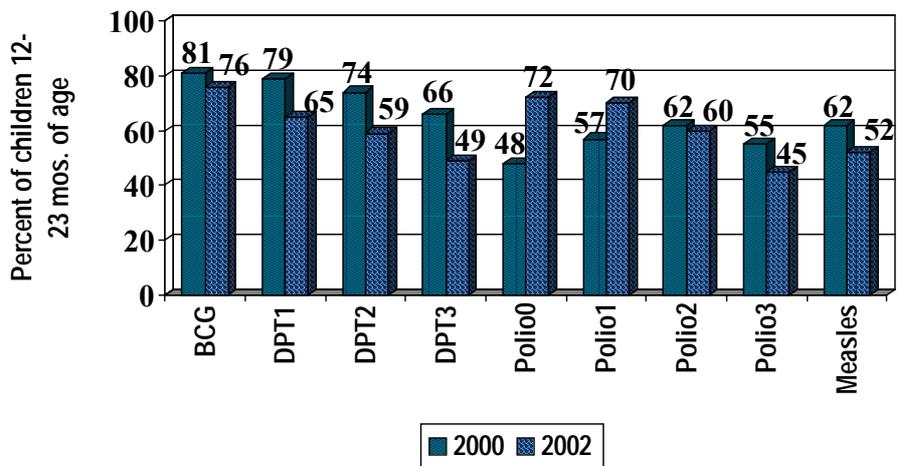


Figure 3.6: Trends in immunization coverage, combined project sites, 2000 and 2002



Several factors account for these trends in immunization coverage. Nigeria is the site of intensive polio eradication efforts. Increased rates of polio coverage are to be expected as part of that campaign. Investments in campaigns do not automatically benefit development of routine immunization systems. The allocation of resources (monetary and manpower) from routine systems to promote campaigns may compromise routine systems. In Nigeria, that interaction has culminated in decreases in coverage for all other antigens. Vaccine stock-outs in the country may have contributed significantly to the low immunization coverage rates observed in 2002.

For the areas receiving BASICS II support, it is also important to consider that only a portion of the children studied have been exposed to BASICS II interventions. In the ICHCS 2002, immunization coverage was measured in children aged 12–23 months (i.e., children born between November 2000 and November 2001). BASICS II/Nigeria began full implementation from about August 2001. This means that only children aged 12–15 months from the cohort of 12–23 months could have benefited from the intervention. Immunization rates in the BASICS II areas would have been higher if all children 12–23 months experienced the full range of interventions provided.

Drop-out Rates

Further evidence of a system’s relative strength or weakness can be seen in drop-out rates. In a strong routine system, a child who receives his or her first immunizations at birth will be followed up and vaccinated for all antigens within a reasonable amount of time (ideally by one year of age). Estimates of drop-out rates for several antigens are presented in Table 3.3.

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.

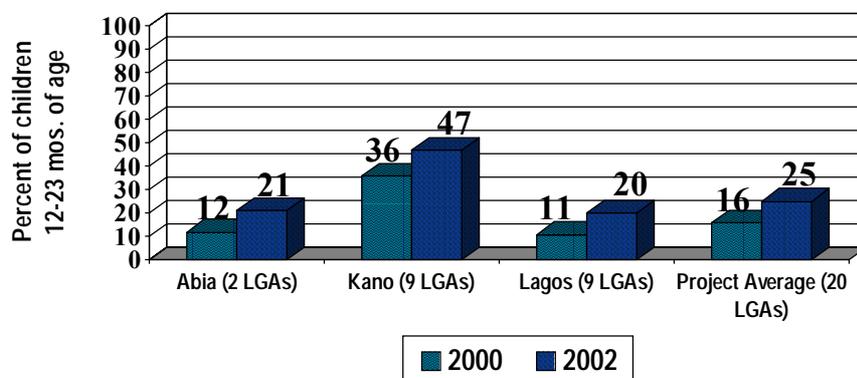
Table 3.3 also presents trends in drop-outs for selected vaccines. Here we see that in many cases, the ability of the immunization system to reach children appears to have weakened between 2000 and 2002.

Table 3.3: Trends in drop-out rate for children 12–23 months of age who received specific vaccines prior to the time of the survey according to vaccination card and mother’s report, BASICS/Nigeria ICHS 2000 and ICHCS 2002

State	DPT1–DPT3		OPV1–OPV3		Number of children (2002)
	2000	2002	2000	2002	
Abia (2 LGAs)	13%	21%	-4%	40%	240
Kano (9 LGAs)	36%	47%	-4%	58%	486
Lagos (9 LGAs)	11 %	20%	7%	29%	472
Project area average	16%	25%	4%	35%	1,198

Note: State-level figures are not representative of the entire state but are limited to BASICS-supported LGAs within that state.

Figure 3.7: DPT1-DPT3 drop-out rate, children 12-23 months of age

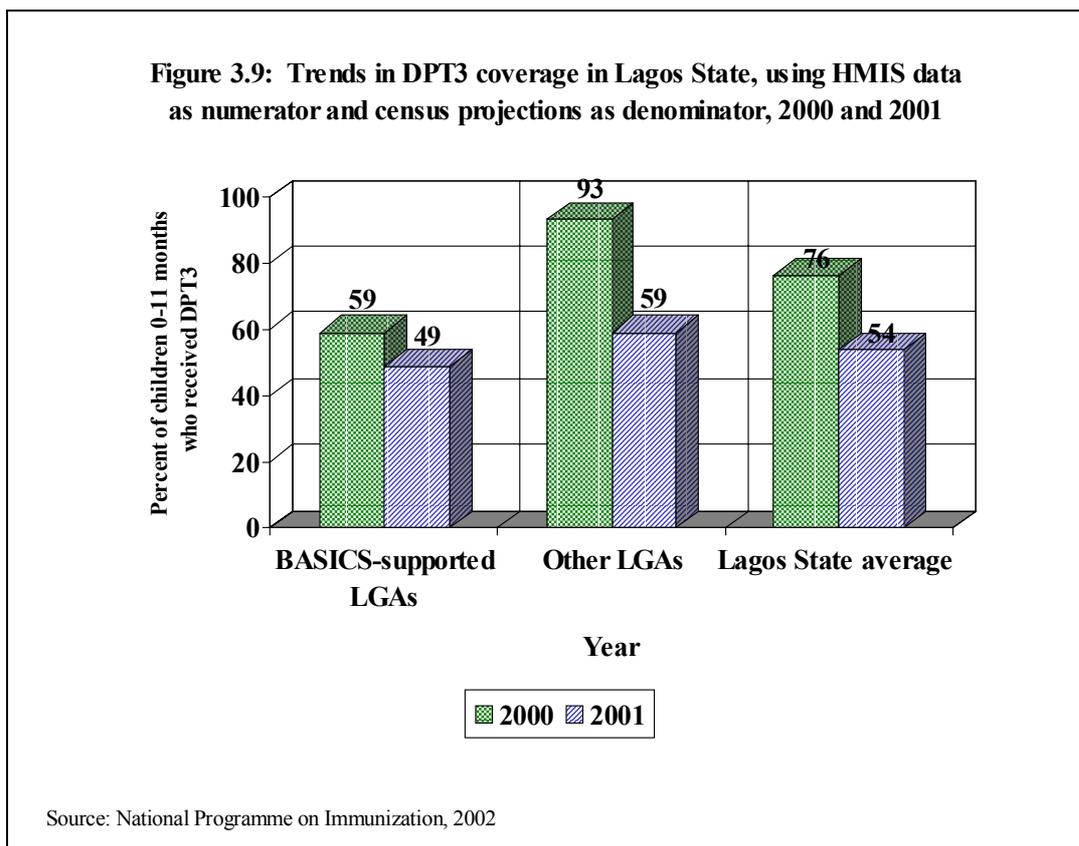
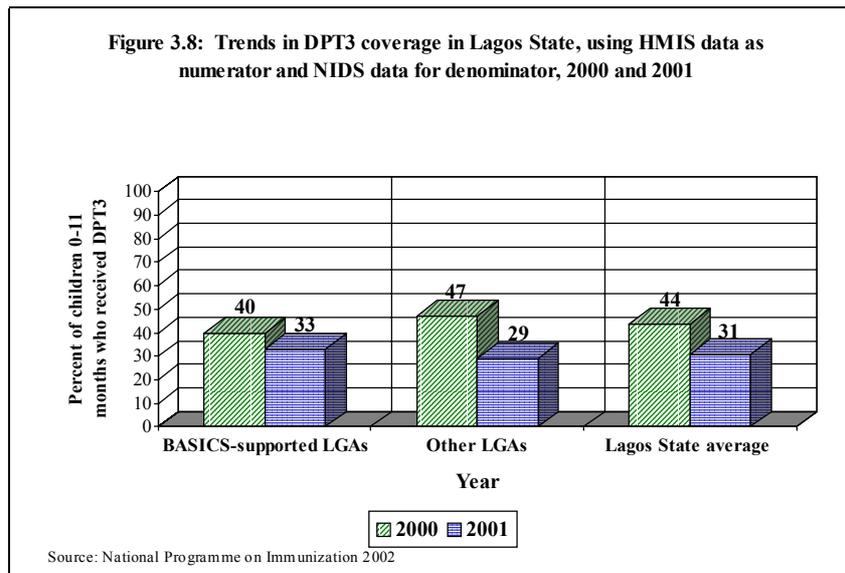


Source: BASICS II/Nigeria, ICHCS 2002 Results.

To understand the observed declines in these project areas, additional information from the health management information system (HMIS) and other sources were examined. Were the declines observed in the project areas indicative of a real decline in immunization coverage in the states? If yes, what factors might underlie this negative trend? To answer this question, we examined trends in DPT3 coverage in Lagos State using routine data from the government HMIS from the years 2000 and 2001. The results are presented in Figures 3.8 and 3.9. The estimates presented in Figures 3.8 and 3.9 are based on children less than 12 months of age. While the numerator data is the same in both figures (HMIS data), different denominators were used. In Figure 3.8, denominator data are drawn from NIDs micro-planning exercises. In Figures 3.9, denominator data are drawn from the 1991 census figures with projections.

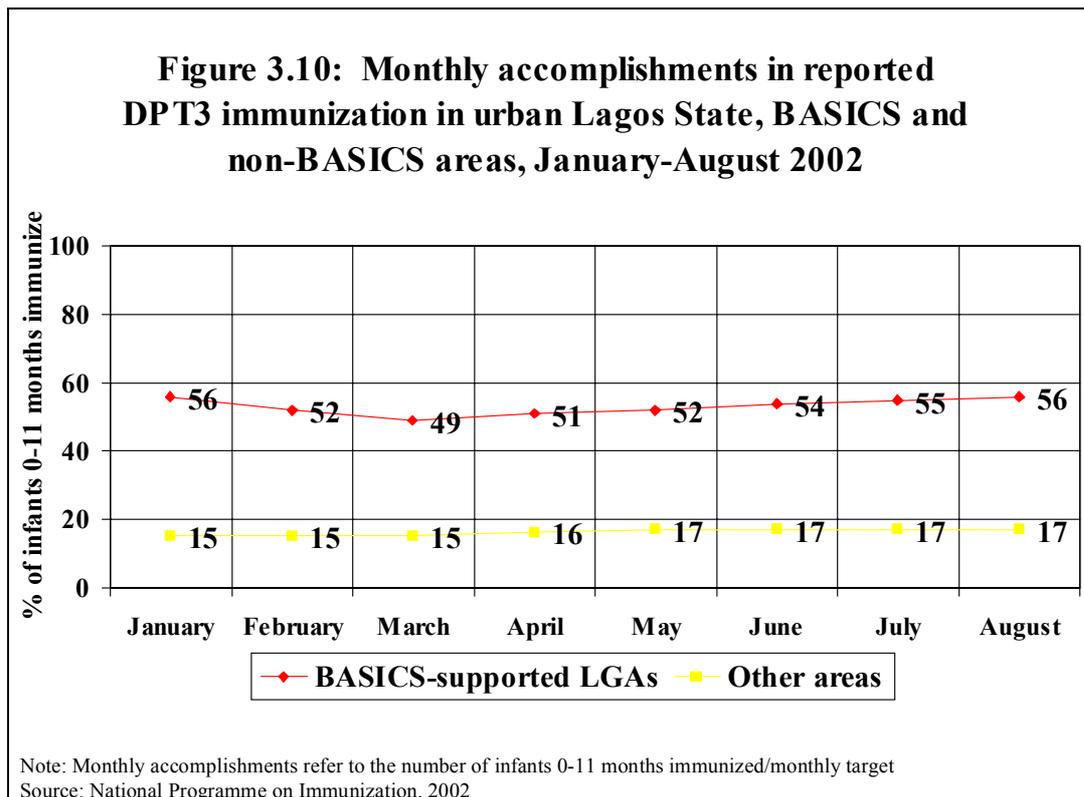
The DPT3 coverage rates based on these different denominators present very different pictures of the overall level of coverage. However, the two-year trend by type of LGA (BASICS II-supported or not) gives a very consistent picture: while declines have occurred in both BASICS II and non-BASICS II LGAs, the magnitude of the decrease is much greater in non-BASICS II LGAs.

As seen in Figure 3.8, DPT3 coverage declined by 38% in non-BASICS II focus LGAs (from 47% to 29%) and by 18% (from 40% to 33%) in BASICS II project areas. The percent decreases from 2000 to 2001 using census figures as the denominator are strikingly similar (Figure 3.9). Using the projected population of 12–23 months as the denominator, it was revealed that the decline in non-BASICS II focus areas was 37% (from 93% to 59%), compared to a 17% decline in BASICS II-supported LGAs (from 59% to 49%). The lower rate of decline observed in BASICS II LGAs points to BASICS II’s program accomplishment over the period. Based on this evidence, we can conclude that the immunization declines would have been much greater in Lagos State were it not for BASICS II’s work in the nine focus LGAs.



Summarizing the key messages from above, the decline in immunization coverage was much lower in BASICS II focus areas than other LGAs. In addition, in Lagos State and in health facilities, immunization registers and records are better kept today than they were two years ago.

Trends in routine immunization for Lagos State also demonstrates the level of performance in BASICS II-supported LGAs compared to other LGAs in the state (Figure 3.10). Figure 3.10 presents the monthly accomplishments in DPT3 in urban Lagos for children 0–11 months. Data presented are children actually vaccinated as a percent of the target population for January to August 2002, months for which data were available. As shown, the monthly accomplishments in BASICS II target areas were maintained at a level three times that of non-BASICS II areas. The observed decline between February to March was the result of prolonged (documented) vaccine outage in the state.



Plausible Reasons for Immunization Coverage Decline in Project Areas

Frequent Vaccine Stock-out

Non-availability of vaccines may be a factor in observed declines in immunization coverage. Vaccine stock-out continued to be a major constraint to immunization services. As long as the solution to this long-standing problem is not in place, achieving any appreciable increase in immunization coverage might be impossible. Efforts by BASICS II to increase community demand for service and improve quality of service at health facility levels will have more positive effect on coverage if uninterrupted vaccine supply by government can be guaranteed. Although health workers have been trained on vaccine forecasting, this will not yield any positive effect if vaccines are not entering the distribution system at the top. Ensuring a sustained, uninterrupted supply of vaccines to health facilities is mandatory to increase coverage. This standard is yet to be achieved.

NPI, the Federal Government Agency responsible for procurement and distribution of vaccines, maintained that vaccines were available and that distribution might be a problem. Also, there may be a need to look at the issue of vaccine security, as vaccines procured might not be reaching end users.

Card Outage

Maintaining adequate supplies of immunization registers and cards is a critical component of well-functioning routine immunization programs. BASICS II technical training emphasizes forecasting that includes both consumables (such as immunization registers and records) as well as stocks of vaccine and syringes.

Ownership of immunization cards significantly impacts the immunization coverage rate. A recent routine visit to an LGA EPI store in Lagos State by a BASICS II/Nigeria consultant revealed that:

- The state and LGAs have not printed immunization cards for about three years. Many of the LGAs in BASICS II/Nigeria focus areas have had to fall back on cards supplied by BASICS II in April 2001.
- To solve the card outage problem, many health workers have improvised by buying a small exercise book that is cut in half; one half is used as a home-based record and the other as a facility-based record.
- A random check of the vaccine stock revealed that the stock level is 50% of the expected minimum.

Record-keeping in the Household

As an indicator of the system's ability to respond to the need for immunization, we examined immunization record-keeping (or card retention) by child caregivers. Record-keeping permits health officials and child caregivers to track the children's immunization coverage. As shown in Table 3.4 below, card ownership rate is low among the populations studied with fewer than half of children having cards. On average, 30% of children 12–23 months of age had vaccination cards. Card ownership ranged from 11% in Kano, to 41% in Lagos and 44% in Abia. Limited ownership of immunization cards by caregivers suggests that many children do not receive services because mothers are unaware of their children's immunization schedule. Service providers may also be unable to keep track of immunization schedules for children who have no cards. Children who have no cards run the risk of over-vaccination (receiving more than necessary doses of specific vaccines) or inappropriate vaccination (receiving an incorrect vaccine/dose). Low ownership of cards, therefore, potentially reduces the system's ability to assess and meet the unmet needs for immunization in the project area.

Since 2000, the proportion of children 12–23 months of age for whom an immunization card could be shown dropped in all three project sites (Table 3.4). 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.

Table 3.4: Children 12–23 months of age with vaccination cards

State	% Children 12–23 months whose card was seen			
	ICHHS 2000	N (Children 12–23 months)	ICHCS 2002	N (Children 12–23 months)
Abia (2 LGAs)	52%	299	44%	240
Kano (9 LGAs)	16%	471	11%	472
Lagos (9 LGAs)	55%	592	41%	486
Project area average (20 LGAs)	41%	1,362	30%	1,147

Note: State-level figures are not representative of the entire state but are limited to BASICS-supported LGAs within that state. The project area average is a simple weighted average based on the number of respondents in the combined project sites in each of the three states.

Maintenance of Immunization Registers at Facilities

Standard immunization registers are essential for keeping accurate information on each child’s vaccinations in all health facilities. Prior to BASICS II project implementation in the focal LGAs in Abia, Kano, and Lagos, registers were not available in most primary health facilities, and if available, they were not being used appropriately. Information was either not entered or improperly entered. As part of system strengthening, officers in charge of primary health care facilities and service providers were trained by BASICS II staff and consultants on record-keeping and collation of data for reporting purposes. BASICS II also assisted the LGAs by providing standard immunization registers for use in health facilities. As shown in Table 3.5, maintenance of standard registers¹ currently ranges from 62% in Kano, to 93% in Abia, to 97% in Lagos. The corresponding figure for the project area is 79%. This is a remarkable accomplishment given that only a few of the facilities in the target areas maintained standard immunization registers two years earlier.

Table 3.5: Maintenance of standard immunization registers in project areas

State	% of facilities maintaining standard registers	N of facilities
Abia (2 LGAs)	93	15
Kano (9 LGAs)	62	81
Lagos (9 LGAs)	97	70
Project area average (20 LGAs)	79	166

Note: State-level figures are not representative of the entire state but are limited to BASICS-supported LGAs within that state. The project area average is a simple weighted average based on the number of respondents in the combined project sites in each of the three states.

¹ See page 7 for a description of the criteria used to judge whether a health facility was maintaining a standard immunization register.

4. MALARIA TREATMENT AND PREVENTION

Summary of Findings

The ICHCS 2002 survey found that:

- Consistent with national malaria program guidance, the vast majority of mothers (78%) recognize fever as a sign of child illness requiring them to seek care from a health facility or health worker;
- Drug treatment for children with fever was also very high, with mothers giving drugs of any type to 84% of children reported with fever;
- Unfortunately, mother's recognition and action to treat fever does not translate into effective action. Of all children with fever, only 12% received chloroquine within 24 hours of onset; and
- Fewer than half of mothers (44%) knew the benefits of sleeping under an ITN in terms of malaria prevention. Only 6% of the children studied slept under an ITN the night preceding the interview.

Background

Malaria is a major health problem in Nigeria, accounting for 30% of all childhood deaths and associated with about 11% of maternal deaths (FMOH, 2001). The Government of Nigeria has resolved to reduce childhood and maternal mortality and morbidity due to malaria. In support of this commitment, BASICS II has instituted diverse programs nationally and in communities where it is directly working in order to promote malaria prevention and appropriate home treatment, particularly among children less than five years of age.

In the communities where it works, BASICS II uses a process of community engagement, mobilization, and action planning known as CAPA to educate caregivers on malaria treatment and promote awareness of the benefits of ITNs, particularly for children. At the national level, BASICS II has supported the RBM initiative since its inception. It also provided technical assistance to the structure, review, and development of a strategic plan of action for RBM implementation at the Federal, state, and LGA levels.

To examine progress in malaria treatment and prevention at the community level, the survey gathered data on three key indicators: (1) knowledge of fever as an illness sign that prompts care-seeking from a health facility or health worker, (2) home-based management of fever, and (3) awareness and use of ITNs.

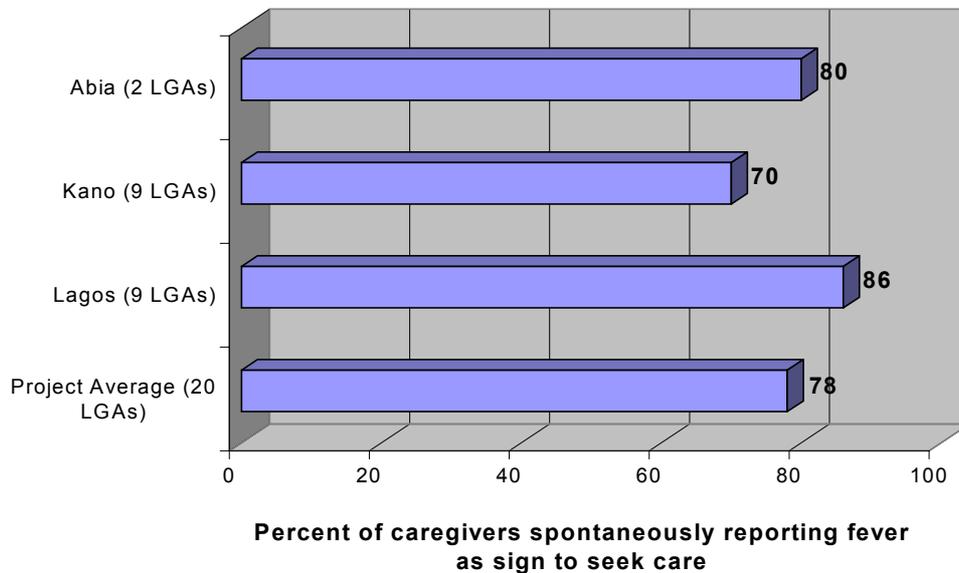
Fever as a Sign for Care-seeking

Nearly eight out of ten women interviewed recognized fever as a sign that would prompt care-seeking from a health facility or health worker. As appears in Figure 4.1 below, these proportions ranged from a low of 70% in Kano project sites to a high of 86% in Lagos project sites. Overall, the results indicate a very high level of knowledge of care-seeking consistent with the presumptive treatment of a fever/high temperature as malaria.

Women were further questioned on signs that, together with fever, would prompt immediate care-seeking from a health facility, doctor, or nurse. Figure 4.2 depicts the signs most commonly reported that, in addition to fever, would prompt immediate care-seeking. These signs include the child not eating or drinking well (42%), the child not improving after

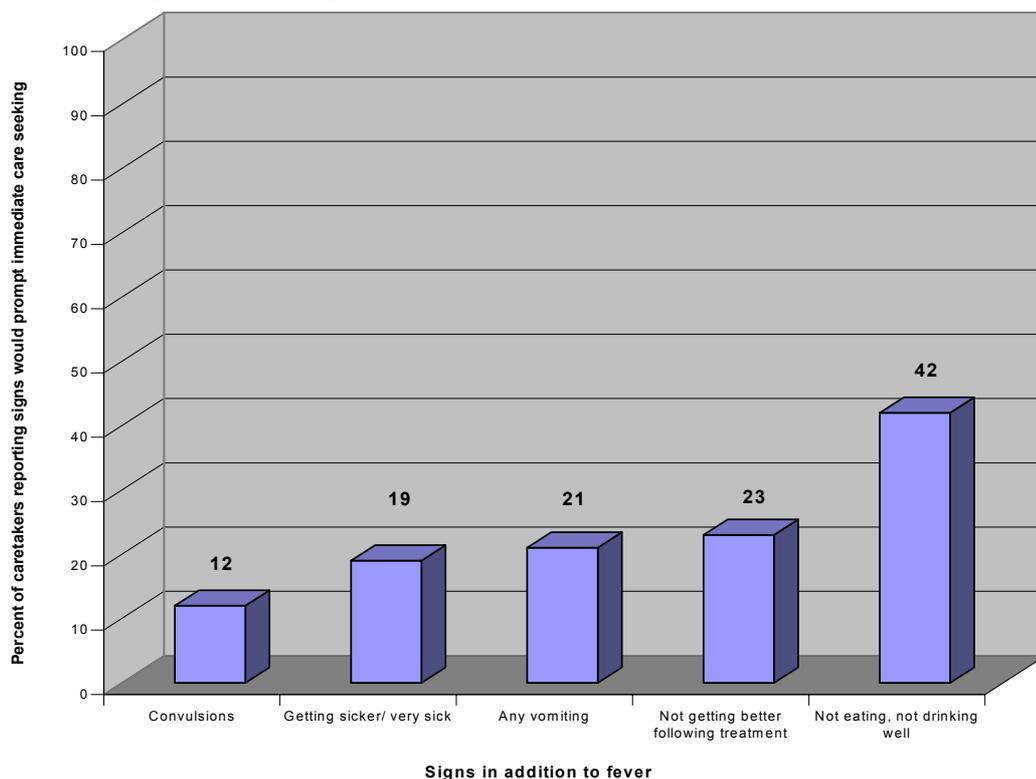
treatment (23%), any vomiting (21%), and the child getting sicker/very sick (19%). In sum, women reported that general danger signs, occurring with fever, would prompt immediate care-seeking. This line of questioning was intended to elicit information on serious febrile illness. Knowledge on signs of serious febrile illness appears low, as only 12% of women reported convulsions as a sign that, taken together with fever, would prompt immediate care-seeking.

Figure 4.1: Caretaker's knowledge of fever as a danger sign



Source: BASICS II/Nigeria, ICHCS 2002 Results.

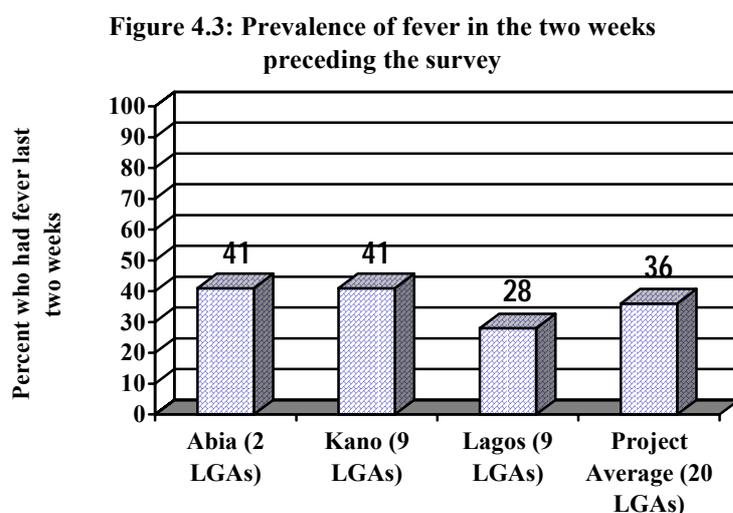
Figure 4.2: Caregiver's knowledge of signs of serious febrile illness



Prevalence and Management of Fever

Knowledge of when to seek care is an important precursor for correct action. However, a mother's ability to provide timely and appropriate treatment for her child with malaria depends on other factors, including access to care and quality of counseling and care received.

To examine patterns of malaria treatment, the ICHCS first asked about the occurrence of fever in the children surveyed in the two weeks prior to the survey. As shown in Figure 4.3, on average, more than one-third of children experienced an episode of fever in the two weeks before the survey. In Lagos, 28% of children were reported by caretakers to have an episode of fever in the prior two weeks, compared to 41% in both Kano and Abia project sites.



Source: BASICS II/Nigeria, ICHCS 2002 Results.

Nearly 85% of children with fever were given some drug for the child's fever. The proportion receiving some type of drug treatment ranged from 79% in Kano to 90% in Abia, with Lagos reporting 88%.

Unfortunately, high levels of drug treatment for childhood fever does not correspond to effective treatment. We asked about the types of medication given to children who had fever two weeks before the survey. The Nigeria MOH policy recommends chloroquine as the first-line drug for the treatment of fever.

The results presented in Table 4.1 indicates that a little over one in three children with fever (37%) two weeks before the survey received chloroquine either as the only drug or in combination with panadol or paracetamol. The percent of children receiving chloroquine, either alone or in combination, ranged from 26% in Abia to 44% in Lagos. One in four children (26%) were treated with panadol, paracetamol, or aspirin only.

The use of antipyretics alone and/or "other" drugs for the treatment of fever is high, accounting for over 40% of children who received medication. The large number of children

receiving inappropriate medication suggests that there is an opportunity for interventions that address home-based management of illness to have a strong impact.

Table 4.1: Type of medicine received for fever

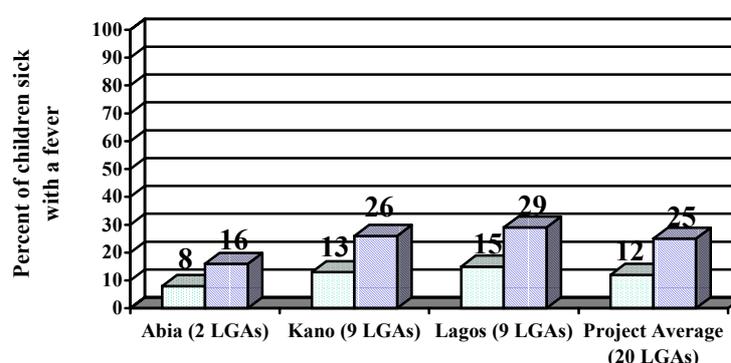
Type of medicine given	Abia	Kano	Lagos	Average
Chloroquine only	11%	24%	18%	19%
Chloroquine and paracetamol	15%	15%	26%	18%
Panadol/paracetamol/aspirin	35%	27%	19%	26%
Other	20%	12%	20%	16%
Don't know/missing	20%	22%	18%	20%
Total	100%	100%	100%	100%
Number of children 0–23 months	228	449	307	984

Note: State-level figures are not representative of the entire state but are limited to BASICS-supported LGAs within that state. The project area average is a simple weighted average based on the number of respondents in the combined project sites in each of the three states.

Timeliness of Care

In support of the FMOH policy, one of the key messages promoted by BASICS II/Nigeria's community-based program is that children who are sick with fever should receive chloroquine within 24 hours of onset of illness. To assess the extent to which mothers are adhering to this advice, ICHCS collected information on time elapsed from when fever was noticed to when chloroquine was taken among children who had fever during the two weeks before the survey. Figure 4.4 shows that, on average, 12% of children received chloroquine within the first 24 hours (defined in the survey as the same day of fever onset). The proportion of children with fever who received chloroquine the next day or later was 25%, on average. An overriding concern is that 88% of children with fever either did not receive an anti-malarial or received it later than 24 hours after onset of fever. This clearly demonstrates a need to improve the home-based management of fever in the survey areas.

Figure 4.4: Time elapsed between fever onset and time that chloroquine was taken

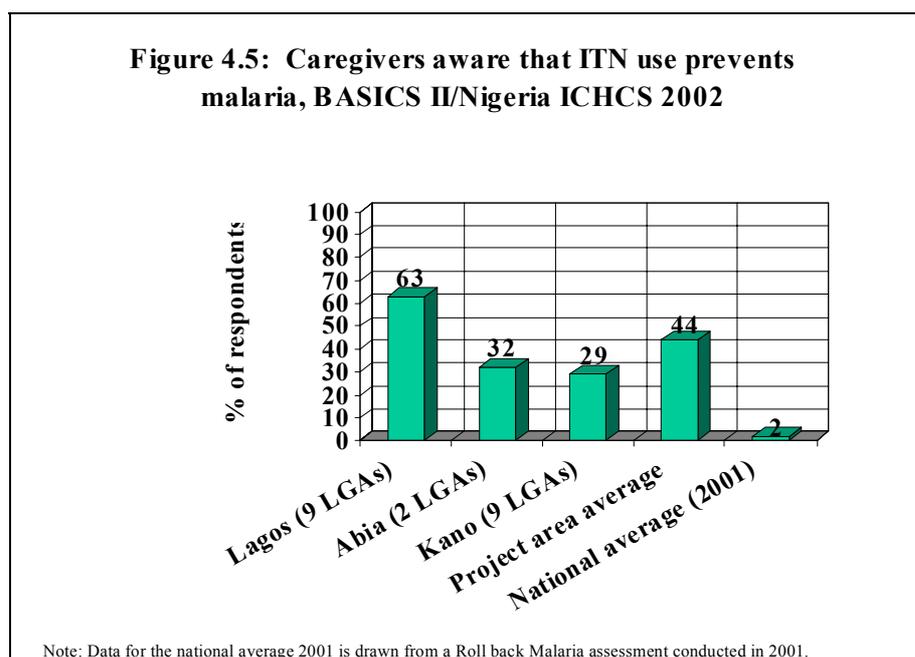


Same day
 Next day or later

Source: BASICS II/Nigeria, ICHCS 2002 Results.

Awareness and Use of Insecticide-treated Mosquito Nets

The finding presented in Figure 4.5 below indicates that less than half of the caregivers (44%) in target areas are aware that sleeping under ITNs can prevent malaria. Although there is considerable room for improvement, knowledge of the malaria-preventing benefits of ITNs is much greater in BASICS II focus areas than among the entire population of Nigeria. In 2001, a situation analysis conducted by RBM found that only 2% of the total population reported any knowledge of the benefits of ITNs (RBM Situation Analysis Report, 2001). These data serve as a baseline for BASICS II/Nigeria to measure progress in awareness of ITN use for children in the project area.



The survey also examined the use of ITNs among children less than two years of age in surveyed households. Of 2,755 children studied in Abia, Kano, and Lagos States, only 6% slept under an ITN the night before the survey. The percentage of children who slept under ITNs ranged from 1% in Abia and Kano to 12% in Lagos State.

5. RECOMMENDATIONS

The study offers a number of lessons that can be applied to refine the program and maximize the potential for improved performance in the short term. These recommendations are presented below by technical focus areas.

Nutrition

Although nutrition activities are at different levels of progress in the three BASICS II-focal states, a number of lessons have been learned as revealed by the ICHCS and as highlighted below:

Health Services/System Component of Essential Nutrition Actions

The improvements in awareness and prevalence of ACF, including EBF, may be linked to the orientation conducted for health workers and nutrition support staff. The BASICS II nutrition curriculum (1) exposes health workers to information on the nutritional, immunological, and economical benefits of ACF, including EBF, and (2) improves health workers' skills and enhances their ability to integrate nutrition objectives into their services. This intervention should continue and be expanded to reach private health providers who can influence the breastfeeding practices of their clients.

Community-based Component of Essential Nutrition Actions

The CAPA process/approach so far has been responsive and practical as more traditional birth attendants (TBAs) have actually been mobilized to become CHPs in their various settlements. These TBAs and grandmothers are now in agreement with promotion of EBF and ACF. This may indicate that the community is ready to comply with the infant feeding plan that provides guidelines on the importance of infant and child age-specific feeding. However, the EBF knowledge and practices could have increased even more if community-based/CBC materials were ready before the facilitation of CAPA process meetings and the training of CHPs in most cases. Monitoring and assessment of CHPs and CAPACs will help identify key areas for strengthening the skills and the strategies to deliver appropriate health messages to child caregivers. Renewed emphasis will be placed on the CHP to enhance her communication and counseling skills through on-the-job training.

Immunization

The findings presented in this paper suggested that of the three focus states, a significant decline in immunization coverage (DPT3) was observed in Lagos. However, study data revealed that considerable progress was made toward strengthening routine immunization systems in BASICS II target states. For example, immunization records are better kept today than they were two years ago. In addition, while immunization coverage rates are lower in Lagos State today than they were two years ago, BASICS II-supported LGAs are performing much better than are non-BASICS II-assisted areas.

The study team recommends that:

- Vaccine availability should be taken seriously, and possible final solutions should be worked out at the highest level. USAID together with other partners should raise this issue of unavailable vaccines at the highest program, technical, and political levels.
- Unavailability of immunization cards should be brought to the attention of NPI partners in order to strengthen and sustain the supply of cards.

Malaria Treatment and Prevention

Treatment of Children with Fever

Study findings indicate that the program needs to focus on improving caregivers' knowledge and practice for early treatment and prevention of malaria. For instance, almost one-third of the survey women were not able to recognize two or more signs of illness, which, in association with fever, require prompt care-seeking. Although a large number of children with fever received medication, a majority did not receive any anti-malarial. Many who did, did not receive treatment within the target of 24 hours. Delays in treatment provide opportunity for simple illnesses to become severe. BASICS II needs to intensify community-based education of women on prompt treatment of illnesses in their children.

Other community interventions that will improve access of mothers to good quality home-based care should be explored. Currently, BASICS II is conducting an operations research study to improve prescribing and counseling skills of patent medicine dealers. When completed, this research should yield insights that should strengthen home management of fever, thus improving access of vulnerable populations to high-quality care. The MOH should explore similar strategies and opportunities to improve home-based management of fever in the country.

Awareness and Use of Insecticide-treated Mosquito Nets

A good proportion of women studied (44%) reported knowing that ITNs prevent malaria. This is a significant improvement on the 2% who expressed awareness of the preventive qualities of ITNs a year ago. A surprising finding was that 50% of the children in the survey had bednets, of which 40% slept under a bednet the previous night. This rather positive sign is offset by the fact that only 6% of the surveyed children slept under a treated net (an ITN) the night before the survey. BASICS II must work with its partners to improve knowledge about the effectiveness of ITNs and, in particular, how much more effective they are than an unimpregnated net.

There is need for the malaria control program of the MOH to improve both the awareness and use of preventive strategies (e.g., community-based interventions to promote healthy childcare practices, including the communication of malaria prevention messages). Access to

ITNs (distance to source and price) for vulnerable populations (particularly children less than five years of age) should be improved. If access improves, many more of those who are aware that ITNs prevent malaria might be able to use them. Innovative methods for promoting individual and community-based re-treatment of bednets should also be explored.

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ANNEXES

ANNEX A

**BASICS II/NIGERIA
INTEGRATED CHILD HEALTH CLUSTER SURVEY 2002**

QUESTIONNAIRE

STATE CODE **

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QUESTIONNAIRE
NUMBER (FOR USE BY
DATA ENTRY PERSONNEL)

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IDENTIFICATION																
LOCALITY _____	<table border="1"><tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr></table>															
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EA NUMBER.....																
HOUSE ADDRESS																
URBAN/RURAL (URBAN=1, RURAL=2)																
NAME OF WOMAN _____																
DATE OF INTERVIEW: _____																

SUPERVISOR	FIELD EDITOR	OFFICE EDITOR	KEYED BY
NAME _____ <table border="1" style="display: inline-table; width: 40px; height: 20px; vertical-align: middle;"></table>	NAME _____ <table border="1" style="display: inline-table; width: 40px; height: 20px; vertical-align: middle;"></table>	<table border="1" style="display: inline-table; width: 40px; height: 20px; vertical-align: middle;"></table>	<table border="1" style="display: inline-table; width: 40px; height: 20px; vertical-align: middle;"></table>
DATE _____	DATE _____		

INTRODUCTION AND CONSENT

INFORMED CONSENT
<p>Hello. My name is _____ and I am working with the BASICS Project. We are conducting a survey about the health of children. We would very much appreciate your participation in this survey. I would like to ask you about your health (and the health of your children). This information will help BASICS and the Ministry of Health to plan health services. The survey usually takes between 20 to 30 minutes to complete. Whatever information you provide will be kept strictly confidential and will not be shown to other persons.</p> <p>Participation in this survey is voluntary and you can choose not to answer any individual question or all of the questions. However, we hope that you will participate fully in this survey since your views are important.¹</p> <p>At this time, do you want to ask me anything about the survey? May I begin the interview now?</p> <p>Signature of interviewer: _____ Date: _____</p>
<p>RESPONDENT AGREES TO BE INTERVIEWED 1 RESPONDENT DOES NOT AGREE TO BE INTERVIEWED 2 →END CONTINUE ↓</p>

** ABIA = AB 01
 KANO = KN 02
 LAGOS = LA 03

@@ Numbering of questionnaires: Kano 0001-10000
 Abia 2000-3000
 Lagos 4000-5000

Note: This questionnaire is an adaptation of the MEASURE DHS+ questionnaire

SECTION 1. RESPONDENT'S BACKGROUND

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
101	RECORD THE TIME.	HOUR <input type="text"/> <input type="text"/> MINUTES <input type="text"/> <input type="text"/>	
102	In what month and year were you born?	MONTH <input type="text"/> <input type="text"/> DON'T KNOW MONTH 98 YEAR..... <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> DON'T KNOW YEAR..... 9998	
103	How old were you at your last birthday? COMPARE AND CORRECT 102 AND/OR 103 IF INCONSISTENT.	AGE IN COMPLETED YEARS <input type="text"/> <input type="text"/>	
104	Have you ever attended school?	YES 1 NO 2	— 206
105	What is the highest level of school you attended: primary, secondary, or higher?	KORANIC SCHOOL1 PRIMARY SCHOOL 2 JUNIOR SECONDARY (JSS)..... 3 SENIOR SECONDARY (SSS)..... 4 SECONDARY SCHOOL (WAEC)5 POST SECONDARY 6	
106	What is the highest (grade/form/year) you completed at that level?	GRADE/FORM/YEAR..... <input type="text"/> <input type="text"/>	

SECTION 2: REPRODUCTION

Now I would like to record the names of all your births in the past 3 years, starting with the last one you had. These are the births that you have had since December 2000.

RECORD NAMES OF ALL THE BIRTHS IN COLUMN 206. RECORD TWINS AND TRIPLETS IN SEPARATE ROWS.

206	207	208	209	210 IF ALIVE:	
What name was given to your (last/next) baby? (NAME)	Is (NAME) a boy or a girl? CIRCLE CORRECT ANSWER	In what month and year was (NAME) born? PROBE: What is his/her birthday? OR: In what season/around what significant event was he/she born?	Is (NAME) still alive? CIRCLE CORRECT ANSWER	How old was (NAME) at his/her last birthday? RECORD AGE IN COMPLETED MONTHS.	
01 _____ (NAME)	BOY 1 GIRL..... 2	MONTH..... <input type="text"/> <input type="text"/> YEAR <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	YES 1 NO 2 (NEXT BIRTH) <input type="text"/>	AGE IN MONTHS <input type="text"/> <input type="text"/>	
02 _____ (NAME)	BOY 1 GIRL..... 2	MONTH..... <input type="text"/> <input type="text"/> YEAR <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	YES 1 NO 2 (NEXT BIRTH) <input type="text"/>	AGE IN MONTHS <input type="text"/> <input type="text"/>	
03 _____ (NAME)	BOY 1 GIRL..... 2	MONTH..... <input type="text"/> <input type="text"/> YEAR <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	YES 1 NO 2 (NEXT BIRTH) <input type="text"/>	AGE IN MONTHS <input type="text"/> <input type="text"/>	
211	Check 208. Enter the total number of births <input type="text"/> NUMBER ALIVE ()				

SECTION 3. BREASTFEEDING

PLEASE READ THESE IMPORTANT INSTRUCTIONS

ENTER IN THE TABLE THE LINE NUMBER AND THE NAME OF YOUR BIRTHS WITHIN THE LAST 2 YEARS.

IF THERE ARE MORE THAN 2 BIRTHS, USE THE LAST COLUMN OF AN ADDITIONAL QUESTIONNAIRE.

PLEASE REMEMBER TO WRITE THE NAME OF EACH BIRTH AT THE TOP OF THE CORRESPONDING COLUMN ON THE FOLLOWING PAGES.

BEGIN WITH THIS STATEMENT:
Now I would like to ask you some questions about the health of your youngest child who is under 2 years. We will talk about each separately, starting with the youngest.

301	LINE NUMBER FROM Q 206	LAST BIRTH LINE NUMBER <input type="text"/>		
302	FROM Q. 206 AND Q. 209	NAME _____		

303	Did you ever breastfeed (NAME)?	YES..... 1 NO 2 (SKIP TO 305) _____ DON'T KNOW/..... 8 CAN'T REMEMBER																																				
304	How long after giving birth did you first put (NAME) to the breast?	WITHIN THE FIRST HOUR..... 1 1 TO 8 HOURS..... 2 9 TO 24 HOURS3 MORE THAN 24 HOURS..... 4 DON'T KNOW/ CAN'T REMEMBER 8																																				
305	Within the first three days after delivery, was (NAME) given anything to eat or drink [including water] other than breast milk?	YES.....1 NO..... 2 (SKIP TO 307) _____ DON'T KNOW/ CAN'T REMEMBER 8																																				
306	What was (NAME) given to eat or drink in the first three days. PROBE Anything else? READ THE LIST AND CIRCLE ALL OF THE CORRECT RESPONSES GIVEN	<table border="0"> <tr> <td></td> <td>YES</td> <td>NO</td> </tr> <tr> <td>INFANT FORMULA</td> <td>1</td> <td>2</td> </tr> <tr> <td>OTHER MILK (e.g peak milk)1</td> <td>2</td> <td></td> </tr> <tr> <td>PLAIN WATER.....</td> <td>1</td> <td>2</td> </tr> <tr> <td>SUGAR/GLUCOSE</td> <td></td> <td></td> </tr> <tr> <td>WATER.....</td> <td>1</td> <td>2</td> </tr> <tr> <td>GRIPE WATER.....</td> <td>1</td> <td>2</td> </tr> <tr> <td>OIL.....</td> <td>1</td> <td>2</td> </tr> <tr> <td>FRUIT JUICE</td> <td>1</td> <td>2</td> </tr> <tr> <td>TEA/INFUSIONS.....</td> <td>1</td> <td>2</td> </tr> <tr> <td>HONEY.....</td> <td>1</td> <td>2</td> </tr> <tr> <td>OTHER.....</td> <td>1</td> <td>2</td> </tr> </table> (SPECIFY)		YES	NO	INFANT FORMULA	1	2	OTHER MILK (e.g peak milk)1	2		PLAIN WATER.....	1	2	SUGAR/GLUCOSE			WATER.....	1	2	GRIPE WATER.....	1	2	OIL.....	1	2	FRUIT JUICE	1	2	TEA/INFUSIONS.....	1	2	HONEY.....	1	2	OTHER.....	1	2
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HONEY.....	1	2																																				
OTHER.....	1	2																																				
307	CHECK 302: IS CHILD LIVING?	LIVING <input type="checkbox"/> DEAD <input type="checkbox"/> (SKIP TO 400)																																				
308	Are you still breastfeeding (NAME)?	YES..... 1 NO 2																																				

309	<p>What was (NAME) given to eat or drink in the last 24 hours?</p> <p>PROBE</p> <p>Anything else?</p> <p>READ THE LIST AND CIRCLE ALL OF THE RESPONSES GIVEN</p>	<table> <thead> <tr> <th></th> <th>YES</th> <th>NO</th> </tr> </thead> <tbody> <tr> <td>BREAST MILK ONLY</td> <td>1</td> <td>2</td> </tr> <tr> <td>INFANT FORMULA</td> <td>1</td> <td>2</td> </tr> <tr> <td>OTHER MILK (e.g peak milk)1</td> <td>2</td> <td></td> </tr> <tr> <td>PLAIN WATER.....</td> <td>1</td> <td>2</td> </tr> <tr> <td>SUGAR/GLUCOSE WATER.....</td> <td>1</td> <td>2</td> </tr> <tr> <td>GRUPE WATER.....</td> <td>1</td> <td>2</td> </tr> <tr> <td>OIL.....</td> <td>1</td> <td>2</td> </tr> <tr> <td>FRUIT JUICE</td> <td>1</td> <td>2</td> </tr> <tr> <td>TEA/INFUSIONS.</td> <td>1</td> <td>2</td> </tr> <tr> <td>HONEY.....</td> <td>1</td> <td>2</td> </tr> <tr> <td>PAP/CEREALS</td> <td>1</td> <td>2</td> </tr> <tr> <td>SOLIDS (Yam, Rice etc.) ...</td> <td>1</td> <td>2</td> </tr> <tr> <td>OTHER</td> <td>1</td> <td>2</td> </tr> </tbody> </table> <p>(SPECIFY)</p>		YES	NO	BREAST MILK ONLY	1	2	INFANT FORMULA	1	2	OTHER MILK (e.g peak milk)1	2		PLAIN WATER.....	1	2	SUGAR/GLUCOSE WATER.....	1	2	GRUPE WATER.....	1	2	OIL.....	1	2	FRUIT JUICE	1	2	TEA/INFUSIONS.	1	2	HONEY.....	1	2	PAP/CEREALS	1	2	SOLIDS (Yam, Rice etc.) ...	1	2	OTHER	1	2	
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310	<p>Have you ever heard of the expression "exclusive" breastfeeding?</p>	<p>YES.....1</p> <p>NO..... 2</p> <p>(SKIP TO 400) _____</p> <p>DON'T KNOW/ CAN'T REMEMBER 8</p>																																											
311	<p>What does exclusive breastfeeding mean?</p>	<p>Giving breast milk only (no water) for first 6 months.....1</p> <p>breasfeeding only2</p> <p>breastfeed regularly3</p> <p>give breast milk4</p> <p>Other (specify)5</p> <p>Don't know98</p>																																											
312	<p>During the past twelve months, did you encourage or persuade someone to practice exclusive breastfeeding?</p>	<p>Yes1</p> <p>No.....2</p> <p>Don't know/can't remember.....8</p>																																											

SECTION 4. VACCINATION AND VITAMIN A

<p align="center"><u>PLEASE READ THESE IMPORTANT INSTRUCTIONS</u></p> <p>ENTER THE NAME CHILDREN WHO ARE UNDER 2 YEARS AND ARE ALIVE AT THE TIME OF SURVEY.</p> <p>BEGIN WITH THIS STATEMENT: I would now like to ask you questions about the vaccination history of your children less than 2 years old, starting with the youngest.</p>				
400	CHECK Q. 206 AND RECORD THE NAME UNDER 2 YEARS IN Q. 400	LAST CHILD NAME _____	NEXT-TO-LAST CHILD NAME _____	
401	LINE NUMBER OF LIVING CHILDREN FROM Q 206	LINE NUMBER <input type="checkbox"/> <input type="checkbox"/>	LINE NUMBER <input type="checkbox"/> <input type="checkbox"/>	
402	Did (NAME) ever receive a vitamin A dose like this? SHOW RED AND BLUE VITAMIN A CAPSULE S	YES 1 NO 2 (SKIP TO 405) _____ DON'T KNOW 8	YES 1 NO 2 (SKIP TO 405) _____ DON'T KNOW 8	
403	How long ago did (NAME) receive his/her last dose of vitamin A?	LESS THAN 4 WEEKS AGO 1 1-5 MONTHS 2 6 OR MORE MONTHS AGO 3 DON'T KNOW 8	LESS THAN 4 WEEKS AGO 1 1-5 MONTHS 2 6 OR MORE MONTHS AGO 3 DON'T KNOW 8	
404	Where did (NAME) receive his/her last dose of vitamin A? READ OPTIONS OUT ALOUD	PHC/HC 1 2 OUTREACH 1 2 HOME DURING NID 1 2 SCHOOL DURING NID 1 2 PHARMACIES 1 2 CHEMISTS/PMVS 1 2 PRIVATE HLTH FACILITY 1 2 OTHER _____ 96 (SPECIFY) CAN'T REMEMBER 98	PHC/HC 1 2 OUTREACH 1 2 HOME DURING NID 1 2 SCHOOL DURING NID 1 2 PHARMACIES 1 2 CHEMISTS/PMVS 1 2 PRIVATE HLTH FACILITY 1 2 OTHER _____ 96 (SPECIFY) CAN'T REMEMBER 98	
405	Do you have a card where (NAME'S) vaccinations are written down? IF YES: May I see it please?	YES, SEEN 1 (SKIP TO 407) _____ YES, NOT SEEN 2 (SKIP TO 409) _____ NO CARD 3 (SKIP TO 409) _____	YES, SEEN 1 (SKIP TO 407) _____ YES, NOT SEEN 2 (SKIP TO 409) _____ NO CARD 3 (SKIP TO 409) _____	

PHC = PRIMARY HEALTH CARE CENTRE
 NID = NATIONAL IMMUNIZATION DAYS
 PMVs = PATENT MEDICINE VENDORS

PLEASE READ THESE IMPORTANT INSTRUCTIONS BEFORE FILLING IN Q407

- (1) ENTER THE NAME, OF EACH BIRTH UNDER AGE 2 AT THE TOP OF EACH COLUMN ON THE FOLLOWING PAGES.
- (2) COPY THE VACCINATION DATE FOR EACH VACCINE FROM THE CARD AND RECORD IT IN THE APPROPRIATE COLUMN.
- (3) RECORD EACH YEAR IN FOUR DIGITS.
- (4) WRITE '44' IN 'DAY' COLUMN IF CARD SHOWS THAT A VACCINATION WAS GIVEN, BUT NO DATE IS RECORDED.
- (5) ASK THE RESPONDANT WHERE (NAME) RECEIVED THE IMMUNIZATION AND RECORD IT IN THE RELEVANT BOX IN THE LAST COLUMN TITLED 'SRCE' USING THE FOLLOWING CODES:

SOURCE:

- PHC/HC.....1
- OUTREACH.....2
- PRIVATE HEALTH FACILITY.....3
- DURING NATIONAL IMMUNIZATION DAY (NID).....4
- DON'T KNOW.....8

- (6) FOLLOW THE INSTRUCTIONS IN Q408 TO PROBE FOR VACCINES MISSING FROM THE CARD AND FOLLOW THE *INSTRUCTIONS WHEN FILLING IN THE TABLE IN Q407.*

		LAST CHILD NAME _____	NEXT-TO-LAST CHILD NAME _____																																																																																																																									
407	BCG POLIO 0 (AT BIRTH) POLIO 1 POLIO 2 POLIO 3 DPT 1 DPT 2 DPT 3 MEASLES VITAMIN A (MOST RECENT) YELLOW FEVER (YF)	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>DAY</th> <th>MO.</th> <th>YEAR</th> <th>SRCE</th> </tr> </thead> <tbody> <tr><td>B</td><td></td><td></td><td></td><td></td></tr> <tr><td>P0</td><td></td><td></td><td></td><td></td></tr> <tr><td>P1</td><td></td><td></td><td></td><td></td></tr> <tr><td>P2</td><td></td><td></td><td></td><td></td></tr> <tr><td>P3</td><td></td><td></td><td></td><td></td></tr> <tr><td>D1</td><td></td><td></td><td></td><td></td></tr> <tr><td>D2</td><td></td><td></td><td></td><td></td></tr> <tr><td>D3</td><td></td><td></td><td></td><td></td></tr> <tr><td>ME</td><td></td><td></td><td></td><td></td></tr> <tr><td>VIT</td><td></td><td></td><td></td><td></td></tr> <tr><td>YF</td><td></td><td></td><td></td><td></td></tr> </tbody> </table>		DAY	MO.	YEAR	SRCE	B					P0					P1					P2					P3					D1					D2					D3					ME					VIT					YF					<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>DAY</th> <th>MO.</th> <th>YEAR</th> <th>SRCE</th> </tr> </thead> <tbody> <tr><td>B</td><td></td><td></td><td></td><td></td></tr> <tr><td>P0</td><td></td><td></td><td></td><td></td></tr> <tr><td>P1</td><td></td><td></td><td></td><td></td></tr> <tr><td>P2</td><td></td><td></td><td></td><td></td></tr> <tr><td>P3</td><td></td><td></td><td></td><td></td></tr> <tr><td>D1</td><td></td><td></td><td></td><td></td></tr> <tr><td>D2</td><td></td><td></td><td></td><td></td></tr> <tr><td>D3</td><td></td><td></td><td></td><td></td></tr> <tr><td>ME</td><td></td><td></td><td></td><td></td></tr> <tr><td>VIT</td><td></td><td></td><td></td><td></td></tr> <tr><td>YF</td><td></td><td></td><td></td><td></td></tr> </tbody> </table>		DAY	MO.	YEAR	SRCE	B					P0					P1					P2					P3					D1					D2					D3					ME					VIT					YF					
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408	Has (NAME) received any vaccinations that are not recorded on this card, including vaccinations received in a national immunization day campaign? RECORD 'YES' ONLY IF RESPONDENT MENTIONS ANY OF THE FOLLOWING VACCINES ³ BCG, POLIO 0-3, DPT 1-3, MEASLES	YES.....1 (PROBE FOR ANY MISSING VACCINATIONS AND WRITE '66' IN CORRESPONDING DAY COLUMN IN 407) _____ (THEN SKIP TO 417) _____ NO2 (SKIP TO 417) _____ DON'T KNOW.....8	YES1 (PROBE FOR ANY MISSING VACCINATIONS AND WRITE '66' IN CORRESPONDING DAY COLUMN IN 407) _____ (THEN SKIP TO 417) _____ NO2 (SKIP TO 417) _____ _____ DON'T KNOW 8																																																																																																																									

		LAST CHILD NAME _____	NEXT-TO-LAST CHILD NAME _____	
409	Did (NAME) ever receive any vaccinations to prevent him/her from getting diseases? (THIS SHOULD INCLUDE VACCINATIONS RECEIVED DURING NATIONAL IMMUNIZATION DAYS)	YES..... 1 NO..... 2 (SKIP TO 501) _____ DON'T KNOW..... 8	YES..... 1 NO..... 2 (SKIP TO 501) _____ DON'T KNOW..... 8	
410	Did (NAME) ever receive a BCG vaccination against tuberculosis, that is, an injection in the arm that usually causes a scar? ¹	YES..... 1 NO..... 2 (SKIP TO 412) _____ DON'T KNOW..... 8	YES..... 1 NO..... 2 (SKIP TO 412) _____ DON'T KNOW..... 8	
411	Did (NAME) ever receive a polio vaccine, that is, drops in the mouth?	YES..... 1 NO..... 2 (SKIP TO 414) _____ DON'T KNOW..... 8	YES..... 1 NO..... 2 (SKIP TO 414) _____ DON'T KNOW..... 8	
412	When was the first polio vaccine received, just after birth or later?	JUST AFTER BIRTH..... 1 LATER 2	JUST AFTER BIRTH..... 1 LATER 2	
413	How many times was the polio vaccine received?	NUMBER OF TIMES..... <input type="text"/>	NUMBER OF TIMES..... <input type="text"/>	
414	Did (NAME) ever receive a DPT vaccination, that is, an injection usually given in the thigh, sometimes at the same time as polio drops? ¹	YES..... 1 NO..... 2 (SKIP TO 416) _____ DON'T KNOW..... 8	YES..... 1 NO..... 2 (SKIP TO 416) _____ DON'T KNOW..... 8	
415	How many times?	NUMBER OF TIMES..... <input type="text"/>	NUMBER OF TIMES..... <input type="text"/>	
416	Did (NAME) ever receive an injection to prevent measles?	YES..... 1 NO..... 2 DON'T KNOW..... 8	YES..... 1 NO..... 2 DON'T KNOW..... 8	
417	IF THE CHILD RECEIVED BCG EITHER BY CARD OR BY MOTHER'S RECALL, CHECK FOR THE APPEARANCE OF A SCAR ON THE UPPER ARM OF THE CHILD.	SCAR SEEN 1 SCAR NOT SEEN 2 CHILD NOT AVAILABLE 3	SCAR SEEN 1 SCAR NOT SEEN 2 CHILD NOT AVAILABLE 3	

SECTION 5. CHILDHOOD ILLNESS

		LAST CHILD NAME _____	NEXT-TO-LAST CHILD NAME _____	
I would now like to ask you some questions about the health of (name) during the past 2 weeks.				
501	Has (NAME) been ill with a fever at any time in the last 2 weeks?	YES.....1 NO.....2 (SKIP TO 503) _____ DON'T KNOW8	YES1 NO2 (SKIP TO 503) _____ DON'T KNOW8	
502 A	Were any drugs or prescriptions for drugs given to (NAME) to treat the fever?	YES.....1 NO.....2 (SKIP TO 503) _____ DON'T KNOW8	YES1 NO2 (SKIP TO 503) _____ DON'T KNOW8	
502B	Which drugs were given to (NAME) ? ¹ ASK TO SEE DRUG (S). IF NOT SEEN, SHOW TYPICAL ANTIMALARIAL DRUGS TO RESPONDENT. FOR EACH ANTIMALARIAL DRUG: How long after you noticed the fever did (NAME) take the drug? DAY CODES: SAME DAY = 0 *** NEXT DAY = 1 TWO DAYS = 2 THREE OR MORE DAYS=3 NOT RECEIVED = 4 DON'T KNOW=8	ANTIMALARIAL DAY CODE CHLOROQUINE.....A <input type="checkbox"/> FANSIDAR.....B <input type="checkbox"/> AMODIAQUINE.....C <input type="checkbox"/> QUININED <input type="checkbox"/> ASPIRIN.....E <input type="checkbox"/> PANADOL/PARACETAMOL ..F <input type="checkbox"/> OTHER _____ X <input type="checkbox"/> (SPECIFY)	ANTIMALARIAL DAY CODE CHLOROQUINE.....A <input type="checkbox"/> FANSIDAR.....B <input type="checkbox"/> AMODIAQUINE.....C <input type="checkbox"/> QUININED <input type="checkbox"/> ASPIRINE <input type="checkbox"/> PANADOL/PARACETAMOL ..F <input type="checkbox"/> OTHER _____ X <input type="checkbox"/> (SPECIFY)	
503	Do you have any mosquito net in your household?	YES.....1 NO2 (SKIP TO 508) _____	YES1 NO2 (SKIP TO 508) _____	
504	Did (NAME) sleep under a mosquito net last night?	YES.....1 NO2 (SKIP TO 508) _____ DON'T KNOW8	YES1 NO2 (SKIP TO 508) _____ DON'T KNOW8	
505	How long ago was the mosquito net , that (NAME) slept under last night, bought or obtained? WRITE THE ANSWERS IN MONTHS (LESS THAN 1 MONTH=00) IF MORE THAN 7 YEARS, RECORD '95'. IF DON'T KNOW, RECORD '98'	MONTHS AGO <input type="text"/> <input type="text"/>	MONTHS AGO <input type="text"/> <input type="text"/>	

		LAST CHIILD NAME _____	NEXT-TO-LAST CHILD NAME _____	
506	Since you got the mosquito net, that (NAME) slept under last night, was it ever treated with insecticide to repel mosquitoes or bugs?	YES..... 1 NO 2 (SKIP TO 508) _____ DON'T KNOW..... 8	YES 1 NO 2 (SKIP TO 508) _____ DON'T KNOW 8	
507	How long ago was the mosquito net, that (NAME) slept under last night, last treated with insecticide? WRITE THE ANSWERS IN MONTHS (LESS THAN 1 MONTH=00) IF DON'T KNOW, RECORD '98'	MONTHS AGO <input type="text"/> <input type="text"/>	MONTHS AGO <input type="text"/> <input type="text"/>	

N ^o .	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP				
508	Are you aware that the use of insecticide treated mosquito nets can prevent malaria	YES NO					
509	When a child under 2 years of age is sick, what signs of illness would tell you that he/she should be taken to a health facility or health worker? Any other signs? DO NOT READ THE ANSWERS OUT LOUD. RECORD ALL MENTIONED.	REPEATED WATERY STOOLS.....A ANY WATERY STOOLSB REPEATED VOMITING.....C ANY VOMITING.....D BLOOD IN STOOLSE FAST BREATHING.....F DIFFICULT BREATHINGG NOISY BREATHING.....H COUGHI FEVER/HIGH TEMPERATURE.....J CONVULSIONS.....K STIFF NECK.....L MARKED THIRSTM UNABLE TO DRINKN NOT EATING/NOT DRINKING WELL.....O GETTING SICKER/VERY SICKP NOT GETTING BETTER.....Q SICK FOR A LONG TIME.....R SUNKEN EYESS OTHER _____ X (SPECIFY) DON'T KNOW Z					
510	When a child under 2 years of age is sick with FEVER, what signs would tell you that he/she requires immediate care at a health facility or by a nurse/doctor? Any other signs? DO NOT READ THE ANSWERS OUT LOUD. RECORD ALL MENTIONED.	ANY VOMITING.....A DIFFICULT BREATHINGB NOISY BREATHING.....C CONVULSIONS.....D NOT EATING/NOT DRINKING WELL.....E GETTING SICKER/VERY SICKF NOT GETTING BETTER FOLLOWING TREATMENT.....G SUNKEN EYESH PALE EYES, PALE PALMI HIGH TEMPERATUREJ OTHER _____ X (SPECIFY) DON'T KNOW Z					
511	When (your child/one of your children) is seriously ill, can you decide by yourself whether or not the child should be taken for medical treatment?	YES 1 NO 2 IT DEPENDS _____ 3 (SPECIFY)					
512	Are you aware that it is important for children 6-59 months to receive Vit A?	YES 1 NO 2 DON'T KNOW 8					
513	If YES, how important is it	VERY Important 1 IMPORTANT..... 2 NOT IMPORTANT..... 3 DON'T KNOW 4					
600	RECORD THE TIME INTERVIEW WAS COMPLETED	HOUR MINUTES.....	<table border="1" style="width: 40px; height: 40px; margin-left: auto; margin-right: auto;"> <tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr> <tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr> </table>				

ANNEX B

HEALTH FACILITY REGISTER QUALITY ASSESSMENT CHECKLIST

Name of Health Facility: _____

State: _____ **LGA:** _____

Date of visit: _____

1. Is there a standard immunization register in the facility?
(a) Yes (b) No
2. If yes, when was it first put into use? _____
3. If no, when was it if at all put into consistent use? _____
4. Is the entry in the register up to date?
(a) Yes (b) No
5. Is there a method of obtaining a new register before the existing register is full?
(a) Yes (b) No
6. If yes, what method (s)?

7. Is there evidence of submission of Immunization (or NHMIS) data to the LGA for the last quarter?
(a) Yes (b) No

Name of Reporting Officer

Signature of Reporting Officer

ANNEX C

DESCRIPTION OF THE METHODS USED TO COMPARE DATA FROM THE INTEGRATED CHILD HEALTH SURVEY 2000 AND THE INTEGRATED CHILD HEALTH CLUSTER SURVEY 2002

Background

As part of ongoing program monitoring and evaluation, BASICS II/Nigeria conducts household surveys in the 20 local government areas (LGAs) where it supports child health and nutrition activities. Two such household surveys have been conducted. In 2000, the BASICS II Project conducted the Integrated Child Health Survey (ICHS) and in 2002, it conducted the Integrated Child Health Cluster Survey (ICHCS). Each survey was designed to provide valid and reliable data on key child health and nutrition indicators according to the major program strategy. Program strategy evolved during the BASICS II Project consistent with changes in the approach and emphases of USAID/Nigeria. This annex describes the similarities and differences between the two surveys and the methods used to allow comparisons between the two sets of results.

Survey Objectives

ICHS 2000. With the transition from BASICS I to BASICS II, BASICS/Nigeria underwent a series of assessment and strategic planning exercises. Recommendations from two review and planning teams in 1999 pointed to the need to evaluate the likely effect of Community Partners for Health (CPH) through the use of a population-based household survey. In response, the ICHS was designed specifically to assess the effectiveness of the CPH model in bringing about measurable change in the use of child health interventions.

As survey planning was under way (March–June 2000), BASICS II/Nigeria was evolving in response to USAID strategy shifts. As a result, the ICHS, originally planned only for those 10 LGAs where the CPH were active, was expanded to include all 20 LGAs where BASICS II would operate in the coming years. By the end of the design stage, the two primary objectives of the ICHS were to:

- Examine the potential effect of the CPH in bringing about increased use of a range of child health and nutrition behaviors and service use; and
- Provide baseline data for key indicators to evaluate the BASICS II/Nigeria program in 20 LGAs.

With its initial mandate to establish a baseline for the evaluation of the effect of the CPH model, the ICHS targeted women with children under age five years and covered a wide range of child health interventions.

ICHCS 2002. An internal review of BASICS II/Nigeria (September/October 2002) recognized a need to focus resources and recommended a two-pronged approach to produce public health impact. This recommendation provides for increased scope, range, intensity, and duration of interventions (depth) in selected sites and less intense support to all other sites (breadth), in the short term. Selection into the depth project areas was implemented on an LGA-by-LGA basis. Inclusion criteria for the depth areas included: duration of implementation; potential for making complete and measurable investments and obtaining

maximum public health impact in all three technical focus areas (immunization, nutrition, and malaria prevention) before the end of the project.

Based on these criteria, each of the 20 LGAs were classified as either depth or breadth project areas. The ICHCS 2002 was designed specifically to allow measurement of child health and nutrition indicators in the depth versus the breadth areas within each state. The objective of the ICHCS 2002 was to provide data to judge program performance for key child health and nutrition indicators since the ICHS 2000.

Sample Design and Execution

ICHS 2000. The sample design for the ICHS 2000 was intended to evaluate activities from the first phase of the project and to provide baseline measures for a prospective evaluation of subsequent interventions with comparison areas. In order to meet this objective, a sampling strategy was developed to over-sample in the 10 LGAs where BASICS I was active. This procedure was necessary in order to obtain a sufficient number of cases to report on BASICS' performance in those areas. A multi-stage, stratified sample design was developed. The 10 LGAs with BASICS presence were subdivided into two strata: (1) areas within the LGA where BASICS was active (CPH area) and (2) areas within the LGA where BASICS was not active (non-CPH area). The 10 LGAs where BASICS II was slated to begin activities constituted a third and separate strata.

Within each stratum, enumeration areas (Eas) were selected with probability proportional to size. The National Population Commission (NPC) provided EA listings and maps for this purpose. These maps were updated in the field before commencement of the fieldwork. The CPH program area maps were created by sampling patient records at health facilities participating in the CPH program, identifying and plotting patients' residences from the sampled records, and estimating the area of CPH operations corresponding to the mapped area of patients' residences. From within each CPH and non-CPH designated area, 12 EAs were selected using the table of random numbers.

All buildings with households in each of the selected EAs were counted. All households within the EA were subsequently visited and information collected on the head of household and number, age, and gender of persons in the household, including the presence of children less than age five. From the households listed, all eligible households were identified and numbered for the next stage of sample selection. A household was eligible if it had a woman with at least one child less than five years of age at the time of the survey.

At the final stage, 12 eligible households were randomly selected in each EA, resulting in a final sample of 5,184 households in 20 LGAs. An interviewer team revisited those selected households to administer a detailed household and individual questionnaire. In this manner, interviews were conducted with 954 eligible women in Abia having 1,656 children less than age five; 1,890 women with 3,014 children in Kano; and 2,062 women with 2,970 children in Lagos. The total number of eligible women interviewed in the three sites was therefore 4,906 with 7,640 children under the age of five years.

ICHCS 2002. A 30-cluster survey design was utilized for measuring performance indicators in the BASICS project areas. Based on the program implementation plan described above, cluster sample surveys were conducted to represent a) the depth project areas within each state and b) the breadth project areas within each state. In Lagos and Kano states, two cluster

surveys were done, one to represent depth areas and one to represent breadth areas. In Abia, the two LGAs represent depth areas. In total, five cluster sample surveys were conducted.

The sample plan was designed to select the minimum number of respondents to document a 10% increase in performance indicators. Stata software (StataCorp 2000) was used for this purpose. A minimum of 500 children aged 0–23 months was required for each cluster sample, assuming a 20% non-response rate. The sample plan ensured that adequate data were obtained for children 0–5 months, 12–23 months, and 0–23 months in order to calculate exclusive breastfeeding rates, immunization rates, and indicators of malaria prevention and treatment.

Study participants were selected using conventional EPI 30-cluster survey methods. In the first step, 30 census EAs were randomly selected for each of the five samples. Census EAs were selected using a sample interval based on the cumulative population of all of the EAs within each of the five study domains (i.e., with probability proportional to size). The procedure resulted in selection of 30 EAs within each of the five study domains, with each EA representing a cluster.

In each cluster, households were selected starting from a central point in terms of population location. The first household was randomly selected and interviewers then moved in a single direction to the next household, interviewing eligible women in subsequent households. This procedure was used until the required number of respondents was found in each cluster.

A woman was eligible if she was between 15 and 49 years and had at least one child less than two years old. In each household, only one eligible woman was identified and interviewed. In buildings with multiple households, the starting household was selected by simple ballot. Using these criteria, 1,070 women aged 15–49 years who had at least one child less than age two were interviewed in Kano State, 1,074 in Lagos State, and a total of 520 women in Abia State.

The sampling distributions used in the ICHS 2000 and ICHCS 2002 are summarized in Table 1 below.

Training, Fieldwork, and Data Handling

ICHS 2000. Each of the three survey sites was under the direction of a field coordinator, who was an experienced survey researcher recruited from a local university. Working directly with the field coordinator was an office editor, responsible for ensuring the completeness and accuracy of questionnaires completed by each of the interview teams. Each interview team was headed by a supervisor. Supervisors were selected from among the interviewer candidates and were typically Ministry of Health (MOH) personnel with management responsibilities for maternal and child health programs and experienced in survey fieldwork. Each interview team consisted of four to six interviewers, a field editor, and an EA guide. Interviewers were recruited from among MOH personnel and other qualified candidates in each of the three sites. EA guides were recruited from among the geographers and other personnel at the local offices of the NPC.

Interview team supervisors received a day of orientation prior to the training of their teams. The orientation session allowed the supervisors to review and discuss topics, including the procedures and organization for fieldwork, and in-depth review of the survey instruments

such as the household listing forms, the household schedule, and the woman's questionnaire. Roles and responsibilities for all survey personnel were discussed. Orientation for supervisors was immediately proceeded by four days of training for the interview teams. Topics covered in the training sessions included the survey instruments, interviewing procedures, and instructions for recording responses. Training methods included lectures, role-plays, classroom practice sessions, field practice sessions, and group discussions of the practice sessions. Training for each of the three sites was conducted immediately prior to fieldwork at each site between August and October 2000.

In each EA, a household listing was conducted several days prior to household selection and respondent interviews. Interview teams conducted the household listing, with assistance of EA guides. During household listing, all inhabitants of each household in the EA were identified and listed.

Interview teams met each morning to organize their day's work, discuss and resolve problems, and arrange transportation. The field coordinator circulated continuously, making unannounced spot checks on interview teams in the field and the field editors who worked in a central location. During fieldwork, a weekly progress meeting was held with the field coordinator, the office editor, interview team supervisors, and field editors.

A pre-test of the woman's questionnaire was conducted in July 2000 in several locations in Lagos. The questionnaires were finalized based on the outcome of the pre-test. The main fieldwork started in Lagos State in September 2000 and was followed by fieldwork in Kano (September–October 2000) and Abia States (October–November 2000).

All completed questionnaires were reviewed and approved by the three office editors prior to being sent to the BASICS II/Nigeria M&E Unit. Data entry was sub-contracted to a Lagos-based firm. The data entry program was prepared in Microsoft Access. Data entry was conducted from December 2000 through early February 2001. Each data file (household listing, household schedule, woman's individual questionnaire, and child-specific information) was carefully checked and cleaned. Data cleaning included range-checking of values, assessment of the adherence to the skip patterns in the questionnaire, and cross-checking of the internal consistency of the data sets. Data for the ICHS was analyzed using the Stata statistical package.

ICHCS 2002. Training of interviewers, field supervisors/editors, and state coordinators was conducted simultaneously in the three states between November 21 and November 23, 2002. The three-day training sessions included review and clarification of the questionnaire, role-plays, and field trials. Additional orientation was conducted for the field supervisors and State Study Coordinators. The fieldwork was conducted between November 24 and November 29. Both the training and fieldwork in all three states was overseen by the Study Director with the assistance of State Coordinators. BASICS II staff provided technical and infrastructural support for both the training and the fieldwork.

BASICS II adopted a two-pronged approach to ensuring data quality in the field:

- (1) Interviewers worked in teams of two to quickly cross-check the completed questionnaires. While one interviewer was conducting the interview, the other checked previously completed interviews for errors and completeness. If errors were detected, the interviewers clarified and corrected the error before leaving the area.
- (2) One supervisor was assigned to every four teams of interviewers. As interviewers within a team did not conduct interviews independent of one another, the supervisor-to-

interviewer ratio was 1:4. Supervisors helped to obtain community permission to conduct the survey, assisted with locating the census EAs, and checked all completed questionnaires by his or her team.

The field team in each state was assisted by a cartographer and three EA guides to read and translate the EA maps and to physically locate each EA in the field. After each day's work, the supervisor collected the questionnaires and submitted them to the State Study Coordinator. Before the questionnaires were handed over to the Study Director, the State Coordinator randomly selected and checked 10% of the questionnaires completed each day for consistency and completeness. If notable errors were detected, more intensive checking was conducted and appropriate measures taken to correct them. Once the questionnaires were certified completed by the State Coordinator, they were sent to the Study Director in Lagos. Additional checks were conducted by the Study Director, and completed questionnaires were transported to Research and Marketing Services (RMS), Ojodu, Ikeja, Lagos, for editing and data entry.

Table 1: Comparison of sample distribution used in ICHS 2000 and ICHCS 2002

LGA	ICHS 2000			ICHCS 2002
	Strata 1	Strata 2	Strata 3	Depth or Breadth
LAGOS				
Ibeju Lekki			✓	Lagos/Depth LGAs
Shomolu			✓	
Kosofe			✓	
Lagos Mainland	✓	✓		Lagos/Breadth LGAs
Ajeromi/Ifelodun	✓	✓		
Badagry			✓	
Lagos Island	✓	✓		
Mushin	✓	✓		
Surelere	✓	✓		
KANO				
Municipal	✓	✓		Kano/Depth LGAs
Dala			✓	
Gwale	✓	✓		
Nassarawa	✓	✓		
Bebeji			✓	Kano/Breadth LGAs
Kabo			✓	
Kura			✓	
Tsanyawa			✓	
Warawa			✓	
ABIA				
Aba North	✓	✓		Abia/Depth LGAs
Aba South	✓	✓		

Note: For the ICHS 2000, each ✓ represents a sample unit for which 12 EAs were randomly selected. For the ICHCS 2002, each of the five areas designated as “depth” or “breadth” by state represent a sample unit for which a 30-cluster sample was taken.

Methods Used to Compare Results from the ICHS 2000 and the ICHCS 2002

As described above, the two surveys have notable differences in their design and implementation. In order to provide valid comparisons between the data from the two surveys, a weighting procedure was employed prior to analysis. This weighting procedure effectively equated each LGA's portion of the total number of cases sampled in the 20 LGAs to the LGA's portion of the total population of the 20 LGAs. In this manner, the differences between the sample distributions could be balanced.

The weighting procedure was as follows:

- (1) For each LGA, a weight (weight1) that consisted of the total population of that LGA divided by the total population of the 20 LGAs together was created. Population data for the year 2001 was used based on projections from the 1991 census;
- (2) A second weight (weight2) was created that represented the number of cases sampled in the LGA as a proportion of the total number of cases sampled in each of the two surveys.
- (3) A ratio of weight1 to weight2 served as the final weighting factor. This weight functioned such that if the LGA's share of the entire sample (across 20 LGAs) was directly proportionate to the LGA's share of the total population (across 20 LGAs), then the ratio equaled 1.

Results of this weighting procedure appear in Table 2.

Table 2: Immunization coverage according to card and mother's report for children 12–23 months of age immunized by 12 months of age

Estimates based on weighted data, standard error, confidence intervals.

		Estimate	Std. Err.	[95% Conf. Interval]	

BCG					
Abia	2000	.862	.014	.833	.891
	2002	.854	.001	.852	.856
Kano	2000	.571	.077	.410	.733
	2002	.450	.069	.306	.595
Lagos	2000	.930	.022	.884	.977
	2002	.921	.011	.897	.945

DPT1					
Abia	2000	.913	.013	.885	.940
	2002	.802	.014	.773	.831
Kano	2000	.518	.078	.354	.682
	2002	.328	.046	.231	.425
Lagos	2000	.916	.020	.874	.958
	2002	.814	.022	.769	.860

DPT2					
Abia	2000	.884	.017	.847	.920
	2002	.764	.018	.726	.802
Kano	2000	.446	.069	.302	.590
	2002	.261	.037	.185	.338
Lagos	2000	.880	.026	.826	.935
	2002	.754	.041	.668	.839

DPT3					
Abia	2000	.794	.022	.748	.840
	2002	.635	.015	.605	.666
Kano	2000	.331	.060	.206	.457
	2002	.175	.032	.107	.242
Lagos	2000	.818	.038	.738	.898
	2002	.648	.041	.562	.734

Polio0					
Abia	2000	.421	.045	.327	.515
	2002	.815	.015	.783	.846
Kano	2000	.252	.060	.127	.378
	2002	.393	.056	.275	.511
Lagos	2000	.619	.043	.528	.710
	2002	.887	.012	.863	.911

Polio1					
Abia	2000	.537	.022	.491	.582
	2002	.802	.014	.773	.831
Kano	2000	.303	.051	.197	.410
	2002	.354	.050	.248	.459
Lagos	2000	.717	.033	.648	.785
	2002	.883	.012	.857	.909

Polio2					
Abia	2000	.568	.020	.526	.609
	2002	.701	.007	.687	.716
Kano	2000	.454	.031	.388	.519
	2002	.272	.045	.177	.366
Lagos	2000	.723	.028	.664	.782
	2002	.777	.032	.709	.844

Polio3					
Abia	2000	.559	.001	.556	.563
	2002	.482	.007	.468	.497
Kano	2000	.317	.027	.261	.372
	2002	.150	.030	.087	.214
Lagos	2000	.666	.028	.608	.724
	2002	.626	.045	.531	.721

Measles					
Abia	2000	.689	.019	.649	.729
	2002	.546	.027	.490	.602
Kano	2000	.368	.054	.256	.481
	2002	.249	.035	.176	.322
Lagos	2000	.741	.036	.666	.817
	2002	.666	.016	.633	.699
