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Urban EPI in Nigeria:
A Preliminary Assessment

September 16 - 27, 1991

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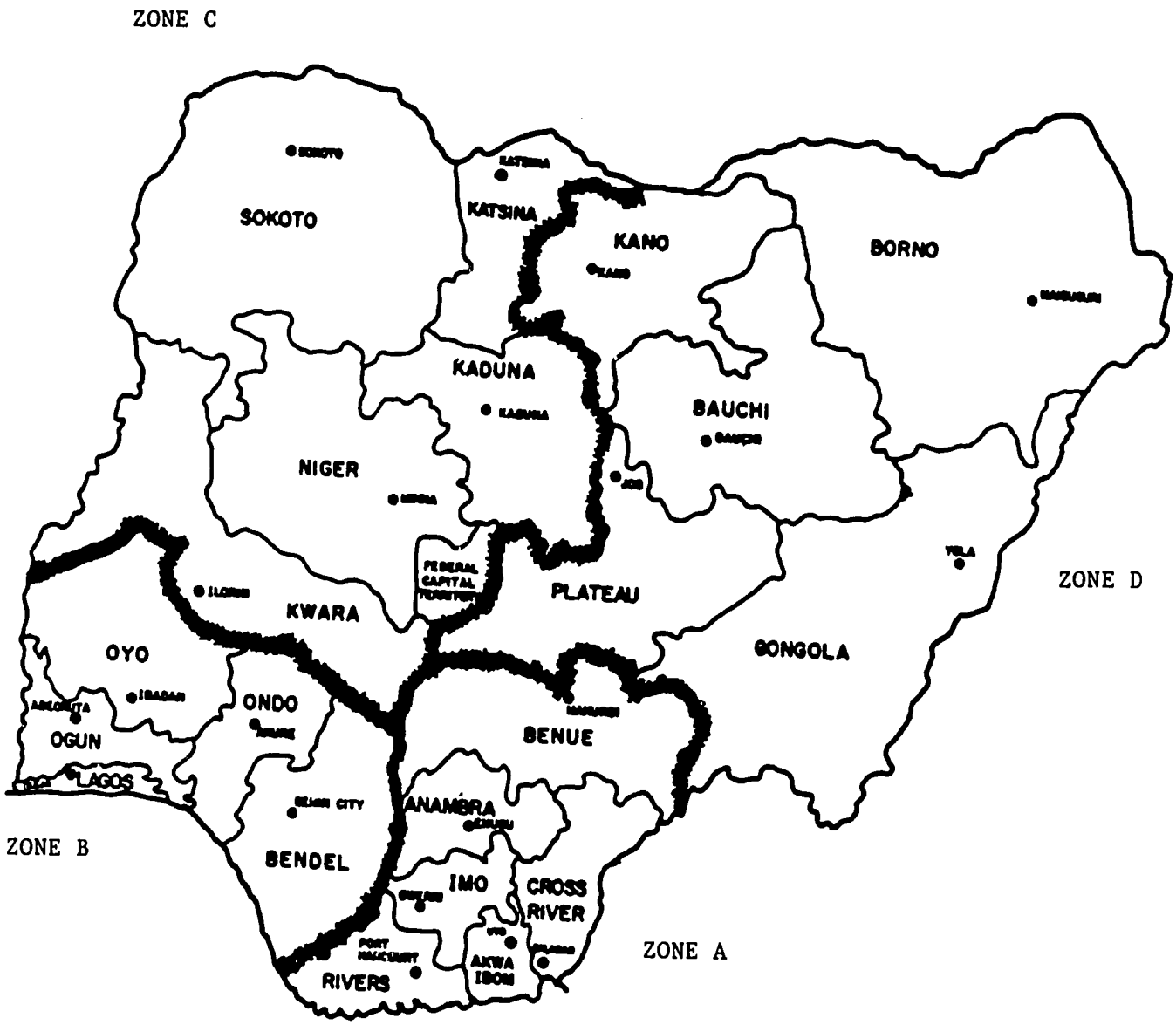
ACRONYMS

ARI	Acute Respiratory Infections
CCCD	Combatting Childhood Communicable Diseases
CDD	Control of Diarrheal Diseases
CDR	Division of Diarrhoeal and Acute Respiratory Disease Control
DPT	Diphtheria, Pertussis, Tetanus
EPI	Expanded Program on Immunization
FCT	Federal Capital Territory
FMOH	Federal Ministry of Health
LGA	Local Government Area
NID	National Immunization Day
NGO	Non-governmental Organization
PHC	Primary Health Care
R&D/Health	Bureau for Research and Development/Health
REACH	Resources for Child Health Project
SID	State Immunization Days
TBA	Traditional Birth Attendant
TT	Tetanus Toxoid
UCI	Universal Childhood Immunization
UNDP	United Nations Development Program
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WHO	World Health Organization

ADMINISTRATIVE MAP OF NIGERIA



I. Executive Summary

After successful smallpox eradication in Nigeria during the 1960s, the national EPI came into being with the primary goal of reducing mortality from EPI diseases. Included in initial plans for the National EPI were the objectives to meet the needs of newly formed states and Local Government Areas (LGAs). However, coverage levels remained low at around 10%.

After a great deal of effort to improve the EPI during the 1980s, an "In-Depth Review" in 1989 reported that an estimated 100,000 lives per year were saved through EPI efforts alone. A series of surveys in 1991 showed that national coverage of fully immunized children up to two years of age was almost 80%. EPI program progress was most impressive.

With the concurrence of USAID/Lagos, a two member REACH team visited Nigeria from 16 until 27 September 1991 to explore possibilities for a special urban effort within the existing national EPI. This visit coincided with A.I.D./R&D/H intentions to begin an urban EPI initiative in one African country.

Urban growth in Nigeria is occurring at a phenomenal rate of around 7% annually. By the year 2000 almost half of the country's population will live in urban areas, and as many as half of those city dwellers (40,000,000) will have to survive with incomes which place them below the Nigerian poverty line.

Lagos City adds 900,000 new residents per year; one-third from in-migration, and two-thirds from natural increase.

The findings about Lagos and its EPI coverage were quite surprising when closely examined. Although assumptions were that the largest and most cosmopolitan urban center, and the city with the greatest concentration of health facilities, would logically have the best health indicators in the nation, in fact findings from the 1991 coverage survey were completely contradictory. Lagos was found to have access to immunization services equal to, but no greater than all other areas of the country. However, the drop-out rates between DPT3 and measles are the worst among all other states in the country. Measles coverage in Lagos is lower than the national average and lower than a majority of states.

As the focus of EPI in the 1990's in Nigeria, as elsewhere, is turning to specific disease reduction targets, it becomes increasingly important to ensure that susceptible pockets do not persist in crowded urban environments.

Despite evidence of declining measles incidence, the potential for explosive epidemics of measles in Lagos -- and presumably in other urban areas of Nigeria -- remains high. Recent increases in measles immunization coverage must not lead to complacency. Several persons who were interviewed expressed the opinion that measles was no longer a problem.

Measles control in an urbanizing environment will require a special focus within the existing EPI in Nigeria. Infants must be reached as soon as they lose maternal antibodies and become susceptible. Due to earlier age of infection, intensity of exposure, and higher prevalence of malnutrition, higher and earlier immunization coverage will be needed in urban areas than in rural areas to more effectively reduce childhood mortality due to measles.

WHO, UNICEF and A.I.D. have all recently identified the need to improve EPI and PHC in peri-urban squatter and slum areas. Just as EPI has played a leadership role in the development and extension of PHC throughout Nigeria, it is now appropriate for the maturing EPI to lead the way to improved urban health by bringing PHC into the cities.

Urban-specific strategies which respond to some of the unique opportunities and specific challenges found only in cities are necessary. These may include:

- microplanning of strategies
- individual city EPI plans
- developing assessment tools for EPI
- gearing up social mobilization in cities
- defining a role for the private sector
- reducing missed opportunities
- inter-sectoral aspects of urban EPI
- eventual integration of health services in cities.

Recommended follow-up actions include encouraging the November health sector assessment team to examine the impact of urbanization in Nigeria on future health planning and activities. Pending their findings. USAID/Lagos encourages R&D/H and REACH to consider selecting Nigeria for implementing urban EPI strategies.

Also, a follow-up visit by REACH to conduct a detailed urban EPI assessment, including a plan of activities, has now been planned for early 1992. REACH presently has resources for urban health activities in one African country which will be used in Nigeria for the follow-up visit, and may be used for any subsequent activities for a period of approximately two years.

II. Introduction

With the concurrence of USAID/Nigeria, a two member REACH team visited Lagos from September 16 to 27, 1991 to explore possibilities for a special urban effort within the existing national EPI. This visit was in conjunction with A.I.D./R&D/H intentions to begin one urban EPI initiative in one African country. Through the REACH project, limited central funds have been made available for the visit, as well as appropriate follow-up activities.

The REACH team specifically undertook a very rapid "needs assessment" for EPI in the urban areas of the country, and tried to gauge the interest within Nigeria for undertaking an urban effort. This included determining the interest of the Federal Ministry of Health (FMOH), a limited sampling of state governments (Lagos State Government) and Local Government Areas (LGAs) in the City of Lagos. The Federal Ministry of Works and Housing, and the University of Ibadan were also consulted given their respective roles in urban development in Nigeria. Vaccination sessions were visited. Also, donor interest

was discussed with USAID, UNICEF, WHO, and The World Bank. Finally, an extensive documents review was undertaken in Lagos and Ibadan. A list of persons contacted appears in Appendix 1. Although the brief nature of the visit did not allow for an in-depth examination of all relevant issues, the two week period did result in some significant findings.

III. Background

After successful smallpox eradication in Nigeria during the 1960s, the national EPI came into being with the primary goal of reducing mortality from EPI diseases. Included in initial plans for the National EPI were the objectives to meet the needs of newly formed states and Local Government Areas (LGAs). This included establishing the EPI system at the LGA level, among other objectives to accelerate the EPI. However, coverage levels remained low at around 10%.

The present EPI is based on revisions to the original objectives. The primary goal since 1984 has been to achieve Universal Child Immunization (UCI) by 1990 (coverage at 80%).

In 1984 the "revised" EPI was launched at the federal level. Emphasis was shifted from a mobile unit strategy to static and out-reach units. Also, and most importantly, the revised EPI increased the involvement of most state ministries, LGAs, and communities for planning and implementation. This included all 453 LGAs in the country.

In 1988, "National Immunization Days" (NIDs) were conducted with the purpose of promoting public understanding of immunization and to increase levels of coverage. Again in 1989, the EPI was revised including: immunization policy, strategies, and schedules. "State Immunization Days" (SIDs) were instituted. For the period 1990-92, the objective is to immunize children up to two years of age, although the priority target is children under one year.

Results have thus far been impressive. In 1989, an "In-Depth Review" reported that an estimated 100,000 lives per year were saved through EPI efforts alone. The 1991 coverage survey showed that fully immunized children up to two years of age was almost 80%.

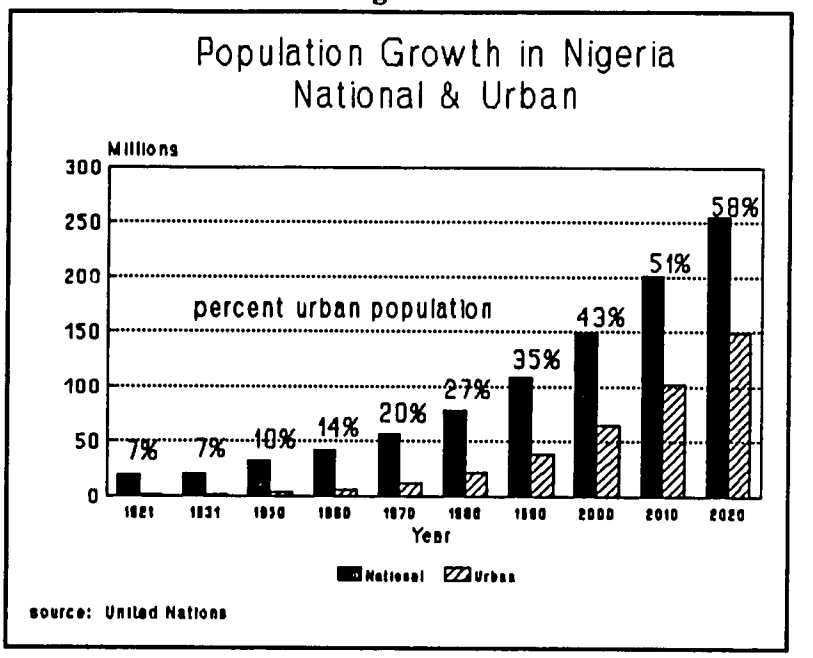
IV. Why Urban EPI?

A. Nigerian Urbanization

Nigeria has the longest and most pronounced urban history of all countries in sub-Saharan Africa. In 1953 there were 56 urban centers (populations of at least 20,000 residents) in Nigeria making a total urban population of approximately 3,214,000. The number of towns and cities grew to 183 according to the 1963 census with total urban residents exceeding 10 million. During this 10 year period the urban population jumped from 10% of the national total to almost 20%. However, it is important to point out that the urban population figures used in the 1963 census were made from projections based on the 1953 census as city populations were not classified separately during this second census.

In 1991, the annual national population growth rate is estimated to be around 3.2%, and the urban growth rate is estimated to be over 7%, with some cities growing even faster (see Figure 1). Over a third of all Nigerians are now living in cities and towns. By the year 2000 almost half the population will be urban dwellers, approximately 80 million. By the year 2015 the country's urban population will equal the entire national population today which is estimated to be 110,000,000.

Figure 1

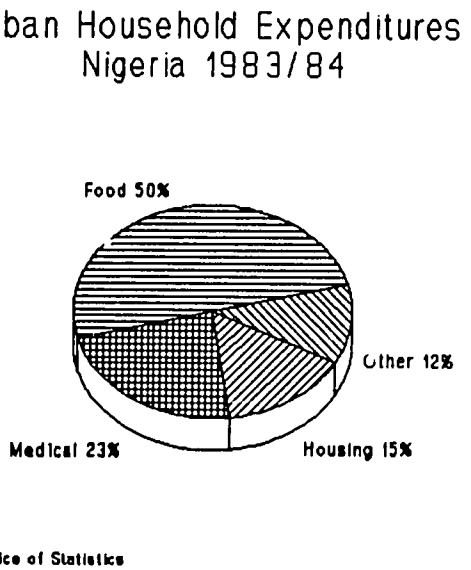


Estimates for Lagos show a colossal annual population increase of 10 percent! If true, the city's population today is over 10 million, with about one-third of new residents (300,000) per year due to migration into the city, and the remaining two-thirds (600,000) from natural increase.

Nigeria accounts for one-third of all urban dwellers among all countries in sub-Saharan Africa. Each year the country adds 2.4 million residents to its cities and towns; or 450,000 households.

Population figures alone do not explain the entire urban situation in the country. In fact, the real situation for many urban families is masked by "descriptions with averages", rather than disaggregated information of individual communities. Various estimates of urban poverty place one-third to one-half of all urban residents below the poverty line. While the Federal Office of Statistics has estimated that half of all urban family expenditures is used only to purchase food, there is insufficient information to explain how the poor can afford to live in cities (see Figure 2).

Figure 2



The assumption is that: income levels are low, illiteracy rates are high, various indicators of health are poor, and overall living conditions are inadequate for a decent life.

Until recently the global conventional wisdom was that urban dwellers were the privileged minority in most nations. Cities had opportunities for employment, educational advancement, the vast majority of national health services, housing amenities such as electricity, piped gas and water, and telephones, and were less vulnerable than sparsely settled rural villages to natural and man-made catastrophes. Although this may be true for the urban upper and middle classes, those without the resources to benefit from urban life soon discover after relocating to a large city that conditions may be as bad, or even worse, than those which they knew in their villages. Access to health services may be severely limited due to economic, as well as social and cultural reasons.

Although the lack of information in Nigeria on the situation of the urban poor is disappointing for program planning purposes, there are indicators which begin to show how this large group (in Nigeria as many as 20 million urban poor in 1991) survives.

B. National EPI Strategy and Urban Dwellers

Although the next section will examine the results of the 1991 national EPI coverage data and make some urban/rural comparisons, a closer examination of the national EPI implementation strategy is worth noting.

In 1991 Nigeria has 12,000 fixed immunization centers, and an additional 24,000 outreach sites. The logic of adding an outreach component to the fixed site strategy obviously has its merits in rural areas where widely dispersed populations make fixed sites impractical to reach the entire population.

However, one of the "advantages" of urban populations is that people live in highly populated concentrated areas. Consequently, access to health services ought to be quite high making the need for outreach posts questionable as a sustainable strategy.

Examples from other urban EPI programs (Bangladesh and Mozambique providing two examples) show that the best investments for improving EPI performance have been in motivating mothers to bring their children (and themselves) to existing fixed immunization sites, rather than opening new sites or through outreach teams. This has been achieved by either organizing information campaigns, or actually escorting mothers with their children to the nearest immunization center.

While closer examination of immunization results and strategies would be recommended for urban Nigeria, it is possible that the existing outreach approach may not be the best solution for densely populated cities.

Another factor in tailoring immunization services in cities is the role of private providers. Most private doctors and nurses are located in cities and towns. They provide various health services, including EPI, many of which are not reported in routine government surveillance systems. Integrating these private health services into urban EPI strategies would be a logical way to improve coverage levels in cities. If adequate profiles were made of which populations the private sector serves, then the public sector could concentrate its limited resources on those not adequately served by the private sector.

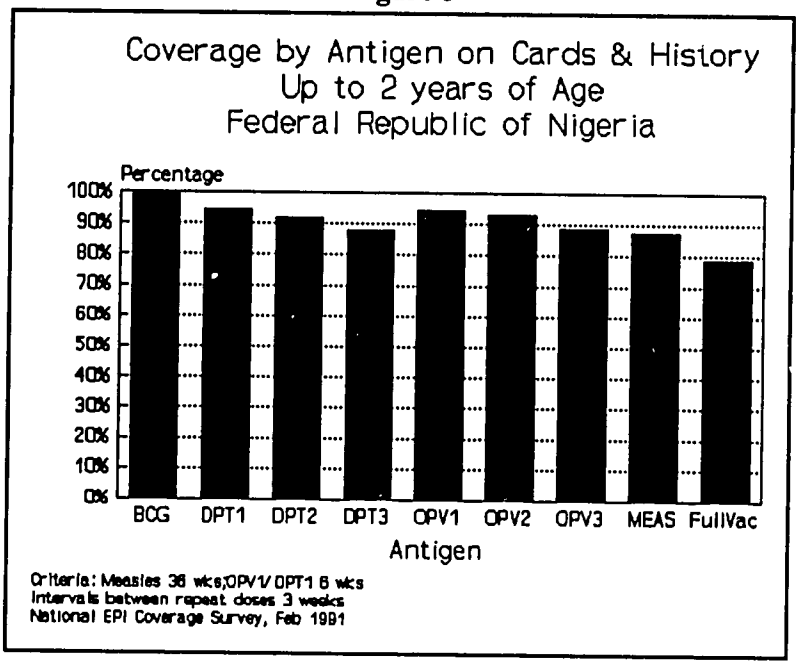
The role of non-governmental organizations (NGOs) should also be considered when making urban EPI plans. Examples from other countries show that the NGOs can be very good at information campaigns, and motivating families to immunize their children and women. Many NGOs are city-based and would enthusiastically support EPI efforts. Rotary and their social mobilization activities for PolioPlus is an excellent example of the effectiveness of NGOs.

V. Urban Immunization Coverage and Performance Indicators

Nigeria's immunization coverage levels on a variety of performance indicators are ranked in comparison with other African countries in Appendix 2, 3, and 4.

A series of standard 30-cluster immunization coverage surveys was conducted in each state and in the Abuja Federal Capital Territory (FCT). All 22 community surveys took place in early February 1991 and followed the well-known WHO methodology. A weighted average of survey results showed that 81% of children 12-23 months of age have received a full course of oral polio and DPT by the date of the survey, according to both cards and verbal history (Figure 3).

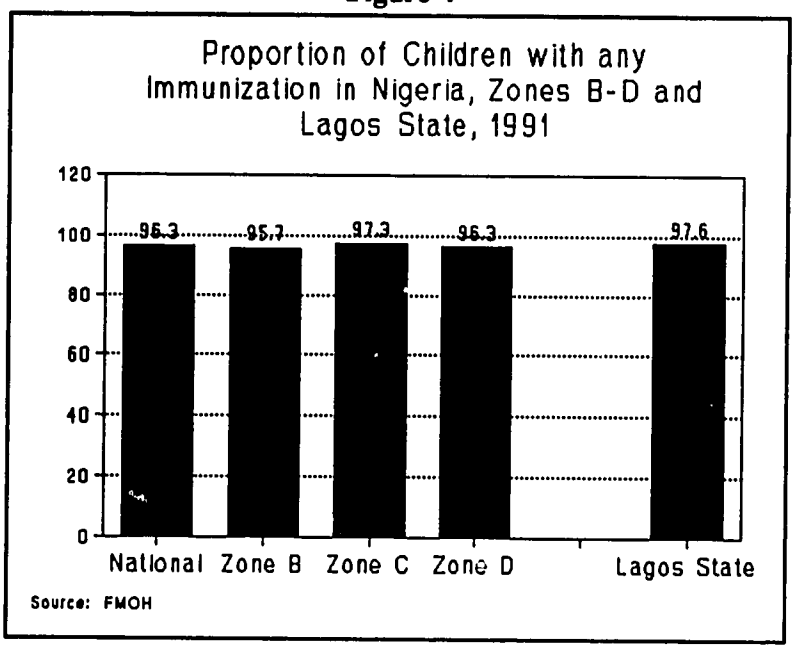
Figure 3



While this is a remarkable achievement, average figures can mask important disparities. We decided to look at the data from one state known to be highly urban, Lagos State (estimates account Lagos City for more than 80% of the total state population), and compare its EPI performance with other zones and states. To reduce the number of comparisons, we omitted Zone A and chose to include Zone B, in which Lagos State is situated, and Zones C and D, which are the most rural in Nigeria. We concentrated on measles immunization because of the importance of maintaining high measles coverage for reducing transmission in densely populated urban areas. The measles immunization indicators and values appear in Appendix 5.

Figure 4 shows the proportion of children receiving any immunization. The figure explodes the common myth that urban areas have higher utilization of services due to greater access to resources. In fact, utilization rates are uniform across the nation and the zones.

Figure 4



Lagos State had a coverage rate (crude) with DPT3 of 80% by the age of 12 months (Figure 5). Lagos ranked 6th out of the 22 coverage surveys on this indicator. However, the same cannot be said about its performance with measles immunization (Figure 6). Only 53% of infants are immunized against measles by 12 months of age (valid doses, card + history), which places Lagos State 13th out of 22. By the date of the survey, when the children are variably 12-23 months of age, measles coverage rises only slightly to 67%, ranking Lagos at 19th out of 22.

Figure 5

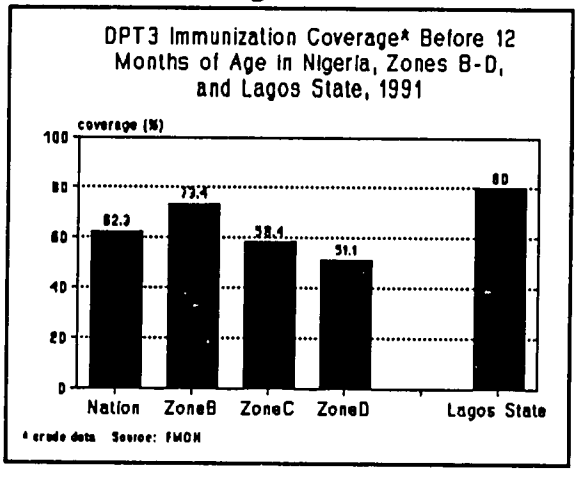
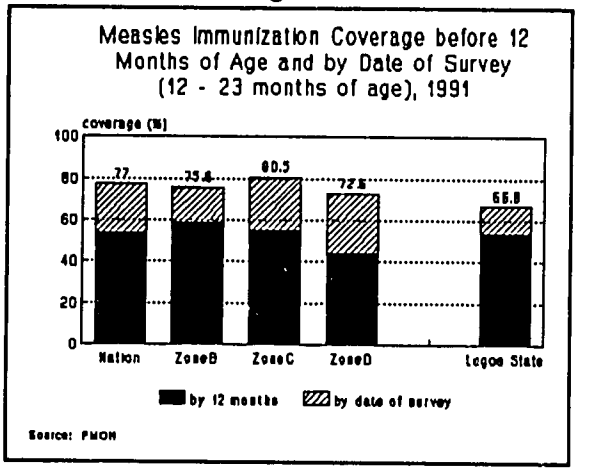


Figure 6



These findings shatter another myth -- that measles coverage in an urban area is higher than in rural areas owing to greater access, utilization, and recognition by health staff and parents of the importance of preventing measles.

Figure 7 illustrates the relatively better immunization coverage with DPT3 as compared to measles. The drop-out rate from DPT3 to measles in children 12-23 months old is 16% in Lagos State, whereas nationally and in Zones C and D, measles coverage actually exceeds DPT3 coverage. Figure 8 confirms this finding among infants in Lagos and shows that 29% of those who received DPT3 failed to be vaccinated against measles. Depending on the age cut-off, Lagos State ranks either 21st or 22nd with the worst drop-out rates in the nation. The myth that lower drop-out rates should result from greater accessibility in urban areas clearly does not apply to Lagos State.

Figure 7

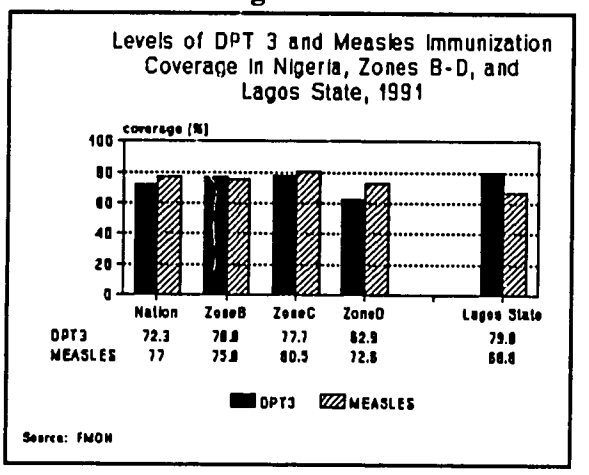
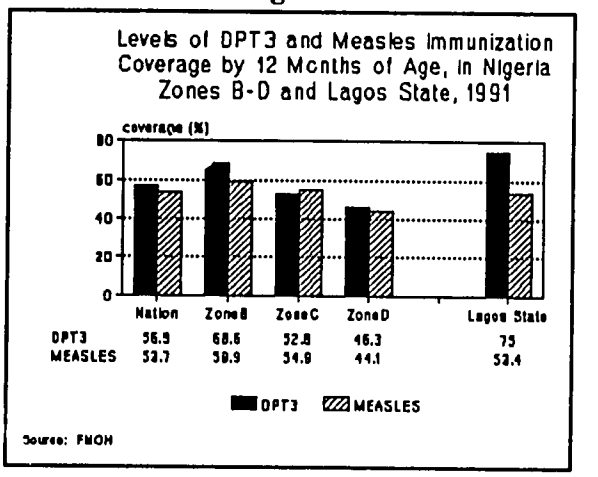
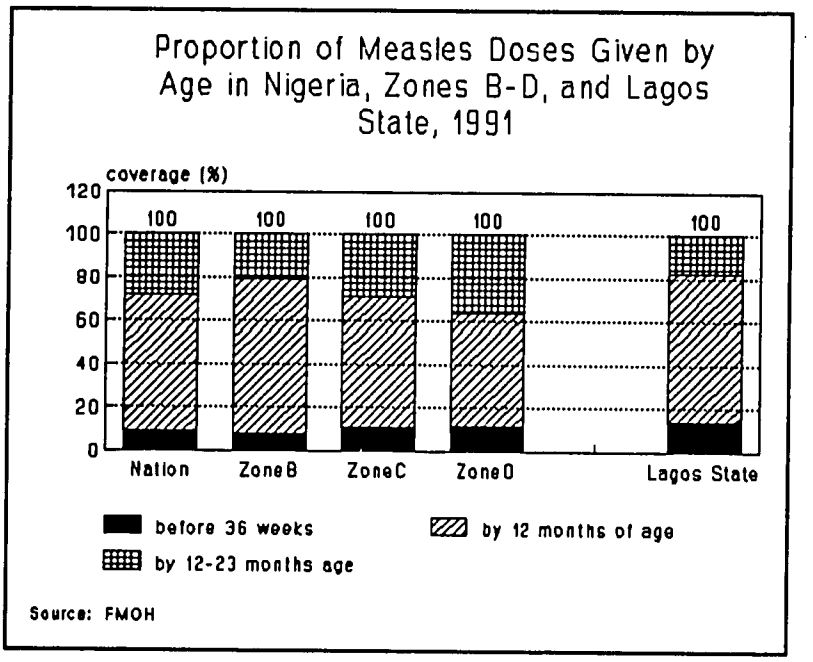


Figure 8



Lagos State outperforms most states (with a rank of 5th out of 22) in terms of the proportion of total measles doses (82%) which are given during the first year of life (Figure 9).

Figure 9



(During the 1989 EPI Review, an analysis of routine service statistics for six states similarly revealed that Lagos State outperformed the others with 75% of all measles doses given before 12 months of age.) However, 14% of the total measles doses are administered too early in life - before 36 weeks of age, as defined by the FMOH - giving Lagos State a rank of 18th out of 22.

Health staff in Lagos State miss few opportunities to immunize against measles (only 8%), ranking it 4th out of 22 in the nation (Figure 10). However, when opportunities are in fact missed, they are corrected on later visits only 38% of the time -- giving Lagos State nearly the lowest ranking (21st out of 22) in Nigeria (see Figure 11).

Figure 10

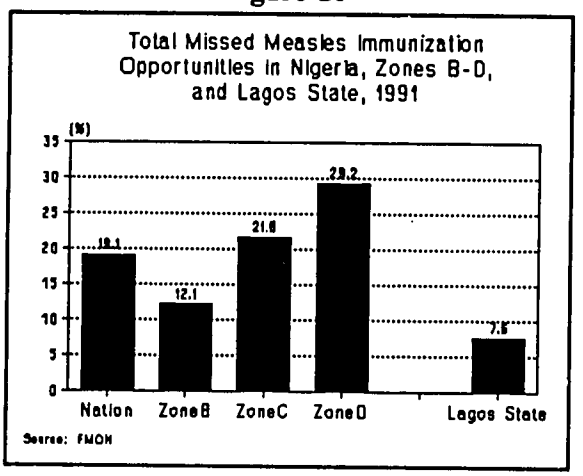
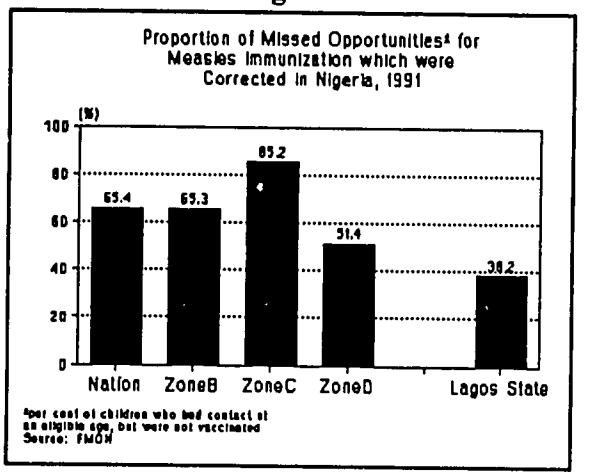
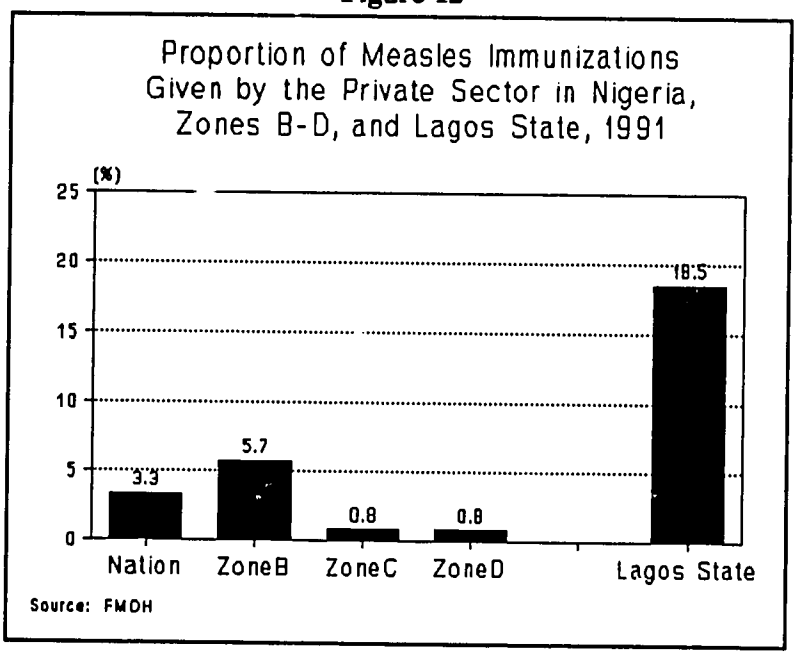


Figure 11



The role of the private sector is predictably much greater in Lagos State than elsewhere, accounting for 18% of measles doses (Figure 12).

Figure 12



To summarize, Lagos State has relatively high DPT3 coverage, but low measles coverage due to extremely high drop-out rates. It appears that immunization is started relatively early in life in Lagos State, and that children customarily receive DPT3 at too early an age for measles also to be given. Therefore, a 4th or even 5th visit for immunization is required in order to be vaccinated against measles.

Another cause for concern is that when missed opportunities for measles immunization do occur, they are infrequently corrected on later visits. One reason could be that health staff fear to immunize a child on the same visit with more than one injection. They may regard measles as the last dose in the series and inappropriately reserve it for a later visit. Another explanation might be that health workers incorrectly withhold measles vaccination when parents state that the child already suffered from a case of measles. (This was found to be a problem throughout Nigeria during the 1989 EPI Review.) Finally, measles immunization is being offered too early --before 9 months of age -- at an age when seroconversion is compromised due to interference from transplacentally-acquired maternal antibody.

While this analysis of Lagos State immunization coverage data is meant to illustrate the potential problems in large urban areas and the types of scrutiny possible with existing data, additional analyses supplemented by field visits should certainly be performed. We feel that Lagos State -- and possibly other urban areas -- require more focused attention to improve delivery of immunization services. Urban areas provide special challenges and opportunities for creative approaches.

Furthermore, with recent increased communication and mobilization to support the new Nigerian EPI policy for restricting immunization to infants, EPI managers will need to monitor closely the drop-out rates from DPT3 to measles -- lest the unexpected experience of Lagos State be repeated elsewhere. A review of the 22 immunization coverage surveys conducted in 1988 supports the findings described here. Lagos State then, as now, had the highest drop-out rate of any state from DPT3 to measles.

Now that the Federal Ministry of Health has succeeded in reaching high immunization coverage levels throughout the country, the overriding need is to ensure that high coverage can be achieved in each and every administrative area, including the cities, and thereafter sustained.

As the focus of EPI in the 1990's in Nigeria, as elsewhere, is turning to specific disease reduction targets, it becomes increasingly important to ensure that susceptible pockets do not exist in crowded urban environments.

VI. Measles Incidence and Control in Nigerian Cities

A national objective is to reduce the incidence of EPI-preventable diseases by 25% and to reduce national polio incidence to one case per 100,000. Focus areas of UNICEF and CCCD have more ambitious morbidity and mortality reduction targets for measles and neonatal tetanus. A 1986 retrospective study of pediatric deaths at the children's emergency room of University College Hospital in Ibadan found measles to be the most frequent cause of death (13.1%). A recent review by UNICEF estimated that measles and neonatal tetanus together still account for approximately 192,000 deaths each year in Nigeria. The proportion of preventable deaths in the EPI due to neonatal tetanus and measles was 49% and 37%, respectively.

There is evidence from various sources and disease surveillance systems that the EPI in Nigeria has had an impact on measles incidence. According to a 1989 FMOH/UNICEF situation analysis of the health of children, more than 50,000 measles deaths were prevented in 1989 alone based on the assumptions

that: in the absence of immunization, 90% of children will contract measles, that the case fatality rate is 3.0%, that vaccine coverage was 48% and that vaccine efficacy is 80%. Reported measles incidence and coverage by year for the country is shown in Figure 13. The fairly steady decline from 1977 through 1985 accelerated until 1989, after which reported incidence began to rise. The reported number of cases nationally in 1990 continued to rise to 94,927, the highest incidence since 1985. During the period 1981-1989, reported measles incidence peaked seasonally from February to May, but with decreased incidence each year.

The sentinel surveillance system in Lagos State confirms the downward trend of measles incidence from 1983 to 1988 (Figure 14).

Figure 13

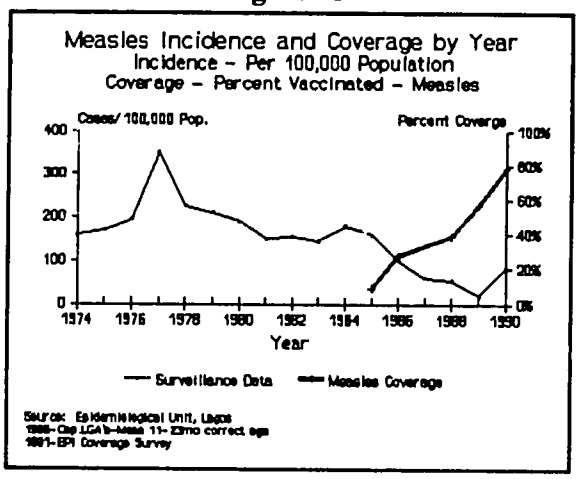
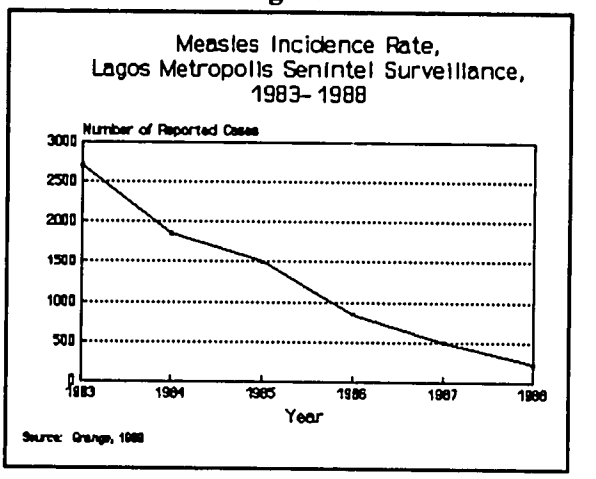


Figure 14



Data after 1988 are no longer available from this system. Similarly, admissions and outpatient data for 1985-1989 from Amadu Bello Teaching Hospital in Kaduna confirm a steady decline.

However, the report of the in-depth EPI Review conducted in 1989 warns that routine surveillance data on their own should be interpreted with caution for the following reasons:

- a decline in outpatient attendance since 1986 (mainly due to the increasing role of the private sector and the introduction of hospital fees);
- a concurrent decline in reported incidence of chickenpox, a disease against which no control measures are available, and;
- an increasing level of under-reporting.

A measles outbreak investigation in Anambra State found that children without immunization had a seven times greater risk of catching measles than those who had been immunized. While 10% of cases were in children below 9 months of age, 51% occurred in children over 5 years old -- that is, those who were missed in the early days of EPI when coverage was low. A shift in incidence to older ages is a positive sign that immunization programs are having an impact.

However, in urban areas measles is a disease of very young children. A review of 598 cases admitted to the University of Ilorin Teaching Hospital from 1982-1984 showed that 19% of cases occurred at less than 9 months of age, and 50% by 12 months. The case fatality rate was 11%, and 82% of the measles deaths occurred before 24 months of age. Similarly, between 40% and 50% of measles cases seen at Massey Street General Hospital in Lagos occur in children under 12 months of age.

These figures are consistent with findings elsewhere in African cities, where high population density, high birth rates and high rates of in-migration of susceptible children ensure rapid transmission of measles among the very young. In the measles epidemic in Niamey, Niger during the past year, 19% of cases occurred in infants 6-9 months old, before the standard measles vaccine is normally given. A review of reported measles cases in Kinshasa found that 27% of cases occurred before nine months of age and 47% before 12 months.

Despite evidence of declining measles incidence, the potential for explosive epidemics of measles in Lagos -- and presumably in other urban areas of Nigeria -- remains high. Recent increases in measles immunization coverage must not lead to complacency. Several persons who were interviewed expressed the opinion that measles was no longer a problem.

As in recent measles outbreaks in Niamey and Brazzaville where coverage was even higher than in Lagos, measles immunization coverage is simply too low in Lagos to prevent epidemics. As described in an excellent article by Dr. Felicity Cutts, et. al. (see references) on the principles of measles control, a "honeymoon" period of temporarily low measles incidence is to be expected following the introduction of widespread measles immunization. Dramatic short-term reductions in incidence after mass immunization are frequently followed by equally dramatic recurrences of measles epidemics, which occur at ever-increasing intervals. Besides the unacceptable death and suffering which results, the health authorities and donors may need to contend with the political embarrassment of epidemics in the wake of highly publicized claims of universal child immunization. Epidemics may undermine support for the EPI.

Without detracting from efforts in rural areas to raise immunization coverage, Nigeria needs to strengthen its disease control efforts in urban areas. Evidence from many African cities provides a powerful epidemiological argument to take appropriate measures now. Cities function as reservoirs of measles virus. Overcrowding and patterns of social interaction (including, ironically, within the health facilities themselves) ensure rapid and efficient transmission from urban to both surrounding and more distant rural areas. More effective measles prevention in urban areas will lead to less frequent introduction into rural areas As the interval between outbreaks lengthens, the average age of infection will increase and case fatality ratios will decline.

In a particularly relevant article by Coetzee, et. al. (see references) from South Africa which addresses the epidemiological implications of urbanization for measles control in developing countries, the need for a comprehensive and integrated approach to the control of childhood infectious diseases is emphasized. Otherwise, increased immunization coverage after mass campaigns may prove to be short-lived, especially in the face of rapid urbanization.

Measles control in an urbanizing environment will require a special focus within the existing EPI in Nigeria. Higher immunization coverage of infants needs to be achieved and sustained in each neighborhood of cities than in rural areas for effective disease control. Infants must be reached as soon as they lose maternal antibodies and become susceptible at nine months of age. Due to earlier age of

infection, intensity of exposure, and higher prevalence of malnutrition, higher immunization coverage is needed in urban areas than in rural areas to more effectively reduce childhood mortality due to measles.

WHO, UNICEF and A.I.D. have all recently identified the need to improve EPI and PHC in peri-urban squatter and slum areas. Just as EPI has played a leadership role in the development and extension of PHC throughout Nigeria, it is now appropriate for the maturing EPI to lead the way to improved urban health by bringing PHC into the cities.

On their tour through Africa in January 1991, The Honorable Louis W. Sullivan and The Honorable Ronald W. Roskens in a report to the President of the United States of America reaffirmed their commitment to increasing immunization coverage in order to maintain the advances in child survival made in the last decade. They state that "U.S. assistance efforts should focus on sustaining efforts in targeted child survival activities in such ways that develop indigenous primary health care systems." They also state that the USAID Measles Initiative, announced by President Bush at the World Summit for Children in October 1990 and intended to reduce deaths from measles by 95% by 1995, should be focused in Africa where one-third to one-half of measles deaths now occur.

VII. Some Urban-Specific Opportunities for the EPI

In spite of the impressive, and seemingly overwhelming, demographic figures for urbanization in Nigeria, cities and towns provide some opportunities for greatly improving EPI delivery to low income urban residents. The preceding analysis of the national coverage survey, as well as evidence from other countries, confirms a need for an urban-specific EPI strategy and implementation plan in Nigeria. Simply having the vast majority of expensive, mostly curative medical infrastructure based in cities and towns does not guarantee adequate service delivery to the urban poor. Urban-specific strategies which respond to some of the unique opportunities found only in cities are necessary. A sampling of some of these strategies is listed below. More thorough analysis and field visits are necessary in order to determine their applicability to individual cities in Nigeria, and perhaps additional strategies will become apparent.

1. Microplanning of strategies: Some of the largest cities of Nigeria have total populations as large as (or greater than) neighboring countries. Just as countries must be divided into manageable zones (regions, districts, etc.), large cities also must be broken down into units which reflect differences in implementation strategies. Wealthier neighborhoods may take full advantage of costly private physicians, while the lowest income areas may not be using even the outreach immunization posts of the FMOH. Methods for microplanning must be developed to ensure that all areas will be adequately served with EPI services.

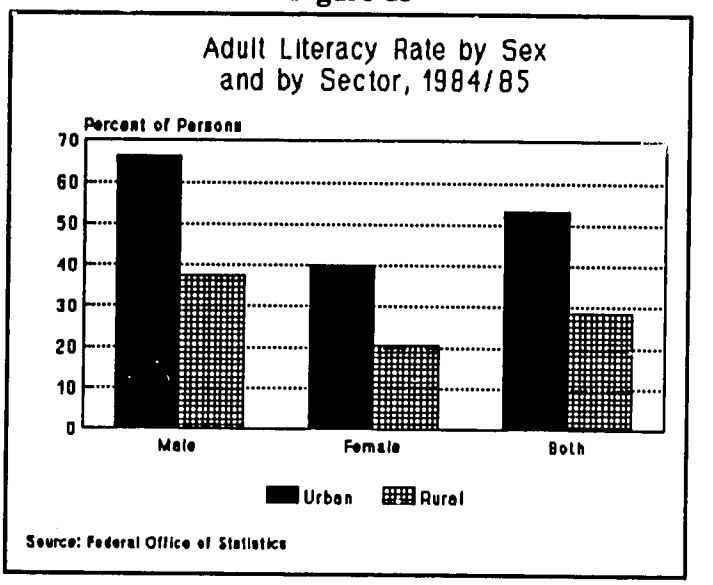
2. Individual city EPI plans: Information obtained from the microplanning work will be essential as individual cities prepare specific plans for their EPIs. As explained above, individual city EPI plans are necessary to properly implement urban EPI strategies. These plans should spell out: (a) the objectives of the EPI in the specific city, (b) activities to achieve those objectives, (c) indicators for monitoring and evaluation purposes, (d) resource requirements (facilities, equipment, logistics, manpower, and cash), (e) detailed workplans for the first 12 month implementation period, and most importantly, (f) who will be responsible for EPI in the city.

3. Develop assessment tools for EPI: One of the major difficulties in meeting the EPI needs in urban areas is that collection and use of data rarely occurs at the level of LGAs and below (districts and wards). This information is essential to be able to properly direct interventions to the areas of a city which are

most in need. Current routine reporting systems and coverage surveys in Nigeria do not provide information for smaller areas within cities. New assessment tools which adequately respond to urban needs would have to be developed.

4. Gear up social mobilization in cities: Communicating with urban residents is very different than with their rural counterparts. The urban population is more literate (Figure 15), and generally considerably more sophisticated than rural residents.

Figure 15



The city also provides many alternatives for communicating EPI messages to the urban poor. Included in a city EPI plan would be urban social mobilization activities. By encouraging residents to use the vast array of existing immunization sites, social mobilization activities could increasingly take the place of some more costly outreach sites in cities.

5. Role of the private sector: Not surprisingly, private health providers provide a significant amount of immunization services in cities. There is a need to establish some qualitative and quantitative information on their participation. Do doctors follow national EPI policies? Do they adhere to the cold chain requirements? Do they charge a fee for services? Do they report regularly to the LGA EPI reporting system? Do they pass along important information for follow-up immunizations? Do they vaccinate, when indicated, each time they see a child or a woman of childbearing age?

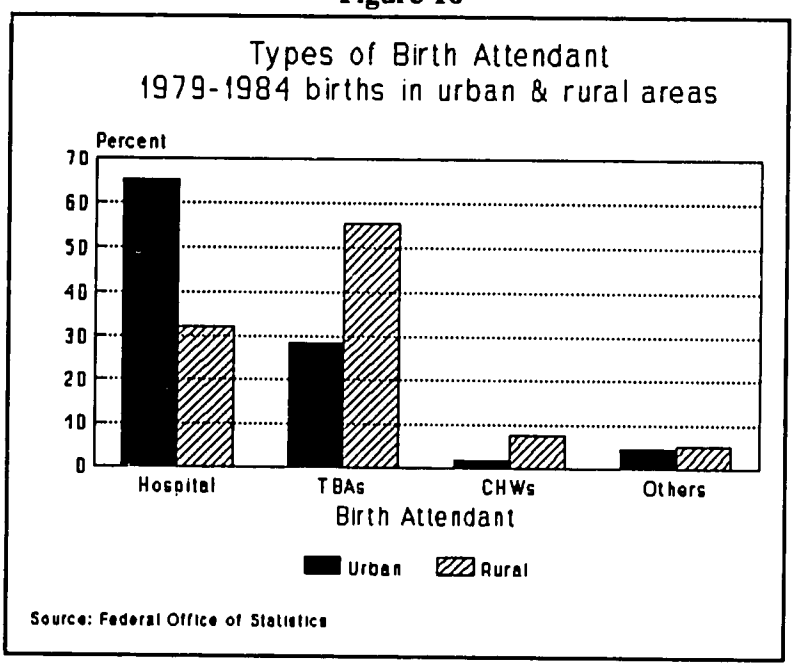
6. Reduce missed opportunities: Because of the numerous opportunities in urban settings for immunization contacts, the reduction of missed immunization opportunities becomes a major focus of any urban EPI strategy. A first step to achieve this is to conduct a thorough inventory of all possible vaccination sites and seek to integrate curative and preventive services. This includes hospitals and clinics in both public and private sectors. Access and use of EPI services at least once tends to be extremely high in urban areas. We know that public awareness of the EPI in cities is high. The urban challenge is not only getting residents to return for all the required contacts to be fully protected, but also to ensure that health workers screen and vaccinate them each and every day.

7. Inter-sectoral aspects of urban EPI: Implementing the EPI in cities requires significant participation by agencies outside the Federal and State Ministries of Health. There are considerable opportunities for other governmental and non-governmental agencies to assist in the numerous aspects of a well-functioning EPI. Although more thorough analysis will be required in Nigeria, it will be crucial to delineate clear and appropriate responsibilities which are relevant to the needs of the EPI in cities, and for the participating agencies. Besides the Federal Ministry of Health, this may include ministries of education, information, industries, social welfare, as well as state level equivalents, private industry, local NGOs, sports clubs, etc. All are potential EPI partners.

8. Eventual integration of health services in cities: Just as EPI has played a leading role for the PHC approach in many countries, it can play the role of integration of health services in cities. A long-term objective of the EPI in cities ought to be the phased inclusion of other basic health, nutrition, and family planning services. This becomes a bit complex given the variety of participants involved in urban health care, but the potential for significant positive impact on the overall health conditions for the urban poor would be substantial. Traditional birth attendants, for example, are normally considered for their work in remote rural areas. In urban areas, the Federal Office of Statistics estimates that TBAs participate in almost 30% of all births (Figure 16). The possibilities for improving TT coverage in cities through TBA referrals are obvious. Normally offered to pregnant women at antenatal clinics, TT could be routinely given to women bringing their children to vaccination sites.

Urban EPI could lead the way for national and local health policies which address the specific needs of the growing urban poor in Nigeria. In 1991 in Nigeria, it is time to take the PHC approach, conceived primarily to meet the needs of rural populations, adapt it, and bring it to the country's cities.

Figure 16



VIII. Conclusions

A number of conclusions can be listed at the completion of this short visit to Nigeria for assessing possibilities for an urban-specific EPI strategy:

1) Nigeria is quickly becoming an urban country; by the year 2000 almost half (80,000,000) of all Nigerians will be living in cities. Among those urban residents, as many as 50% will be living below the Nigerian poverty line.

2) In spite of intuitive thinking to the contrary, vaccination performance in Lagos is among the lowest according to a number of indicators, including measles coverage, drop-outs from DPT3 to measles, and uncorrected missed opportunities for measles. The most alarming indicator concerns measles. Coverage in squatter and slum areas is likely to be far worse than urban and rural averages.

3) Based on the analysis of immunization coverage in Nigeria, and comparing it to examples from other cities in Africa, the urban areas of the country are ripe for major measles epidemics unless specific actions are taken soon.

4) Consequently, recommended actions include modifying current national EPI strategies to meet the needs of congested urban areas. Specifically, individual urban EPI plans should be developed.

5) Addressing the EPI needs of cities today would be a positive first step toward establishing health, nutrition, and family planning services which respond to Nigeria's urban future.

IX. Recommended Follow-up Actions

At the completion of the REACH visit to Nigeria, a number of follow-up actions were discussed with USAID/Nigeria, the Federal Ministry of Health, WHO, and UNICEF.

1) All parties agreed that an urban EPI initiative was justified, and ought to be further pursued in Nigeria.

2) The upcoming USAID health sector assessment team ought to consider the implications of urbanization in Nigeria and its impact on health care delivery issues.

3) Considerable interest was expressed by both government at various levels, as well as donors, for measles control and neonatal tetanus elimination. The health sector assessment team should address these needs.

4) As agreed, USAID/Lagos and the FMOH will request that REACH undertakes a follow-up visit for 4 weeks early in 1992 (possibly as early as the second week in January) to develop a detailed plan of action for an urban EPI scheme in Nigeria.

   4.1 REACH has resources for urban EPI in one African country which could be used for Nigeria. These would be used initially to support the follow-up visit of two urban EPI

experts, and subsequent follow-up activities for a period of approximately two years. These resources are available immediately.

4.2 Although not fully confirmed during the visit, both FMOH and UNICEF have expressed a strong interest in supporting an urban EPI initiative, and would possibly provide limited resources. This will have to be pursued during the follow-up visit in 1992.

4.3 The FMOH and USAID will need to give some thought to the nature of an urban focused EPI in Nigeria. One frequently discussed idea was to begin working in two cities (at the suggestion of FMOH and Dr. Stan Foster; one southern city such as Lagos or Ibadan, and one northern city such as Kano, Sokoto, or Zaria), and covering the entire city, not just some of its LGAs, to increase the likelihood of project impact. This firsthand experience would be used to show policy makers at the Federal level what could be done in all other cities in the future.

4.4 Dr. (Mrs.) Adediji will include urban EPI in the October workplan to ensure that it may be taken up in the near future (if it is not in the workplan then it cannot be addressed in 1992). She also agreed to supply a full-time counterpart from FMOH to work with the 1992 follow-up visit team, and to secure the active participation of authorities in selected cities.

4.5 REACH has agreed to provide a scope of work (Appendix 6) for its two urban EPI experts, and proposed Dr. Felicity Cutts and Mr. Ken Olivola for the 1992 visit. REACH must also confirm the dates of the proposed visit.

5) Measles resources are also available for 3 countries in Africa from A.I.D./Washington, and Nigeria finds itself on the short list of 10 countries for this. These could be programmed separately, or used in conjunction with an urban EPI focus. If used for an urban EPI focus, then immediately available REACH resources could be used to bridge the gap between now and such time as the measles resources would be released. USAID/Lagos would have to pursue this with A.I.D./Washington.

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APPENDIX 1

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APPENDIX 2

Ranked Annual Drop out Rates

Region: Africa

Latest data available in 1991

Ranked on No Access rate

Rank	Location		Survivors	No Access Diff	Out	BCG < 1 Doses	Cov	Measles < 1 Doses	Cov	BCG - Meas Dropout Diff	Out	Year of data
1.	GUI	Guinea	251290	208571	83%	42719	17%	17590	7%	25129	59%	1989
2.	CAE	Cameroon	509933	377350	74%	132583	26%	71391	14%	61192	46%	1988
3.	EQG	Equat. Guinea	13542	9751	72%	3791	28%	...	..	...	..	1985
4.	ETH	Ethiopia	2078893	1455225	70%	623668	30%	332623	16%	291045	47%	1989
5.	CHA	Chad	216642	142983	66%	73659	34%	36829	17%	36830	50%	1987
6.	IVC	Cote d'Ivoire	542609	330992	61%	211617	39%	184487	34%	27130	13%	1989
7.	LIB	Liberia	104652	61745	59%	42907	41%	41861	40%	1046	2%	1987
8.	CAF	Cen. Afr. Rep.	123394	70619	57%	53275	43%	68141	55%	-14866	-28%	1988
9.	NIG	Niger	346533	187128	54%	159405	46%	72772	21%	86633	54%	1990
10.	ANG	Angola	407506	215978	53%	191528	47%	154853	38%	36675	19%	1990
11.	BEN	Benin	207457	109952	53%	97505	47%	56014	27%	41491	43%	1987
12.	MOZ	Mozambique	601344	306685	51%	294659	49%	264591	44%	30068	10%	1988
13.	ZAI	Zaire	1486684	609540	41%	877144	59%	654141	44%	223003	25%	1989
14.	BOT	Botswana	56495	22033	39%	34462	61%	33897	60%	565	2%	1987
15.	MAI	Mali	391638	133157	34%	258481	66%	133157	34%	125324	48%	1990
16.	TOG	Togo	143284	38687	27%	104597	73%	60180	42%	44417	42%	1989
17.	MAD	Madagascar	481362	110713	23%	370649	77%	149222	31%	221427	60%	1989
18.	MAU	Mauritania	81963	18851	23%	63112	77%	26228	32%	36884	58%	1987
19.	ZAM	Zambia	395624	87038	22%	308586	78%	233418	59%	75168	24%	1989
20.	LES	Lesotho	65030	13656	21%	51374	79%	45521	70%	5853	11%	1989
21.	KEN	Kenya	1051759	210352	20%	841407	80%	683643	65%	157764	19%	1986
22.	GHA	Ghana	604159	114791	19%	489368	81%	362495	60%	126873	26%	1990
23.	SOA	South Africa	1041991	156299	15%	885692	85%	656454	63%	229238	26%	1990
24.	ZIM	Zimbabwe	372126	55818	15%	316308	85%	271652	73%	44656	14%	1987
25.	SEN	Senegal	300118	36015	12%	264103	88%	192075	64%	72028	27%	1989
26.	STP	Sao Tome & Prin	3790	454	12%	3336	88%	2616	69%	720	22%	1988
27.	RWA	Rwanda	323178	35550	11%	287628	89%	239151	74%	48477	17%	1987
28.	GAB	Gabon	43210	4321	10%	38889	90%	28519	66%	10370	27%	1987
29.	NAM	Namibia	68398	6839	10%	61559	90%	52666	77%	8893	14%	1989
30.	COM	Comoros	23587	2123	9%	21464	91%	16747	71%	4717	22%	1987
31.	UGA	Uganda	876866	78918	9%	797948	91%	508582	58%	289366	36%	1990
32.	MAL	Malawi	417813	33425	8%	384388	92%	338428	81%	45960	12%	1987
33.	MAS	Mauritius	19053	1143	6%	17910	94%	15814	83%	2096	12%	1989
34.	TAN	Tanzania	1234259	74055	6%	1160204	94%	1086148	88%	74056	6%	1987
35.	GAM	Gambia	34205	1369	4%	32836	96%	...	..	...	..	1987
36.	NIE	Nigeria	4635053	185402	4%	4449651	96%	2502928	54%	1946723	44%	1990
37.	SWZ	Swaziland	32664	1306	4%	31358	96%	27764	85%	3594	11%	1989
38.	BUU	Burundi	228489	6854	3%	221635	97%	171366	75%	50269	23%	1990
39.	CAV	Cape Verde	14441	433	3%	14008	97%	11409	79%	2599	19%	1990
40.	GUB	Guinea-Bissau	35187	704	2%	34483	98%	21112	60%	13371	39%	1987
41.	SEY	Seychelles	1777	36	2%	1741	98%	1582	89%	159	9%	1990
42.	SIL	Sierra Leone	170111	3402	2%	166709	98%	127584	75%	39125	23%	1990
43.	ALG	Algeria	818868	8189	1%	810679	99%	679660	83%	131019	16%	1991
44.	BFA	Burkina Faso	367507	...	..	...	..	147003	40%	...	..	1987
45.	CNG	Congo	97373	...	..	...	..	...	..	...	..	1986
46.	REU	Reunion	13164	...	..	...	..	...	..	...	..	
47.	SAH	St Helena	104	...	..	...	..	...	..	...	..	
	AFR	Africa Region	21335625	6006600	28%	15329025	72%	10782314	51%	4546711	30%	

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APPENDIX 3

Annual Regional Immunization Coverage
Region: Africa
Latest data available in 1991

Estimated Immunization Coverage based on routine reports or nationwide surveys

Ranked on Measles for coverage levels 0 - 999%

Rank	Location		SURVIVING INFANTS (Millions)	BCG Cov	DPT3 Cov	POLIO 3 Cov	Measles Cov	TT 2 Cov	Year of data
1.	SEY	Seychelles	0.0018 UW	98%	82%	82%	89%	98%	1990
2.	TAN	Tanzania	1.2343 UW	94%	81%	..	88%	50%	1987
3.	SWZ	Swaziland	0.0327 UW	96%	89%	89%	85%	63%	1989
4.	ALG	Algeria	0.8189 UW	99% S	89% S	89%	83% S	27% S	1991
5.	MAS	Mauritius	0.0191 UW	94%	90%	90%	83%	94%	1989
6.	MAL	Malawi	0.4178 UW	92%	78%	78%	81%	40%	1987
7.	CAV	Cape Verde	0.0144 UW	97%	88%	87%	79%	90%	1990
8.	NAM	Namibia	0.0684 UW	90%	38%	39%	77%	..	1989
9.	BUU	Burundi	0.2285 UW	97%	86%	86%	75%	56%	1990
10.	SIL	Sierra Leone	0.1701 UW	98%	83%	83%	75%	77%	1990
11.	RWA	Rwanda	0.3232 UW	89%	79%	78%	74%	..	1987
12.	ZIM	Zimbabwe	0.3721 UW	85%	77%	77%	73%	46%	1987
13.	COM	Comoros	0.0236 UW	91%	71%	73%	71%	23%	1987
14.	LES	Lesotho	0.0650 UW	79%	77%	78%	70%	..	1989
15.	STP	Sao Tome & Prin	0.0038 CWU	88%	77%	72%	69%	50%	1988
16.	GAB	Gabon	0.0432 UW	90%	59%	59%	66%	55%	1987
17.	KEN	Kenya	1.0518 UW	80%	72%	72%	65%	..	1986
18.	SEN	Senegal	0.3001 UW	88%	67%	67%	64%	32%	1989
19.	SOA	South Africa	1.0420	85%	67%	69%	63%	..	1990
20.	BOT	Botswana	0.0565 UW	61%	63%	57%	60%	25%	1987
21.	GHA	Ghana	0.6042 UW	81%	57%	56%	60%	33%	1990
22.	GUB	Guinea-Bissau	0.0352 UW	98%	56%	54%	60%	22%	1987
23.	ZAM	Zambia	0.3956 UW	78%	60%	59%	59%	..	1989
24.	UGA	Uganda	0.8769 UW	91%	61%	61%	58%	34%	1990
25.	CAF	Cen. Afr. Rep.	0.1239 UW	43%	42%	42%	55%	39%	1988
26.	NIE	Nigeria	4.6351 UW	96%	57%	57%	54%	58%	1990
27.	MOZ	Mozambique	0.6013 UW	49%	38%	38%	44%	19%	1988
28.	ZAI	Zaire	1.4867 UW	59%	38%	38%	44%	..	1989
29.	TOG	Togo	0.1433 UW	73%	45%	44%	42%	33%	1989
30.	BFA	Burkina Faso	0.3675 UW	..	30%	30%	40%	14%	1987
31.	LIB	Liberia	0.1047 UW	41%	19%	..	40%	10%	1987
32.	ANG	Angola	0.4075 UW	47%	23%	23%	38%	26%	1990
33.	IVC	Cote d'Ivoire	0.5426 UW	39%	42%	35%	34%	49%	1989
34.	MAI	Mali	0.3916 UW	66%	34%	34%	34%	54%	1990
35.	MAU	Mauritania	0.0820 UW	77%	30%	31%	32%	..	1987
36.	MAD	Madagascar	0.4814 UW	77%	46%	42%	31%	32%	1989
37.	BEN	Benin	0.2075 UW	47%	26%	26%	27%	39%	1987
38.	NIG	Niger	0.3465 UW	46%	12%	12%	21%	35%	1990
39.	CHA	Chad	0.2166 UW	34%	15%	15%	17%	15%	1987
40.	ETH	Ethiopia	2.0789 UW	30%	17%	17%	16%	20%	1989
41.	CAE	Cameroon	0.5099 UW	26%	20%	19%	14%	15%	1988
42.	GUI	Guinea	0.2513 UW	17%	7%	7%	7%	10%	1989
43.	CNG	Congo	0.0974 UW	..	71%	..	..	..	1986
44.	EQG	Equat. Guinea	0.0135 UW	28%	3%	4%	..	16%	1985
45.	GAM	Gambia	0.0342 UW	96%	77%	82%	..	..	1987
46.	REU	Reunion	0.0132 UW	..	..	..	..	..	
47.	SAH	St Helena	0.0001 UW	..	..	..	..	..	
	AFR	Africa Region	21.3356	72%	52%	46%	51%	31%	

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APPENDIX 4

Ranked Annual Drop out Rates

Region: Africa
Latest data available in 1991

Ranked on BCG - Measles Dropout rate

Rank	Location		Survivors	No Access Diff	Out	BCG < 1 Doses	Cov	Measles < 1 Doses	Cov	BCG - Meas Dropout Diff	Out	Year of data
1.	MAD	Madagascar	481362	110713	23%	370649	77%	149222	31%	221427	60%	1989
2.	GUI	Guinea	251290	208571	83%	42719	17%	17590	7%	25129	59%	1989
3.	MAU	Mauritania	81963	18851	23%	63112	77%	26228	32%	36884	58%	1987
4.	NIG	Niger	346533	187128	54%	159405	46%	72772	21%	86633	54%	1990
5.	CHA	Chad	216642	142983	66%	73659	34%	36829	17%	36830	50%	1987
6.	MAI	Mali	391638	133157	34%	258481	66%	133157	34%	125324	48%	1990
7.	ETH	Ethiopia	2078893	1455225	70%	623668	30%	332623	16%	291045	47%	1989
8.	CAE	Cameroon	509933	377350	74%	132583	26%	71391	14%	61192	46%	1988
9.	NIE	Nigeria	4635053	185402	4%	4449651	96%	2502928	54%	1946723	44%	1990
10.	BEN	Benin	207457	109952	53%	97505	47%	56014	27%	41491	43%	1987
11.	TOG	Togo	143284	38687	27%	104597	73%	60180	42%	44417	42%	1989
12.	GUB	Guinea-Bissau	35187	704	2%	34483	98%	21112	60%	13371	39%	1987
13.	UGA	Uganda	876866	78918	9%	797948	91%	508582	58%	289366	36%	1990
14.	GAB	Gabon	43210	4321	10%	38889	90%	28519	66%	10370	27%	1987
15.	SEN	Senegal	300118	36015	12%	264103	88%	192075	64%	72028	27%	1989
16.	GHA	Ghana	604159	114791	19%	489368	81%	362495	60%	126873	26%	1990
17.	SOA	South Africa	1041991	156299	15%	885692	85%	656454	63%	229238	26%	1990
18.	ZAI	Zaire	1486684	609540	41%	877144	59%	654141	44%	223003	25%	1989
19.	ZAM	Zambia	395624	87038	22%	308586	78%	233418	59%	75168	24%	1989
20.	BUU	Burundi	228489	6854	3%	221635	97%	171366	75%	50269	23%	1990
21.	SIL	Sierra Leone	170111	3402	2%	166709	98%	127584	75%	39125	23%	1990
22.	COM	Comoros	23587	2123	9%	21464	91%	16747	71%	4717	22%	1987
23.	STP	Sao Tome & Prin	3790	454	12%	3336	88%	2616	69%	720	22%	1988
24.	ANG	Angola	407506	215978	53%	191528	47%	154853	38%	36675	19%	1990
25.	CAV	Cape Verde	14441	433	3%	14008	97%	11409	79%	2599	19%	1990
26.	KEN	Kenya	1051759	210352	20%	841407	80%	683643	65%	157764	19%	1986
27.	RWA	Rwanda	323178	35550	11%	287628	89%	239151	74%	48477	17%	1987
28.	ALG	Algeria	818868	8189	1%	810679	99%	679660	83%	131019	16%	1991
29.	NAM	Namibia	68398	6839	10%	61559	90%	52666	77%	8893	14%	1989
30.	ZIM	Zimbabwe	372126	55818	15%	316308	85%	271652	73%	44656	14%	1987
31.	IVC	Cote d'Ivoire	542609	330992	61%	211617	39%	184487	34%	27130	13%	1989
32.	MAL	Malawi	417813	33425	8%	384388	92%	338428	81%	45960	12%	1987
33.	MAS	Mauritius	19053	1143	6%	17910	94%	15814	83%	2096	12%	1989
34.	LES	Lesotho	65030	13656	21%	51374	79%	45521	70%	5853	11%	1989
35.	SWZ	Swaziland	32664	1306	4%	31358	96%	27764	85%	3594	11%	1989
36.	MOZ	Mozambique	601344	306685	51%	294659	49%	264591	44%	30068	10%	1988
37.	SEY	Seychelles	1777	36	2%	1741	98%	1582	89%	159	9%	1990
38.	TAN	Tanzania	1234259	74055	6%	1160204	94%	1086148	88%	74056	6%	1987
39.	BOT	Botswana	56495	22033	39%	34462	61%	33897	60%	565	2%	1987
40.	LIB	Liberia	104652	61745	59%	42907	41%	41861	40%	1046	2%	1987
41.	BFA	Burkina Faso	367507	...	..	...	..	147003	40%	...	..	1987
42.	CNG	Congo	97373	...	..	...	..	...	..	...	..	1986
43.	EQG	Equat. Guinea	13542	9751	72%	3791	28%	...	..	...	..	1985
44.	GAM	Gambia	34205	1369	4%	32836	96%	...	..	...	..	1987
45.	REU	Reunion	13164	...	..	...	..	...	..	...	..	
46.	SAH	St Helena	104	...	..	...	..	...	..	...	..	
47.	CAF	Cen. Afr. Rep.	123894	70619	57%	53275	43%	68141	55%	-14866	-28%	1988
	AFR	Africa Region	21335625	6006600	28%	15329025	72%	10782314	51%	4546711	30%	

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APPENDIX 5

Measles Immunization Indicators for Nigeria, Zones B-D, and Lagos State, and Rank Order of Lagos' Performance, 1991

Indicator Lagos (N=22)	National (percent)	Zone B (percent)	Zone C (percent)	Zone D (percent)	Lagos State (percent)	Rank Order*
Accessibility						
-proportion with any immunization	96.3	95.7	97.3	96.3	97.6	13
DPT3 coverage by 12 months, crude	62.3	73.4	58.4	51.1	80.0	6
Measles coverage						
-crude	84.7	81.9	90.3	82.5	77.5	17
-valid, card & history	77.0	75.6	80.5	72.6	66.8	19
-valid, card only	69.3	67.5	73.8	63.8	56.9	18
Measles coverage by 12 months						
-crude	60.9	64.9	64.4	52.9	63.7	12
-valid, card & history	53.7	58.9	54.9	44.1	53.4	13
-valid, card only	48.7	53.1	51.0	38.8	45.5	14
Drop-out rates, crude						
-DPT1 to DPT3	14.7	12.7	10.8	22.7	9.0	8
-DPT1 to measles	10.7	13.4	6.9	11.9	18.6	21
-DPT3 to measles	none	0.8	none	none	10.5	22
Proportion of measles doses, crude						
-before 12 months old	71.9	79.2	71.3	64.1	82.2	5
-before 36 weeks old	8.9	7.8	11.0	11.4	13.8	18
Missed opportunities for measles immunization	19.1	12.1	21.6	29.2	7.6	4
-proportion corrected	65.4	65.3	85.2	51.4	38.2	21
Proportion of measles doses by private sector	3.3	5.7	0.8	0.8	18.5	1

* a rank order of 1 signifies the best performance

Source: based on data presented in FMOH, Lagos - Expanded Program on Immunization. National Coverage Survey. (Preliminary Report: 18 April 1991)

APPENDIX 6

Scope of Work

Follow-Up Visit for Nigerian Urban EPI Programming

After preliminary REACH visit to Nigeria to determine interest and possibilities for future urban EPI interventions in one or more cities, a follow-on visit is recommended to:

- conduct in-depth review of urban-specific epi needs;
- work with government and donors to determine which city(s) should be scheduled for intensified EPI efforts;
- prepare workplans for urban EPI activities to be implemented during next two year period.

Specifically the follow-on visit will be organized as follows:

a) Review, with FMOH, the status of urban EPI in Lagos as well as one other selected urban area in the Northern Region of Nigeria. This would include: determine the extent of immunization coverage and vaccine-preventable diseases in urban areas and the quality of surveillance and monitoring. Sources of information would be coverage data, vaccine use, and disease indicence. Of particular interest will be the lowest income urban neighborhoods.

b) Conduct an urban needs assessment in two cities which would include: clearly demarcating city physical boundaries, demographics, establishing an urban quote poverty threshold unquote, locating low income neighborhoods, understanding urban social structure and communications for various EPI target populations.

c) Identify the various partners (public and private) responsible (or potentially) for EPI services in the city, including assessing how responsibilities for an urban EPI effort could be shared.

d) Review the existing public health service structure in terms of: existence and/or location of fixed health facilities, health personnel, supplies and equipment, logistic needs, training needs, and any resource gaps.

e) Determine the social mobilization/communications needs in the cities for EPI.

f) Review FMOH plans (as well as state and LGA) for integration of EPI and other health services.

g) Identify realistic roles for the public as well as the private sectors for the above.

h) Upon completion of a) through g) above, assist FMOH (with substantial donor consultation with CCCD and UNICEF) in creating detailed plans of action for each city. The plans will also consider eventual goals of national policy formulation for urban EPI and other PHC.

i) The team will work with USAID and FMOH to identify and recruit one or two national urban EPI officers who will be responsible for implementing the plans of action with government.

j) REACH will supply two-person months of TA to conduct this work with one medical epidemiologist experienced in urban EPI, and one urban planner experienced in urban EPI planning. Ideally the visit will be scheduled for 4 weeks in January 1992. REACH core funds will support all costs associated with consultants.

k) the FMOH has agreed to detach one full time counterpart to the team who would work with them at all times, including making necessary field visits outside of Lagos. Their travel and per diem costs could be covered by government and/or REACH. Alternatively, UNICEF may be approached to cover costs of national participants.

l) Finally, the team will identify resource requirements and source of funds to finance implementation of workplans.