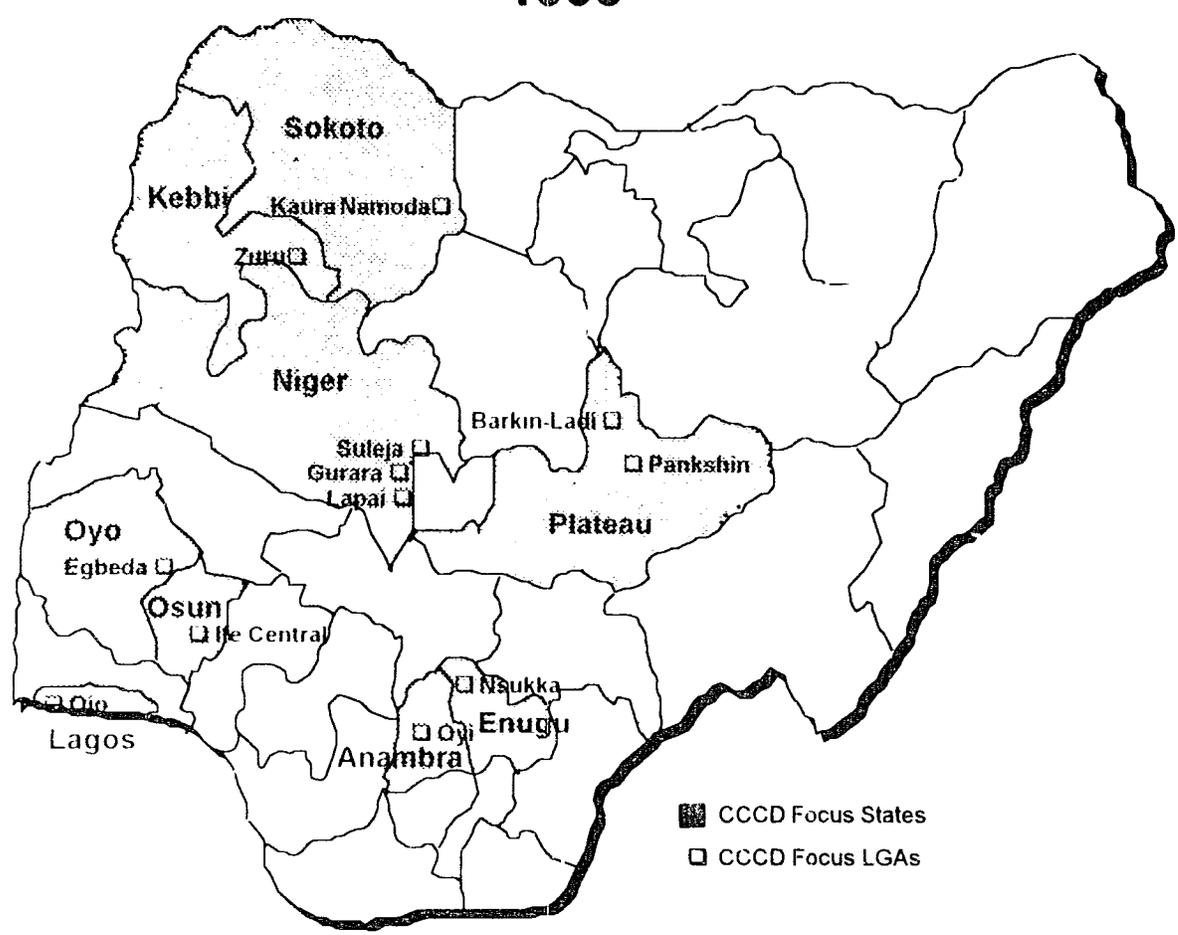


**Africa Child Survival Initiative
Combatting Childhood Communicable Diseases**

**NIGERIA
FINAL REPORT
1993**



**A collaborative project
of
Nigeria Federal Ministry of Health and Social Services
Centers for Disease Control and Prevention
United States Agency for International Development**

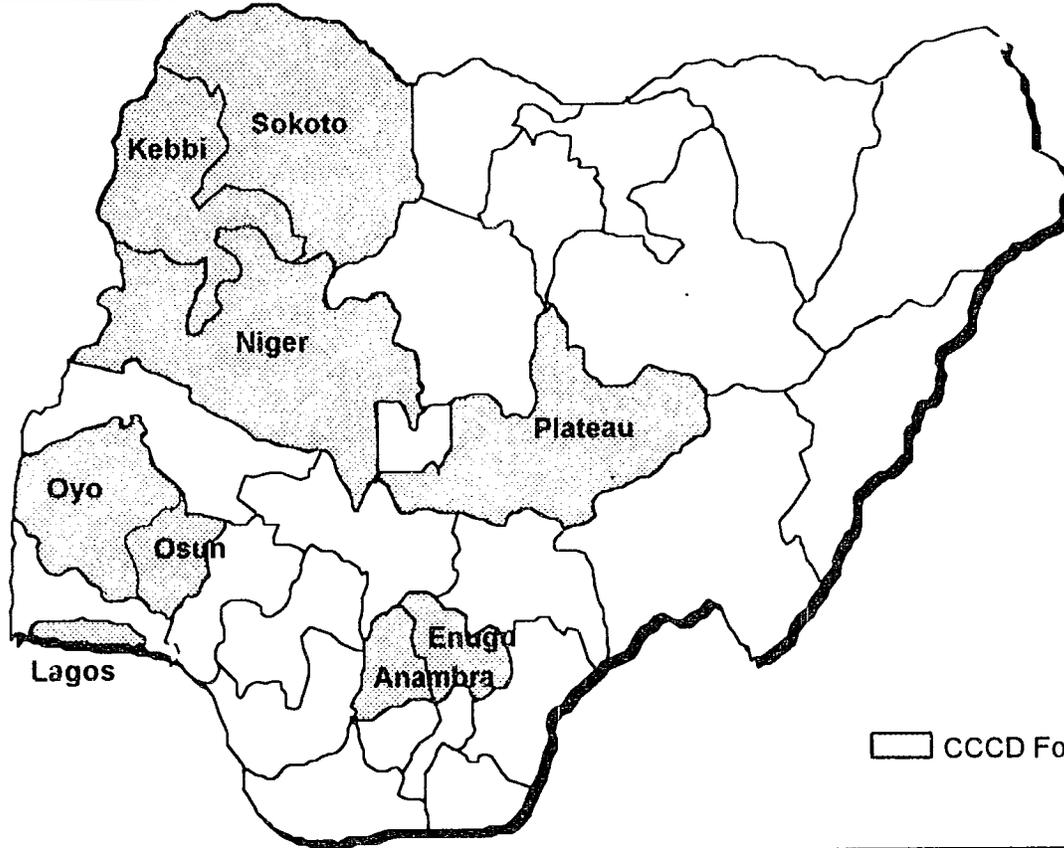
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NIGERIA

| NORTHWEST | |
|-----------------------|-------|
| Infant Mortality Rate | 109.8 |
| <5 Mortality Rate | 244.4 |

| NORTHEAST | |
|-----------------------|-------|
| Infant Mortality Rate | 87.7 |
| <5 Mortality Rate | 214.6 |



☐ CCD Focus States

| SOUTHWEST | |
|-----------------------|-------|
| Infant Mortality Rate | 84.6 |
| <5 Mortality Rate | 167.2 |

| SOUTHEAST | |
|-----------------------|-------|
| Infant Mortality Rate | 82.7 |
| <5 Mortality Rate | 143.7 |

Rates per 1,000 live births; 1990 NDHS

HEALTH AND DEMOGRAPHIC INDICATORS

| | 1963 | 1993 ^(est) | | 1963 | 1993 ^(est) |
|-----------------------|------------|-----------------------|--|------|-----------------------|
| Population | 55,700,000 | 94,270,068 | Urban Population (%) | 19 | 35 |
| Births | 3,676,200 | 4,619,233 | Total Fertility Rate | n/a | 6.0 |
| Crude Birth Rate | 66 | 49 | Mean number of children ever born to women 15-49 | n/a | 6.8 |
| Infant Deaths | n/a | 402,797 | Maternal Mortality Rate | n/a | 15 |
| Infant Mortality Rate | n/a | 87.2 | | | |
| <5 Deaths | n/a | 887,816 | | | |
| <5 Mortality Rate | n/a | 192.4 | | | |
| Life Expectancy (yrs) | 36 | 51 | | | |

Sources: 1963 Census/Federal Office of Statistics; 1990 NDHS; 1991 Census and growth rate of 3.2%; U.N. World Population Chart, 1990; FGN/UNICEF Situation Analysis of Women and Children, 1990
Rate per 1,000

CCCD NIGERIA TIMELINE

- 1985 ■ Nigeria Country Assessment
- 1986 ■ CCCD Project Agreement
- Workplan Development
- 1987 ■ First Year CCCD Internal Evaluation
- HEALTHCOM Project
- PRITECH Initiative
- CCCD Operational Research Committee
- 1988 ■ National Malaria Technical Committee
- National Malaria Surveillance Network
- First ARHEC Inter-Country Health Education Course
- 1989 ■ Second Year CCCD Internal Evaluation
- EPI/CDD In-Depth Review
- Niger Continuing Education Pilot Program
- Second ARHEC Inter-Country Health Education Course
- 1990 ■ Focus State/LGA Expansion
- National Demographic and Health Survey
- LGA Facility Assessments/Community Surveys
- Third ARHEC Inter-Country Health Education Course
- 1991 ■ CCCD External Evaluation
- National EPI Coverage Survey
- Nigeria Bulletin of Epidemiology
- CCCD/Peace Corps Collaboration
- 1992 ■ REACH Urban EPI Initiative
- Nsukka Bed Net Study
- CCCD Health Education Assessment
- State/LGA Annual Review Meetings
- 1993 ■ CCCD Sustainability Review
- NCCCD Project Design Workshop

INTRODUCTION

BACKGROUND: 1987-1993

The Combatting Childhood Communicable Diseases (CCCD) Project, supported by the United States Agency for International Development (USAID), is part of the regional Africa Child Survival Initiative (ACSI). The ACSI-CCCD Project attempts to strengthen the capabilities of African countries to reduce morbidity and mortality among children under five years of age. With technical direction from the U.S. Centers for Disease Control and Prevention (CDC), and in close collaboration with other donor agencies, such as UNICEF, WHO and Rotary International, CCCD has provided support for child survival initiatives at all levels of Nigeria's health system.

Consistent with Nigeria's national health policy, CCCD has worked to strengthen the various components of Primary Health Care, including the Expanded Programme on Immunization (EPI), the Control of Diarrhoeal Diseases (CDD), and the Malaria Control Programme. Specific strategies to support these technical interventions include: Continuing Education (CE), Health Education, Health Information Systems (HIS) and Operational Research. CCCD functions not as a separate vertical programme, but as part of an integrated network organized by the Federal Ministry of Health and Social Services to promote PHC at every administrative level.

In 1990, at the request of the Federal Ministry of Health and Social Services, CCCD broadened its mandate to include intensive support for PHC program development in six Focus States — Anambra, Lagos, Niger, Oyo, Plateau and Sokoto. Three additional states were added in 1992 — Enugu, Kebbi, Osun — for a total of nine Focus States. In addition to state-wide support for the basic CCCD interventions and support strategies, CCCD has provided technical assistance for decentralized PHC service delivery at the Local Government Area (LGA) level. With support from the CCCD Project Offices in Lagos and Kaduna, a team of five State-Based Epidemiologists provide on-site technical assistance to Ministries of Health and Local Government PHC Departments in the nine Focus States.

Objective of the Report

During the past seven years, significant progress has been made in strengthening Nigerian capacity to plan, implement and monitor primary health care programs at all levels. This report provides a brief overview of key program highlights from 1987-1993 related to the major CCCD technical interventions and support strategies. The report provides a review of major activities and lessons learned at the national level and in the nine CCCD Focus States, and lays the groundwork for future directions in the new *Nigeria* CCCD Project. Finally, a section on Monitoring and Evaluation reviews CCCD project targets and indicators, and monitoring efforts to date.

FUTURE DIRECTIONS: 1994-2000

Based on a thorough technical analysis of progress made during the CCCD Project from 1987-1993, Federal, State and LGA representatives collaborated with USAID to design a new *Nigeria* Combatting Childhood Communicable Diseases (NCCCD) Project that will be implemented over a seven-year period, from 1994-2000. The NCCCD Project will build on the groundwork laid by CCCD, with expansion of activities to include additional technical interventions and improved mechanisms for strengthening the nation's capacity to support PHC implementation. The NCCCD Project will be implemented through the Government's three-tier administrative structure with expanded participation of the private sector. Major emphasis will be directed toward the nine Focus States. Building on the efforts currently underway in twelve "model" PHC LGAs, it is projected that by the end of the decade, up to sixty LGAs would have actively participated in the Project. Major implementation partners include the National PHC Development Agency, the Federal Ministry of Health and Social Services, State Ministries of Health and Local Government Areas. Close coordination will be maintained with other major international partners in health sector development including UNICEF, WHO, World Bank, Overseas Development Administration, Rotary International and the African Development Bank.

NCCCD Major Child Survival Interventions

Expanded Program on Immunization (EPI):

To achieve the basic EPI objectives of 80% coverage and reduced vaccine-preventable disease incidence, NCCCD will strengthen EPI delivery capacity in

both rural and urban areas. Lessons from the REACH Urban EPI Initiative in Lagos State will be applied in urban settings in other Focus States, with emphasis on better use of data for programmatic purposes and innovative strategies to improve immunization coverage.

The goal of the NCCCD Project is a healthier and more productive society, achieved through reduced fertility and decreased morbidity and mortality. The following five Project outcomes relate to the project purpose of improved maternal and child health practices in Nigeria:

- improved immunization practices and coverage
- improved case management of diarrhoea, acute respiratory infections and malaria
- improved child nutrition practices
- improved maternal care
- improved planning and management of public and private health systems

Maternal and Child Nutrition:

NCCCD will focus on improvement in the nutritional status of children, and lactating and pregnant women, with special emphasis on the reduction of protein energy malnutrition and micronutrient deficiencies. Specific objectives relate to the improvement of maternal and child nutritional practices, including the promotion of breastfeeding and use of proper weaning foods.

Safe Motherhood and Child Spacing:

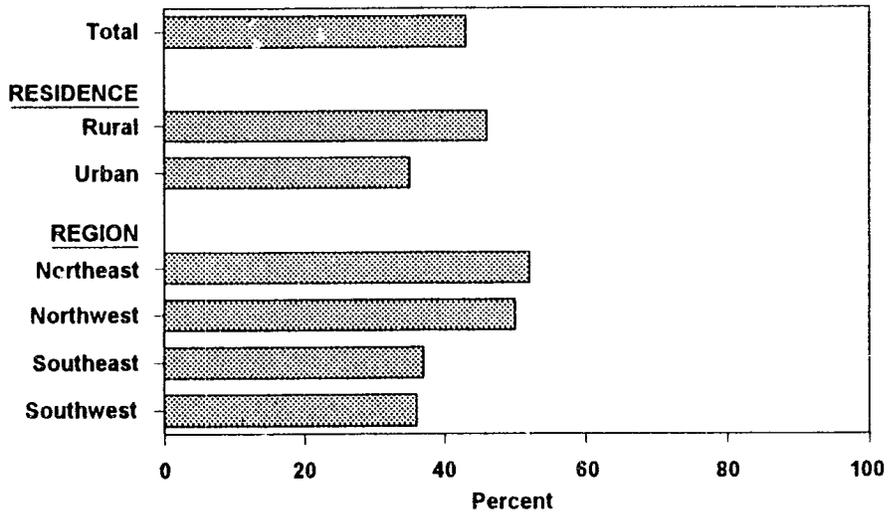
Maternal health initiatives under NCCCD will promote safe motherhood through emphasis on policy change and operations research for solving problems related to high maternal and neonatal morbidity and mortality. Efforts will be made to strengthen the quality of, and access to, maternal health services; disseminate child spacing information and counselling; upgrade clinical and education/counselling skills among health providers; and increase community knowledge about problems arising during pregnancy.

Case Management of the Sick Child: Recognizing the need for a holistic approach to the treatment of infant and child illness, NCCCD will emphasize integrated case management strategies for children with malaria/fever, diarrhoea and acute respiratory infections, at both government and private health institutions.

NCCCD Strategies to Strengthen Infrastructure in Support of Technical Interventions

Training of Health Workers: Correct application of available technologies, and effective teaching of health behaviors, depends upon competent, well-informed health care workers. CONTINUING EDUCATION and SUPERVISION are critical components of an effective training strategy. NCCCD will continue to expand and upgrade the quality of Continuing Education and training activities.

**Nutritional Status
Children <5 Years with Chronic Undernutrition
Nigeria, 1990**



Source: NDHS, 1990

Note: Chronically undernourished = <250 SD from median of ref. pop. for height-for-age

Health Education and Communications: Family behaviors determine who will avail themselves of preventive and curative services, what home treatments are provided, and at what points in a child's illness health services are accessed and utilized. A major challenge for NCCCD will be to influence family and community behavior in support of prevention and to improve the quality of participation in facility-based case management.

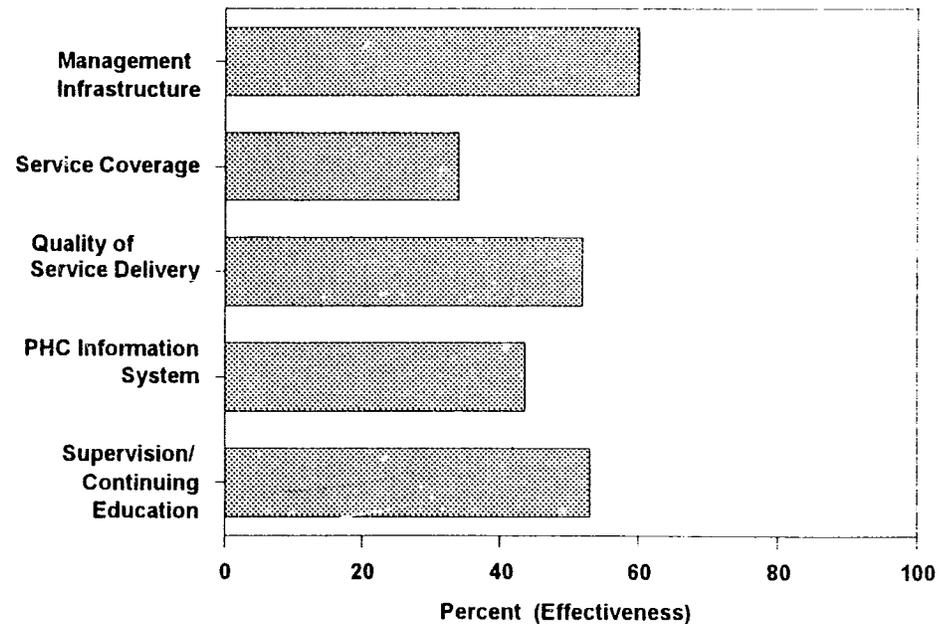
Health Information Systems: Decision makers need to know what data are required to make correct decisions, and they need to have access to and USE these data to guide policy, planning, and programs over time. Health Information Systems should be driven by program requirements and should serve as a motivating force in the integration of health services. NCCCD will provide technical assistance to strengthen the national HIS (including HIV/STD surveillance), with particular attention to the development of HIS capacities in Focus States. Utilization of data for decision-making and sustainability of feedback mechanisms such as the *Nigeria Bulletin of Epidemiology* and State and LGA Health Bulletins, will be encouraged.

Essential Drugs and Cost Recovery: Effective delivery of health services requires the availability of basic affordable essential drugs. Since governments cannot afford to provide drugs, sustainable systems of cost sharing need to be developed. NCCCD will coordinate with partners in the health sector to explore and formulate strategies for involvement in cost recovery activities, such as the Bamako Initiative.

Management: Improved planning and management of health sector resources at the local level will be a fundamental component of all NCCCD support strategies. Management includes leadership, organization, integration, decentralization, optimal resource utilization, monitoring, personnel, problem solving, and reporting/communication related to program implementation.

Quality Assurance: As health service delivery systems develop and improve, and as access to preventive and curative services increases, assuring the *quality* of services becomes increasingly important. The USAID Quality Assurance Initiative (QAI) will focus on several dimensions of quality -- quality of care, client satisfaction and system efficiency. NCCCD will collaborate with QAI to incorporate quality assurance elements throughout project activities.

**PHC Implementation in 548 Local Government Areas
Baseline Data for Five Composite Management Indicators
Nigeria, 1992**



Source: NPHCDA, Department of Planning, Research, Monitoring and Evaluation

Operational Research: During the 1990s, it will be critically important to explore improved strategies for the delivery of basic PHC interventions, and to enhance understanding of disease patterns and health practices. NCCCD will continue to promote and support relevant PHC-related operational research activities.

Private Sector Initiatives: Given the substantial contribution of the private sector in the provision of health services in Nigeria, NCCCD envisions support for a range of activities targetting the private sector, including strengthening of service delivery, improvement of managerial capacity, and introduction of primary health care information, products and services in urban areas.

Epidemiologic Capacity Building: Epidemiology and surveillance have broad practical application for public health programs. NCCCD will enhance epidemiologic capacity in Nigeria to strengthen response to both epidemiologic and program needs.

TECHNICAL INTERVENTIONS

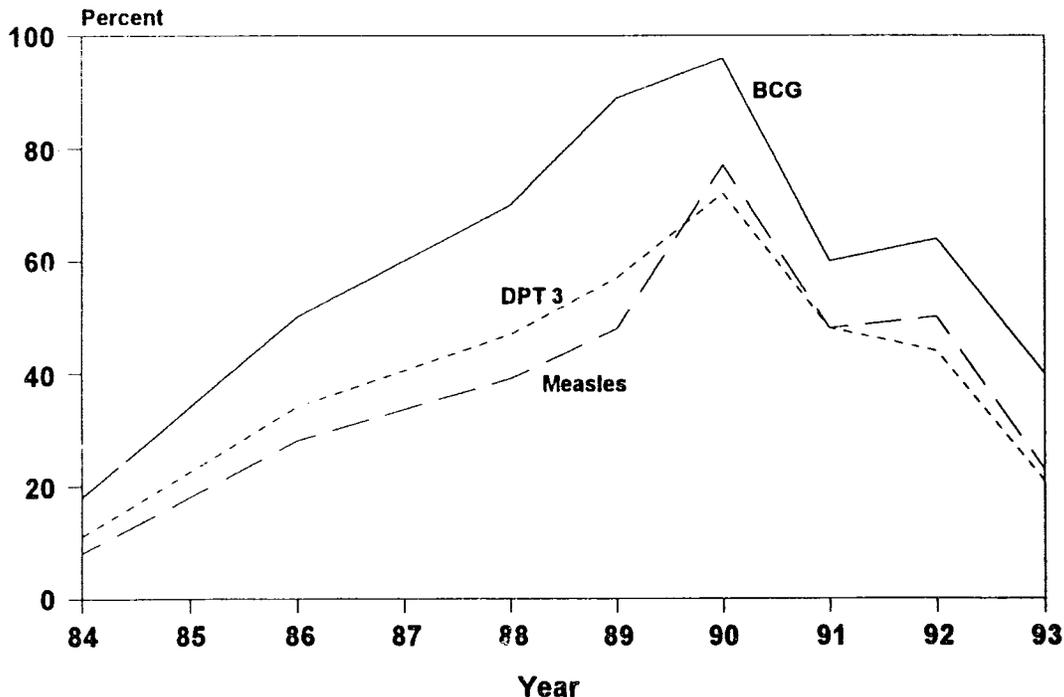
IMMUNIZATION

Of the approximately 4 million children born in Nigeria each year, an estimated 800,000 children do not survive until their fifth birthdays. Up to 25% (200,000) of these deaths are associated with diseases preventable by immunization — measles, neonatal tetanus and pertussis. Additional children are disabled with vaccine-preventable complications such as blindness from measles, undernutrition from measles and pertussis, and paralysis from poliomyelitis.

Since the relaunching of the Expanded Programme on Immunization (EPI) in Nigeria in 1984, significant progress has been achieved in providing vaccines to the high-risk population under one year of age. In 1990, EPI coverage for most antigens approached the Africa target of 80%. Since 1991, coverage has decreased for all EPI antigens. Based on reports for the first nine months of 1993, projected annual coverage has fallen to the 30% range. Overall, the incidence of vaccine-preventable diseases, especially measles and pertussis, has fallen since the early 1980s.

The decrease in EPI coverage represents the combined effects of a number of factors, including: 1) shift in program emphasis from a heavily externally subsidized push to reach 80% coverage toward routine maintenance immunization, 2) decentralization with shift in EPI responsibility to the LGA level, 3) increased numbers of States and LGAs and resultant lack of trained personnel and equipment, 4) decreased external support for EPI, 5) lack of critical line-item budgets for EPI at each level, 6) decreased availability and inadequate distribution of vaccines, 7) political instability, 8) decreased access to transportation due to vehicle aging, lack of funds for maintenance, petrol shortages, and appropriation of vehicles for non-EPI use, and 9) decreased levels of advocacy and community mobilization for EPI.

**Immunization Coverage, by Antigen
Children 12-23 Months, Nigeria, 1984-93**



Source: FMOHSS, Epid Division and NPHCDA, M&E Division

1993 ACTIVITIES

As member of National EPI Technical Committee, participated in development of National 5-Year EPI Plan of Action.

Supported drafting of National EPI Policy and Guidelines.

Processed \$680,000 cold chain equipment order through UNICEF to provide EPI equipment/supplies for CCCD Focus States and LGAs.

Coordinated with REACH Urban EPI Initiative to improve EPI services in twelve urban LGAs in Lagos State through social mobilization, reduction of missed opportunities, and development of effective systems for monitoring and supervision.

In response to concerns about the inavailability of EPI vaccines in some areas, conducted assessment of vaccine procurement and distribution systems at national cold store in Kano.

Continued development and field-testing of Commodity Logistics Management (CLM) software to monitor vaccine distribution and usage.

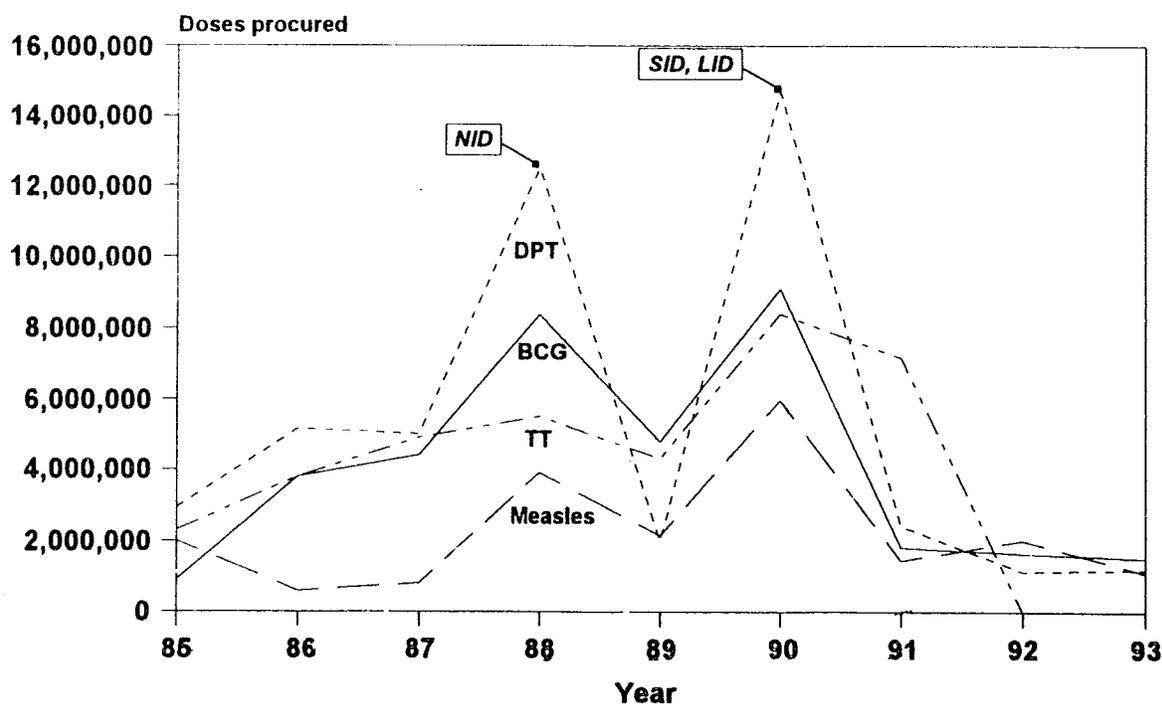
Assisted PHC EPI personnel in Focus LGAs to strengthen EPI outreach strategies and cold chain management.

Supported EPI technical and management/supervisory skills training for LGA Managers and facility-based PHC workers.

PROGRAM HIGHLIGHTS

| | |
|------|--|
| 1987 | \$6,000,000 USAID grant to UNICEF for EPI cold chain equipment |
| 1988 | National Immunization Days |
| 1989 | National EPI/CDD In-Depth Review |
| 1990 | National EPI Schedule revised State and Local Immunization Days |
| 1991 | National EPI Coverage Survey Yellow Fever Epidemic support |
| 1992 | REACH Urban EPI Initiative |

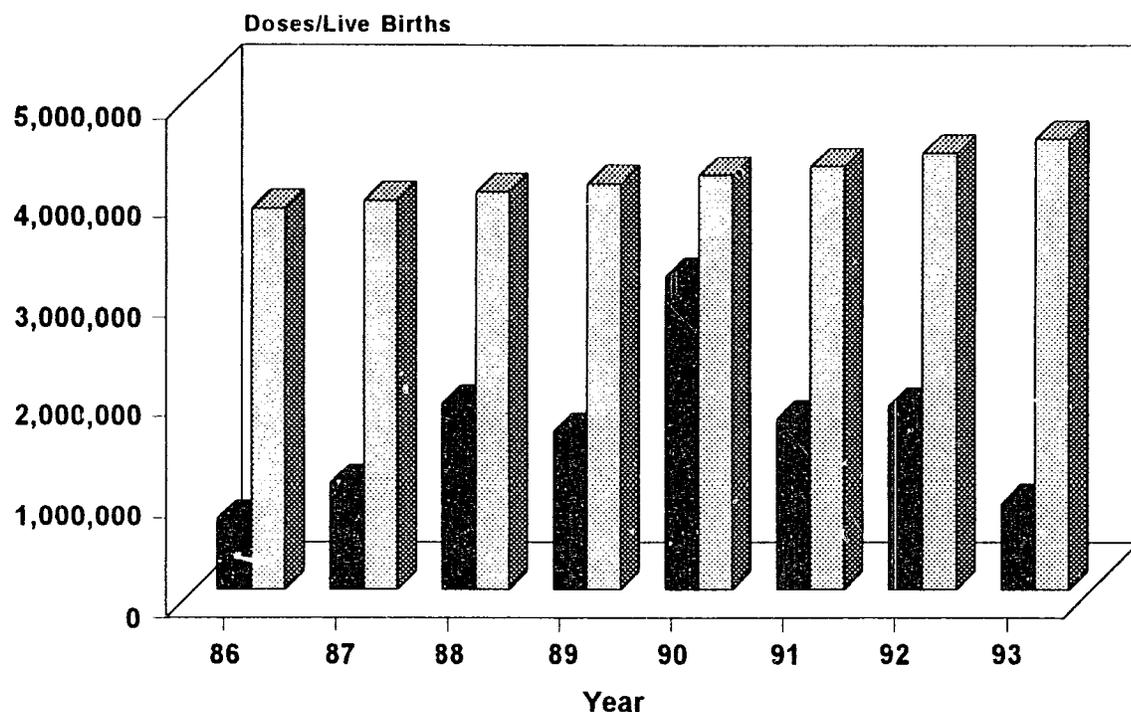
**Vaccine Procurement
National Cold Store, Oshodi
Nigeria, 1985-93**



Source: National Cold Store, Oshodi

Note: NID, LID, SID - National, State, Local Immunization Day Campaigns

Measles Immunizations Doses <12 Months and Number of Live Births Nigeria, 1986-93



Source: FMOHSS, Epid Division and NPHCDA, M&E Division

■ Doses

□ Live Births

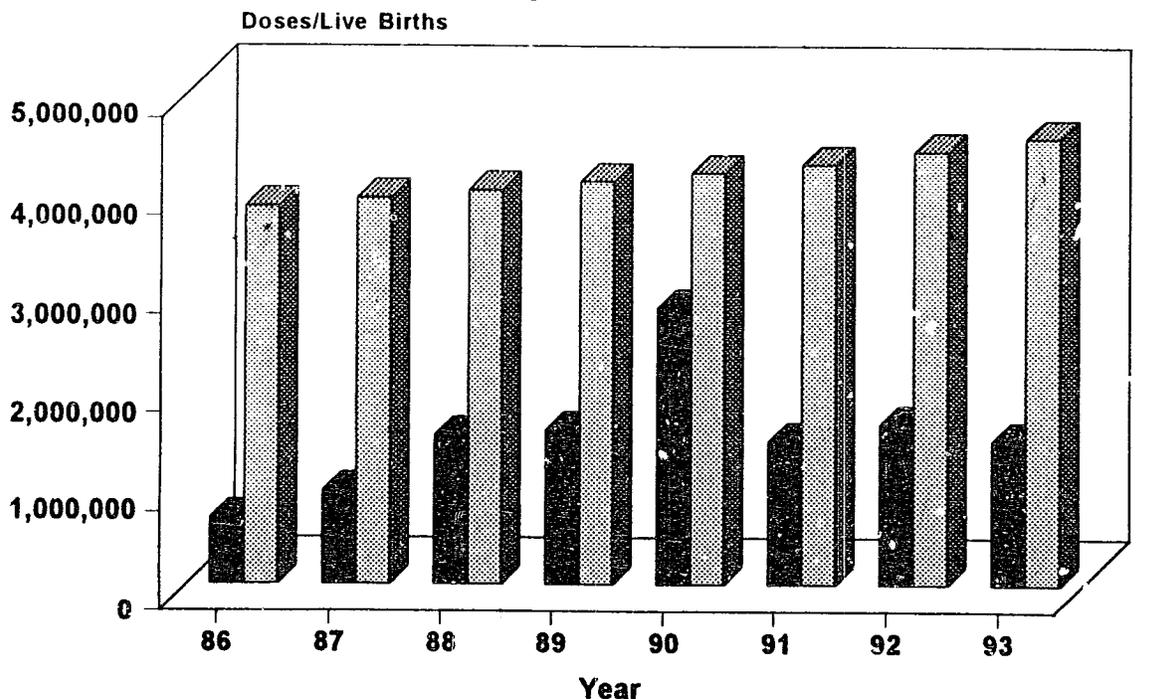
LESSONS LEARNED

National EPI program reviews and assessments have highlighted a number of issues important for effective and sustainable EPI implementation. Among these issues are the following:

- **Leadership:** Political and technical leadership at all levels of government, including advocacy and accountability for EPI, are fundamental to effective implementation of EPI.
- **Policy:** While Nigeria has adopted the WHO-recommended EPI schedule, additional support is needed to disseminate the schedule among public- and private-sector health providers.
- **Targets:** Nigeria has ascribed to the goals set at the World Summit for Children — 90% reduction in measles cases and 95% reduction in measles deaths by 1995, neonatal tetanus elimination by 1995, and polio eradication by 2000. Within this framework, EPI targets may be most effective where they are set by those responsible for implementation — health facility, district, LGA — taking local conditions and resources into account.
- **Strategy:** Considering the heterogeneity of Nigeria and the varying ability of LGAs to reach their targets, both routine and accelerated strategies may apply. In LGAs with well-developed infrastructures, 80% or higher coverage may be obtained through use of fixed facilities. In rural LGAs with limited access of the population to fixed health facilities, accelerated strategies may be necessary to achieve 50% coverage. From an epidemiologic perspective, acceleration efforts are most effective when carried out biannually and timed seasonally over a three- to five-year period. At the facility-level, a single vaccine delivery strategy may not be appropriate for all settings. In low-density populations with good access to health facilities, scheduled one-day-per-week or even one-day-per-month immunization sessions will achieve desired levels of coverage. In densely populated areas and in areas of limited access, daily immunization with screening and immunization of all eligible infants and fertile-age women attending clinics for preventive and curative services will reduce missed opportunities for immunization.

- **Vaccine Supply and Cold Chain:** EPI is only effective if potent vaccines are available at each level of vaccine storage and use — Federal, State, LGA, facility and outreach site. Equipment at central storage facilities, and at State and LGA Cold Stores, require routine maintenance and long-term replacement plans, along with training and supervision.
- **Sterilization:** With Hepatitis B and increasing rates of HIV, every injection must be given with a sterile needle and syringe. For routine immunization, this can be accomplished using sterilized reusable syringes and needles. Such a practice requires equipment, a new supply of syringes and needles annually, training, and supervision. Because high numbers of children are immunized during campaigns, more expensive disposable syringes and needles may be needed.
- **Training and Supervision:** While basic EPI training has been effective in increasing knowledge, facility assessments of actual performance indicate that continuing education, on-the-job training, and regular supervision are critical for maintaining minimum levels of safe and effective practice. Training and supervision are high priorities and require the continuing coordinated efforts of LGA, State and Federal staff, along with implementing partners.
- **Transport:** EPI implementation is transport-dependent. In many areas, EPI has stopped for lack of functioning vehicles, funds for travel, and/or availability of petrol. Development and implementation of practical transportation policies need further attention, with consideration given to the expanded utilization of motorcycles.
- **Community Mobilization and Ownership:** High EPI coverage rates are obtained and maintained in communities where the consumer becomes an active partner, rather than a passive participant, in health services. Such a partnership involves political leadership, knowledge of the importance and benefits of immunization, and participation in the planning and monitoring of health services. Communities need to be informed through health education, encouraged through advocacy and IEC/communications, and mobilized. Mechanisms to improve community mobilization include political and traditional leadership, NGO involvement, and EPI advocacy through religious institutions and community organizations, especially women's groups. Health providers, both public and private, are key sources of information on immunization and can serve as catalysts for mobilizing communities.

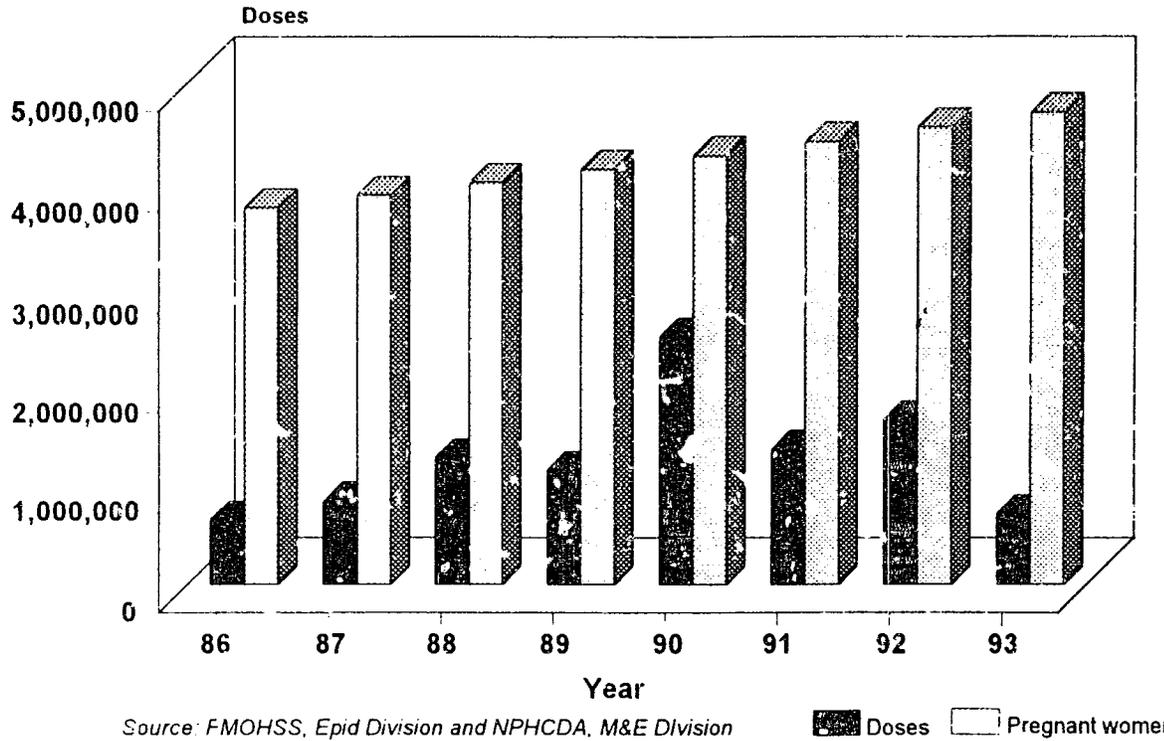
**DPT 3 Immunizations
Doses <12 Months and Number of Live Births
Nigeria, 1986-93**



Source: FMOHSS, Epid Division and NPHCDA, M&E Division

■ Doses □ Live Births

TT 2 Immunizations Doses and Number of Pregnant Women Nigeria, 1986-93

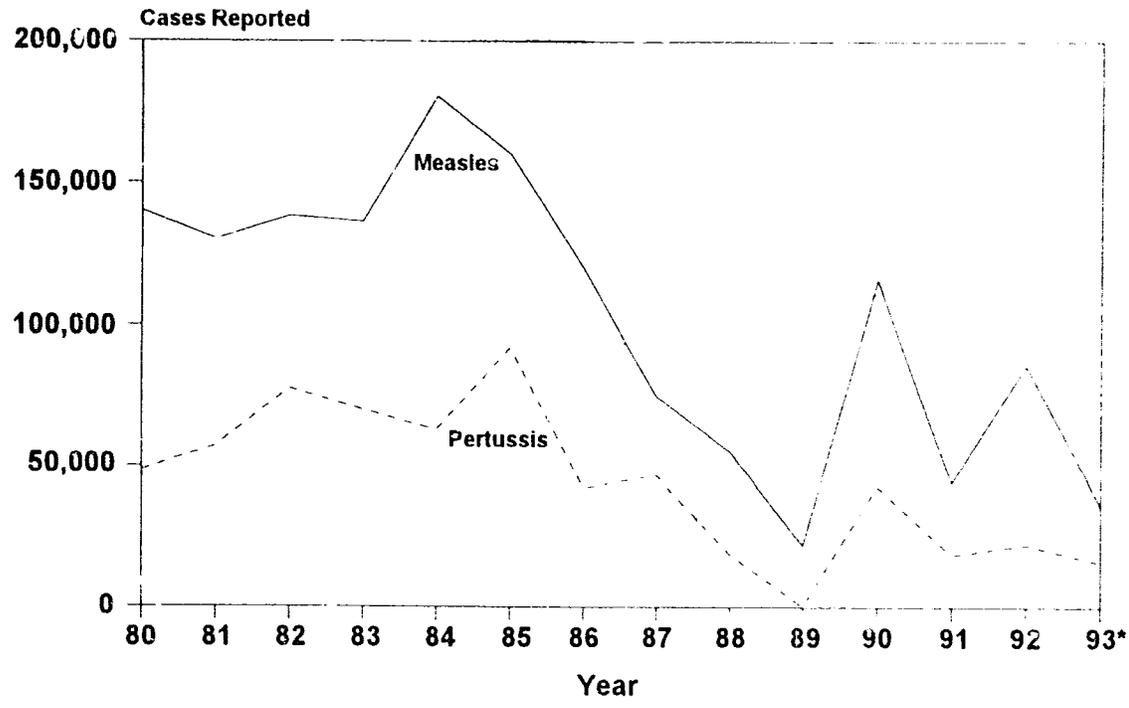


- **Monitoring:** EPI has two basic goals — improved coverage and disease reduction. For maximum effectiveness, monitoring needs to be carried out at each level — community, health facility area, district, LGA, and State. Comparing immunizations administered to children under one year of age with the estimated target population provides political decision-makers, health providers, and communities with a simple mechanism for monitoring their ability to deliver immunization services.

FUTURE DIRECTIONS

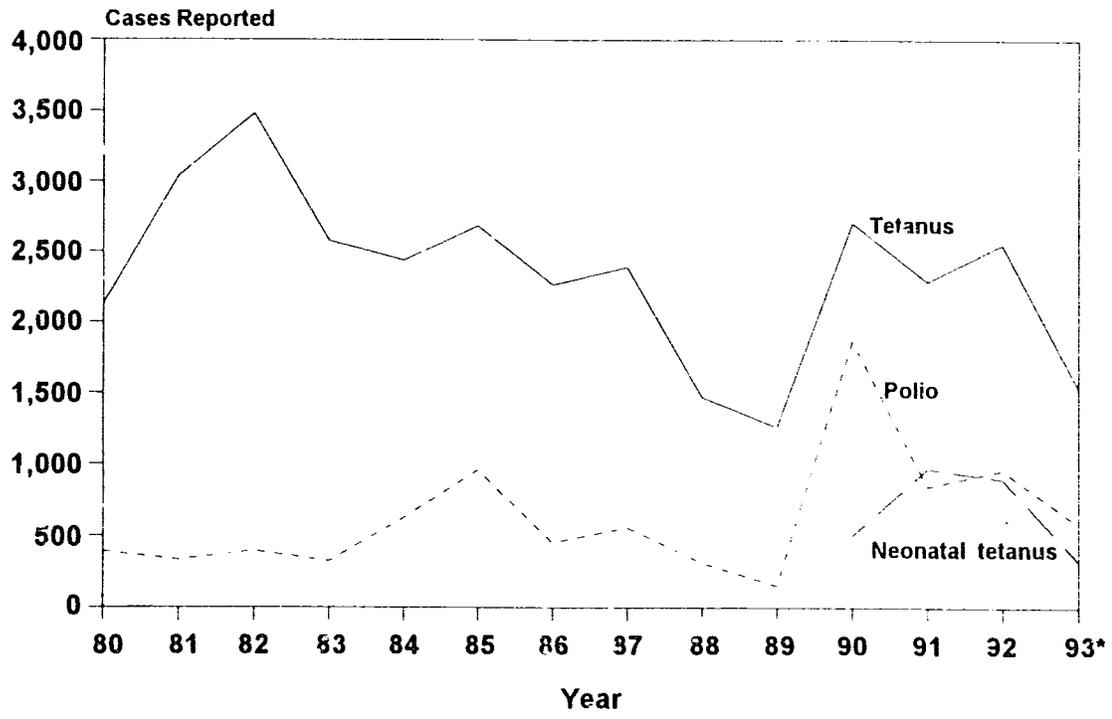
- Support National 5-Year EPI Plan of Action, including LGA-level acceleration efforts.
- Coordinate with Federal and State Ministries of Health to develop strategies for ensuring vaccine potency.
- Implement strategies to reduce missed opportunities for immunizing sick children attending health facilities for curative services.
- Assist in dissemination and training on National EPI Policy and Guidelines.
- Continue EPI technical and management/supervisory skills training through State Continuing Education Programs.
- Provide technical support to strengthen national cold store at Oshodi and Kano, including development and field-testing of Commodity and Logistics Management (CLM) computer program.
- Apply lessons learned through REACH Urban Lagos EPI Initiative to urban settings in other NCCCD Focus States.
- Support relevant EPI-related operational research.

Measles and Pertussis Cases, All Ages Nigeria, 1980-93



Source: FMOHSS, Disease Surveillance Notification (DSN) System
*Through October 31, 1993

Polio and Tetanus Cases, All Ages Nigeria, 1980-93



Source: FMOHSS, Disease Surveillance Notification (DSN) System
*Through October 31, 1993

DIARRHOEAL DISEASE CONTROL

Diarrhoeal diseases continue to be one of the most important causes of childhood morbidity and mortality in Nigeria. The 1990 Demographic and Health Survey found that 18% of children under five years of age had diarrhoea during the two weeks preceding the survey. National surveillance data, and information from community surveys and hospital record reviews, suggest that diarrhoea incidence and case fatality remain high throughout Nigeria.

In 1986, the National CDD program was established with the primary objective of reducing diarrhoeal mortality and morbidity among children under 5 years of age. A three-phased control strategy was adopted, calling for: 1) reduction in disease incidence through improved availability and use of potable water as well as improved environmental sanitation,

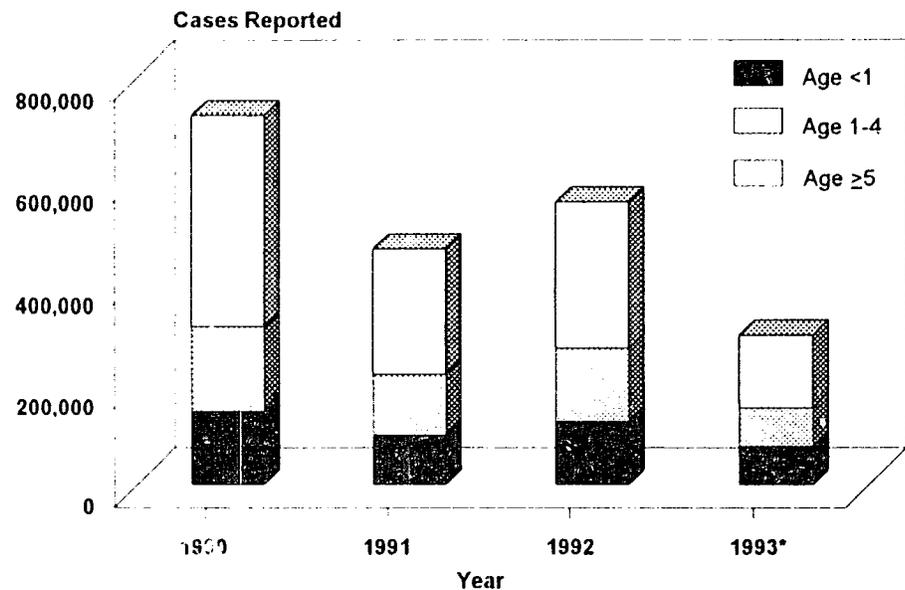
2) home treatment with sugar-salt solution (SSS) and other home fluids to prevent deaths due to dehydration, with continued breastfeeding or early introduction of appropriate foods to prevent malnutrition, and 3) health facility treatment of dehydration with Oral Rehydration Salts (ORS) and mother education in SSS fluid preparation and administration.

Since 1986, considerable effort has been made to address the diarrhoeal disease problem. Diarrhoea Training Units (DTUs) have been established in three Primary Health Care Zones, and Oral Rehydration Therapy (ORT) clinical training has been provided for physicians, nurses and PHC workers throughout the country. CDD Supervisory Skills modules have been adapted for Nigeria and used to train CDD Program Managers at the federal, state and LGA levels.

Despite these efforts, progress has been slow. National data from the 1990 DHS indicate that an unacceptably low percentage of mothers use home fluids (24%) or ORS (12%) to treat diarrhoea. While case management practices among facility health workers have improved through training, facility assessment surveys document a general lack of availability of ORS sachets in most health facilities. "Polypharmacy" (with high use of antibiotics and injections) remains a common practice among health workers, chemists, patent medicine vendors and herbalists.

Difficulties facing the CDD program include: 1) lack of political advocacy and budget for CCD program efforts at all levels, 2) limited program management capacity at the LGA-level, 3) inadequate supplies of ORS and inefficient ORS distribution systems, 4) confusion among health workers resulting from availability of two different sizes of ORS sachets (600ml and 1L), and 5) inadequate logistics support for monitoring and supervision.

**Diarrhoea Cases
Children <5 Years, Nigeria, 1990-93**



Source: FMOHSS, Disease Surveillance
Notification (DSN) System
*Though October 31, 1993

1993 ACTIVITIES

- Supported planning of National Meeting for State CDD Managers to review CDD program issues and develop state workplans.
- Conducted CDD technical and management/supervisory skills training for program managers in Focus States and LGAs
- Established ORT Units/Corners at health facilities in Focus States and LGAs.
- Procured and distributed ORS sachets for CCCD Focus States
- Supported clinical ORT training for hospital personnel and facility-based Primary Health Care workers.
- Conducted community surveys to examine mothers' knowledge and home treatment practices for diarrhoea.
- Conducted facility assessment surveys to document diarrhoea case management practices among health workers and availability of ORT equipment/supplies.
- Provided logistics support to strengthen CDD monitoring and supervision.

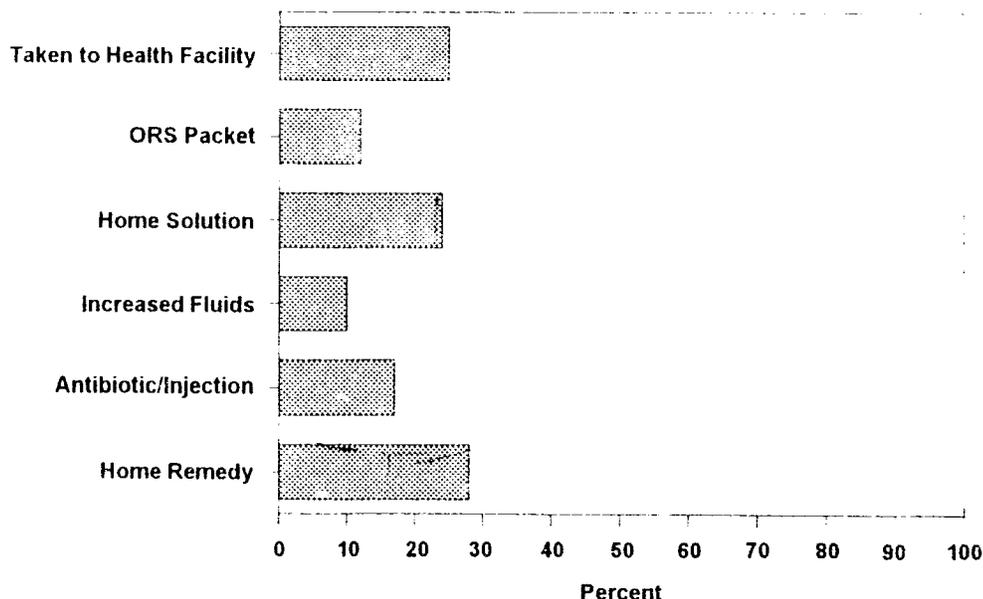
PROGRAM HIGHLIGHTS

| | |
|-------------|--|
| 1987 | ORT Clinical Training CDD Supervisory Skills Training |
| 1988 | PRITECH Initiative |
| 1989 | National EPI/CDD In-Depth Review |
| 1990 | ORS Management Study National CDD Policy revised |
| 1991 | National Cholera Task Force Guidelines for Cholera Control USAID procures 650,000 ORS sachets |
| 1992 | National CDD Review Meeting |

LESSONS LEARNED

- Clinical ORT training for health workers is maximally effective when ORS sachets and equipment/supplies for mixing ORS are available. Strategies for ensuring availability of ORS and other essential drugs, and for strengthening commodity management systems, are essential
- Correct dietary management of diarrhoea, including continued breastfeeding and appropriate feeding, is important for preventing diarrhoea-associated malnutrition. Integration of nutrition education/demonstration into existing ORT Units/Corners may be one strategy for improving dietary practices.
- To reduce missed opportunities for immunizing and treating sick children, diarrhoea case management strategies can be broadened to encompass sick child diagnosis and treatment, and immunization screening.
- Facility assessment surveys and supervisory checklists are useful tools for monitoring the quality of case management practices.

Children Receiving Treatment for Diarrhoea by Type of Treatment, Nigeria, 1990

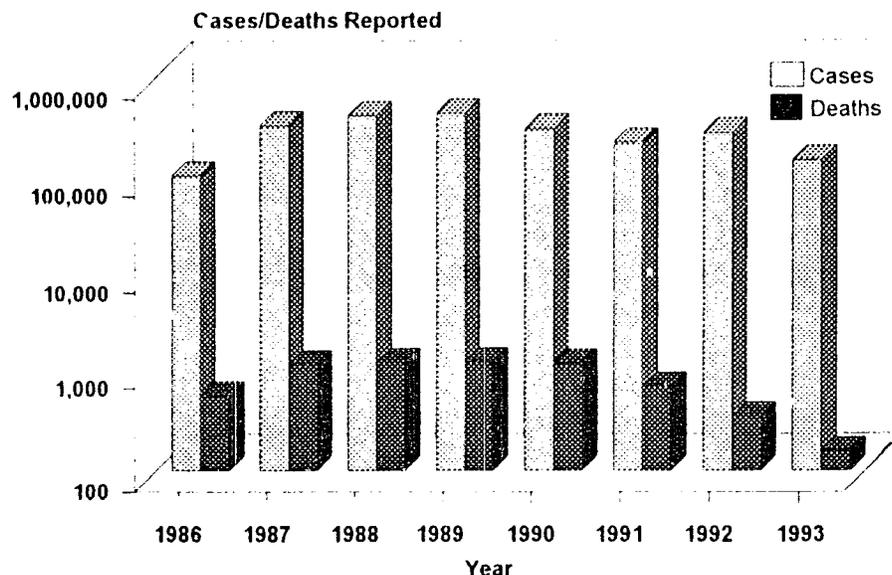


Source: NDHS, 1990

Note: Based on 1,256 children age 1-59 months who had diarrhoea in the two weeks preceding the survey

- In-service training, followed by on-the-job training and supervision, is critical for reinforcing and updating case management skills.
- Community surveys provide useful information on home treatment practices for diarrhoea and on home available fluids used to treat diarrhoea. Additional studies are needed to identify appropriate home fluids and weaning foods for use in different geographic areas of Nigeria.
- Pre-service training on diarrhoea case management is important for medical and pharmacy students, and other health professionals, i.e. nurses, midwives and primary health care extension workers.

Diarrhoea Cases and Deaths Children <5 Years, Nigeria, 1986-93



Source: FMOHSS, Disease Surveillance Notification (DSN) System
*Through October 31, 1993

FUTURE DIRECTIONS

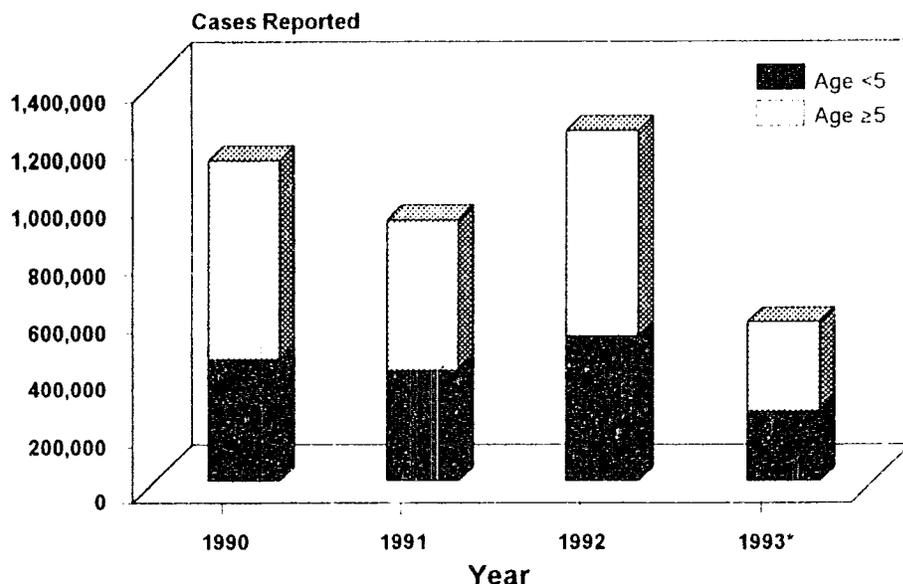
- Coordinate with FMOHSS to improve national ORS supply.
- Support establishment of Zone C Diarrhoea Training Unit and effective utilization of existing three DTUs.
- Provide equipment and supplies to establish functional ORT Units/Corners in hospitals and PHC clinics in Focus States and LGAs.
- Integrate nutrition education into ORT Units/Corners and provide relevant training.
- Improve CDD monitoring and supervision through logistics support and capacity-building for state-level zonal offices.
- Strengthen LGA level CDD program management capacity through management/supervisory skills training for LGA PHC Coordinators, Assistant PHC Coordinators (including CDD Manager) and District Supervisors.
- Improve diarrhoea case management through ORT clinical training for facility-based PHC workers, nurses and physicians.
- Improve home management of diarrhoea in Focus LGAs through community education, emphasizing use of SSS and home available fluids, continued breastfeeding, and referral to health facilities for treatment as needed.
- Support relevant CDD-related operational research to improve program implementation at all levels.
- Strengthen national surveillance for cholera and other diarrhoeal diseases, and promote coordination between Federal Epidemiology Division and CDD Program.

MALARIA

Malaria, especially infection with *P. falciparum*, is the most common cause of out-patient visits at health facilities in Nigeria, and remains among the top five causes of death among children under five years of age.

Since 1987, CCCD has worked closely with the National Malaria and Vector Control Division (NMVCD) to develop and disseminate standard national guidelines for malaria control. A National Malaria Surveillance Network was established to monitor the efficacy of antimalarial drugs throughout Nigeria, and a National Malaria Technical Committee was formed to review technical and policy issues. Since 1989, the national malaria policy relies on the treatment of fever in children with adequate doses of chloroquine, and on malaria chemoprophylaxis of pregnant women.

Malaria Cases
Children <5 Years, Nigeria, 1990-93



Source: FMOHSS, Disease Surveillance Notification (DSN) System
*Through October 31, 1993

At the LGA level, malaria control strategies have been implemented in an integrated fashion, within the context of the overall Primary Health Care program. Emphasis has been placed on 1) *training* for effective case management, 2) *community education* to ensure correct home treatment and referral practices, and to promote appropriate prevention activities, 3) *logistics support* to ensure the availability of adequate supplies of quality drugs and diagnostic equipment and supplies, 4) *health information systems* for monitoring malaria-related morbidity and mortality trends, and 5) *operational research* to understand and improve the malaria component of PHC program implementation.

Most recently, in the face of increasing antimalarial drug resistance, CCCD has supported research to explore preventive strategies for malaria control. A major operational research study designed to examine the utilization and effectiveness of permethrin impregnated bed nets and

curtains in reducing malaria-related morbidity and mortality is ongoing in Nsukka Local Government, Enugu State. This study explores the behavioral, social and economic aspects of using impregnated bednets.

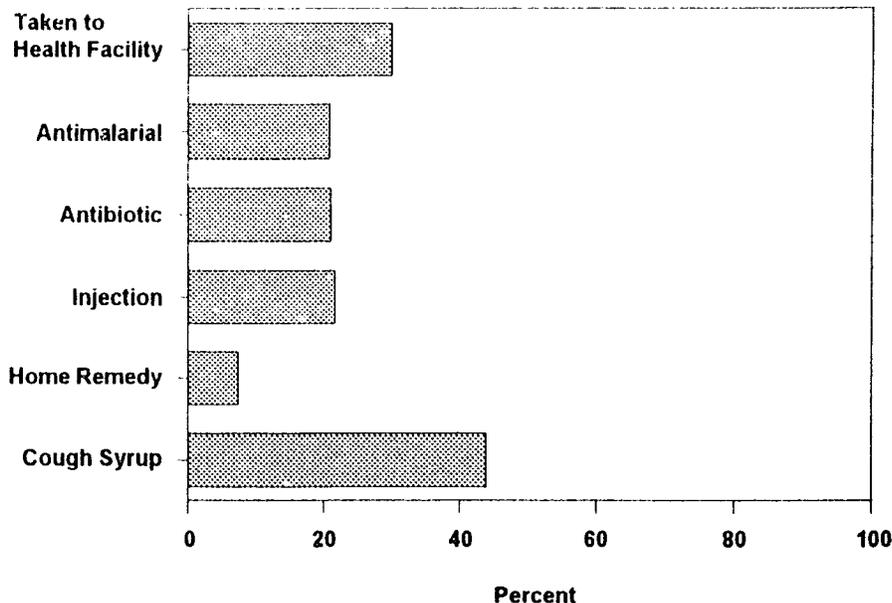
PROGRAM HIGHLIGHTS

| | |
|------|---|
| 1988 | National Malaria Technical Committee National Malaria Surveillance Network |
| 1989 | National <i>Guidelines for Malaria Control</i> |
| 1990 | International Workshop on the Current Treatment and Prevention of Malaria ARHEC Course on Health Education for Malaria Control |
| 1991 | National Malaria Training Module |
| 1992 | National Malaria Society of Nigeria Nsukka Bed Net Study |

1993 ACTIVITIES

- Conducted malaria case management training for PHC program managers and facility health workers using Malaria Training Module (based on National Treatment Guidelines).
- Conducted orientation on malaria case management and national policy for pharmacists and patent medicine vendors in Focus States and LGAs.

Children Receiving Treatment for Fever by Type of Treatment, Nigeria, 1990



Source: NDHS, 1990

Note: Based on 2,291 children age 1-59 months who had fever in the two weeks preceding the survey

- Supported NMVCD to conduct laboratory and diagnostic training for hospital and State Ministry of Health personnel.
- Provided microscopes and diagnostic supplies to general hospitals, State Ministries of Health, and selected Schools of Health Technology.
- Continued operational research study to examine the utilization and effectiveness of permethrin impregnated bed nets and curtains in Nsukka, Enugu State.
- Conducted PHC Essential Drug Study in two LGAs, including a logistics review of supply/distribution systems and assessment of drug quality for antimalarials, antibiotics and paracetamol.

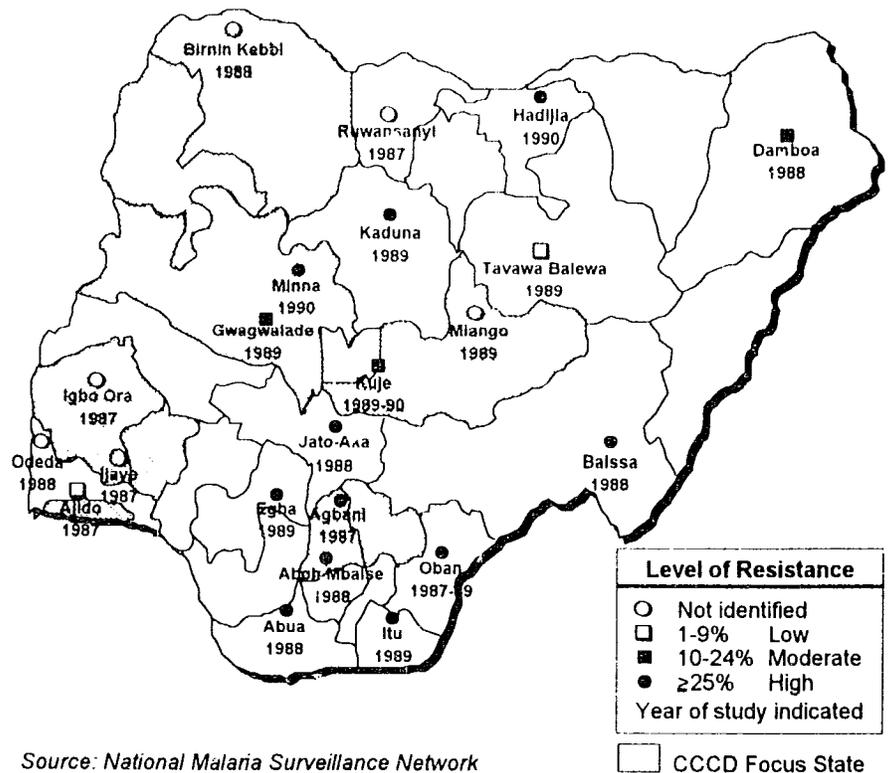
LESSONS LEARNED

- Nigeria's *National Guidelines for Malaria Control* were developed based on scientific review and analysis of antimalarial drug efficacy data collected from representative sites throughout the country. The National Malaria Technical Committee has served as a forum for continually updating and reviewing findings from malaria-related research studies. The experience of NMVCD in policy development and review serves as a model for other countries and programs.
- Findings from community surveys indicate that private-sector health providers (including pharmacists, chemists and patent medicine vendors) are a major referral source for treatment of fever/malaria in children. Orientation and training for these private sector providers is important for ensuring correct case management of sick children.
- Availability of an adequate supply of quality antimalarial drugs is essential for effective case management. Facility assessment surveys have documented inadequate supplies of chloroquine and other diagnostic equipment and supplies (thermometers, microscopes, etc.) at health facilities in selected LGAs throughout the country. Strategies for ensuring the availability of chloroquine and other needed commodities must be considered.
- Community education and mobilization are important strategies for addressing local prevention control measures. The experience of Yekemi Village in Ile-Ife LGA, following the 1990 ARHEC Inter-Country Course on "Health Education for Malaria Control," serves as a model for community participation in malaria prevention activities.
- With increasing resistance to *P. falciparum*, continued periodic monitoring of drug sensitivity trends in key sites is critical.
- Simplified methods of vector control, including use of insecticide-impregnated bed nets and curtains, may become increasingly important strategies for reducing mosquito contact.
- Continued high caliber, well-trained leadership for the Nigeria Malaria Control Program is critical for maintaining program momentum throughout the 1990s.

FUTURE DIRECTIONS

- Support meetings of the National Malaria Technical Committee.
- Support periodic drug efficacy monitoring through the National Malaria Surveillance Network.
- Develop strategies to ensure the availability of quality antimalarials at health facilities in Focus States and LGAs, through cost recovery mechanisms, such as the Bamako Initiative.
- Support case management training for PHC program managers and public- and private-sector health providers using the national malaria guidelines and training module.
- Train selected facility-based health workers in laboratory diagnostic technique.
- Support national seminar to share findings of Nsukka Bed Net Study, and work with other partners (e.g. UNICEF, WHO, CHAN) to consider strategies for increasing utilization of bed nets in one or more pilot LGAs.

Parasitologic Failures to Chloroquine Therapy Children <5 Years, Nigeria, Jul 1987 - Dec 1990



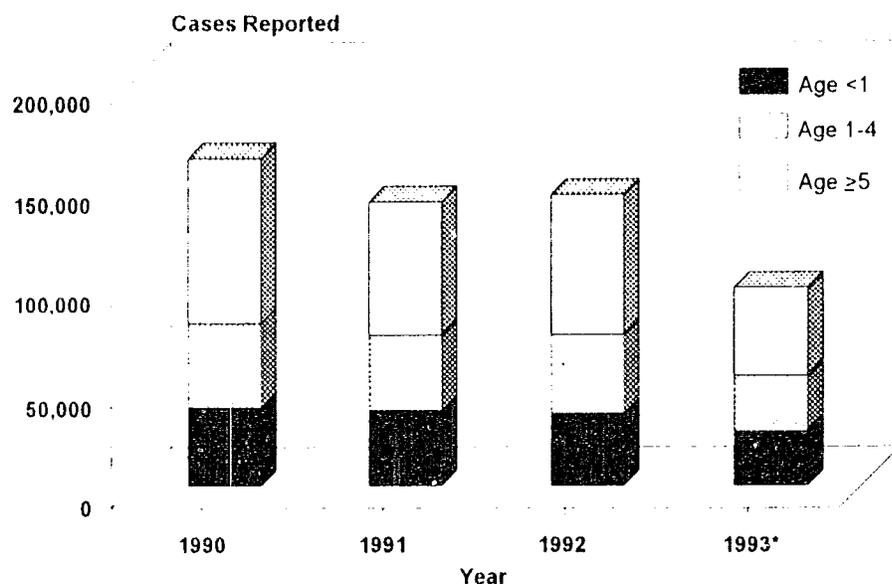
Source: National Malaria Surveillance Network

- Expand educational activities for private-sector providers including pharmacists, chemists and patent medicine vendors.
- Support relevant malaria-related operational research to improve program implementation at all levels.

ACUTE RESPIRATORY INFECTIONS

In 1990, acute respiratory infections (ARIs) were globally responsible for 4.3 million deaths among children under five years of age, an estimated one-third of infant and child mortality in developing countries. ARIs are of two basic types --- Acute Upper Respiratory Infections (AURI) which include colds, rhinitis, tonsillitis and ear infections, and Acute Lower Respiratory Infections (ALRI) which are primarily pneumonia. In Nigeria, published and unpublished reports indicate that ARI (pneumonia in particular) is the major cause of death among infants and among the top three causes of death among children aged 1-4 years.

**ARI Cases
Children <5 Years, Nigeria, 1990-93**



Source: FMOHSS, Disease Surveillance Notification (DSN) System
*Through October 31, 1993

The Federal Ministry of Health and Social Services instituted a National ARI Programme (NARIP) that will be integrated into the National PHC Programme. NARIP has the following objectives:

- 1) reduce childhood mortality attributable to pneumonia,
- 2) decrease the inappropriate use of antibiotics and other drugs for the treatment of childhood ARI, and
- 3) reduce the incidence of childhood ALRI, especially pneumonia.

NARIP strategies include policy development, health worker training (both public and private) using standard WHO case management guidelines adapted for Nigeria, revised standing orders for different cadres of health workers to improve case management of pneumonia, immunization against measles and whooping cough, provision of essential drugs and equipment, health education to enhance awareness about correct home management, supervision and monitoring, and improved referral systems. NARIP will work in cooperation with the Essential Drugs Programme (EDP) and Bamako Initiative to ensure the steady supply of essential drugs at affordable prices at community and health-facility levels.

To date, ARI Supervisory Skills Training has been conducted at the zonal level for State and LGA PHC programme managers. ARI case management training has been conducted in selected LGAs, with priority placed on LGAs participating in Bamako Initiative activities to ensure a reliable drug supply. Eventually, ARI Training Units will be established in each zone, through integration with existing Diarrhoea Training Units.

PROGRAM HIGHLIGHTS

| | |
|-------------|---|
| 1991 | NARIP Planning Workshop National ARI Policy Ethnographic Study of Pediatric ARI, Ile-Ife |
| 1992 | ARI Treatment Guidelines |
| 1993 | ARI Supervisory Skills Training ARI Case Management Training |

1993 ACTIVITIES

Supported planning of National CDD/ARI Meeting for State Program Managers.

Conducted ARI supervisory skills training for program managers and case management training for facility-based health workers in selected States and LGAs.

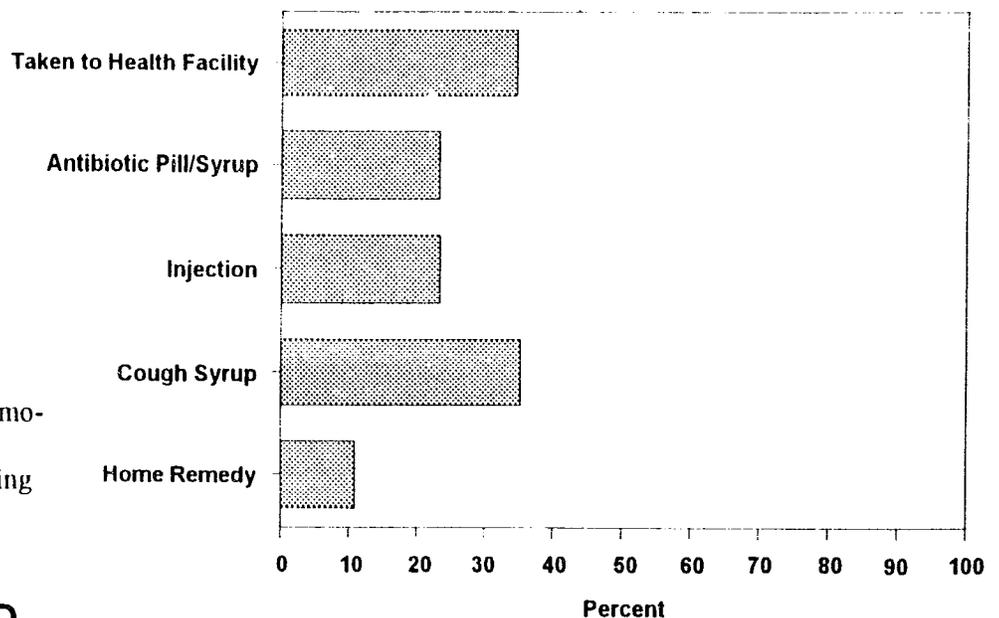
- Assisted with development of National ARI Policy.

- Provided equipment and supplies for ARI diagnosis to health facilities in Focus States and LGAs.

- Through LGA facility assessment surveys, documented health case management practices for treating children with ARI symptoms.

- Facilitated inclusion of "pneumonia" on Tracer Diseases form, part of national PHC Monitoring and Evaluation System.

Children Receiving Treatment for ARI by Type of Treatment, Nigeria, 1990



Source: NDHS, 1990

Note: Based on 470 children age 1-59 months who had ARI in the two weeks preceding the survey

LESSONS LEARNED

- Focussed Ethnographic Studies (FES) such as the Ile-Ife study on pediatric ARI provide important information on cultural beliefs and behaviors, useful for designing effective control and education programs.
- Considering the need for a holistic approach to the treatment of infant and child illness, ARI case management may be integrated into an overall sick child case management approach.
- A regular supply of quality drugs for treating ARI must be available to maximize skills gained during training and ensure appropriate case management.

FUTURE DIRECTIONS

- Promote ARI policy dissemination and development of tools for monitoring and evaluating ARI activities.
- Incorporate ARI Supervisory Skills and Case Management Training into Continuing Education curriculum in NCCCD Focus States.
- Through involvement in cost recovery activities, improve availability of appropriate essential drugs for ARI case management.
- Support development of ARI Training Units, through expansion of existing Diarrhoea Training Units.
- Support relevant ARI-related operational research to explore community beliefs and practices, and develop strategies for improved program implementation.

CAPACITY BUILDING

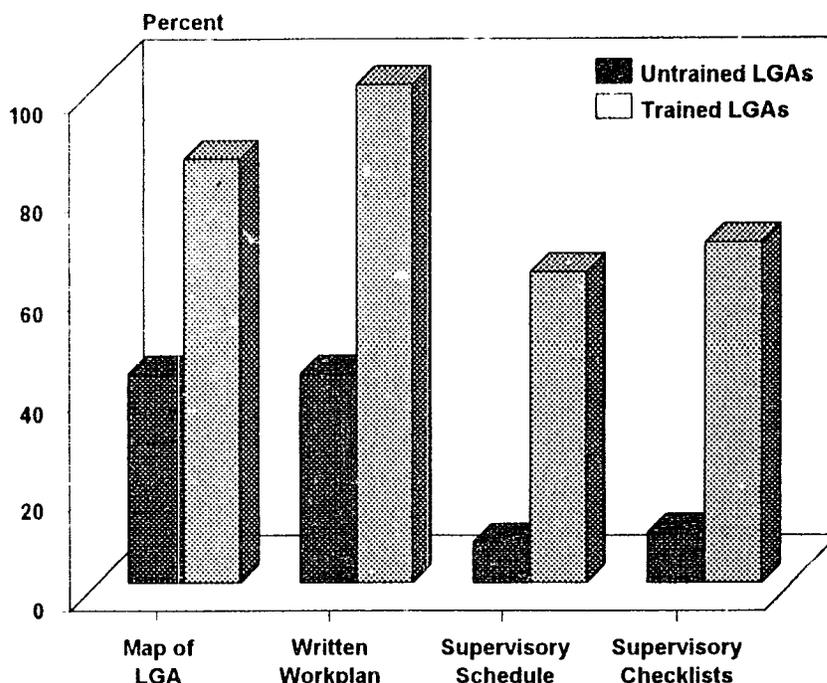
CONTINUING EDUCATION

Integrated systems of supervision and training are one of the most important, yet least developed, aspects of child survival programs. Prior to 1989, systematic continuing education for facility health workers was uncommon in Nigeria. Training workshops were didactic in nature, and little if any follow-up support or supervision was carried out to reinforce skills learned. The CCD-supported Continuing Education program was established in Nigeria to strengthen the technical, supervisory and managerial capacities of LGA health program managers and facility-based PHC workers, using an innovative approach which emphasizes participatory learning methods, and links technical skills training with supervision in the field.

Continuing Education Units (CEUs) have been established by State Ministries of Health in nine CCD Focus States. CEU staff in these states have improved the supervisory and management performance of nearly 250 health program managers in 40 LGAs. These LGA managers improved case management skills among more than 3,500 facility-based health workers. In some places, availability of equipment and supplies improved.

Two strategies have been used to evaluate the impact of the Continuing Education program — Pre-post Training Skills Assessments, consisting of practical stations and written examinations that are administered before and after the training sessions, and Facility Assessment Surveys, which provide information on health worker performance, mothers' knowledge, and the availability of supplies and equipment at health facilities.

Impact of Training on LGA Managers
Continuing Education Program, Niger State, 1991



N = 27 LGA managers

Continuing Education Units (CEUs) have been established by State Ministries of Health in nine CCD Focus States. CEU staff in these states have improved the supervisory and management performance of nearly 250 health program managers in 40 LGAs. These LGA managers improved case management skills among more than 3,500 facility-based health workers. In some places, availability of equipment and supplies improved.

| PROGRAM HIGHLIGHTS | |
|--------------------|---|
| 1988 | Niger State Facility Assessment Survey |
| 1989 | CEU — Niger |
| 1990 | EPI/CDD/Malaria Modules CCCD Facilitator Guides |
| 1991 | CEU — Plateau CE Peace Corps Volunteers |
| 1992 | CEU — Enugu, Lagos CE Supervisory Skills Workshops |
| 1993 | CEU — Anambra, Kebbi, Osun, Oyo, Sokoto <i>Communicating About Health Module</i> |

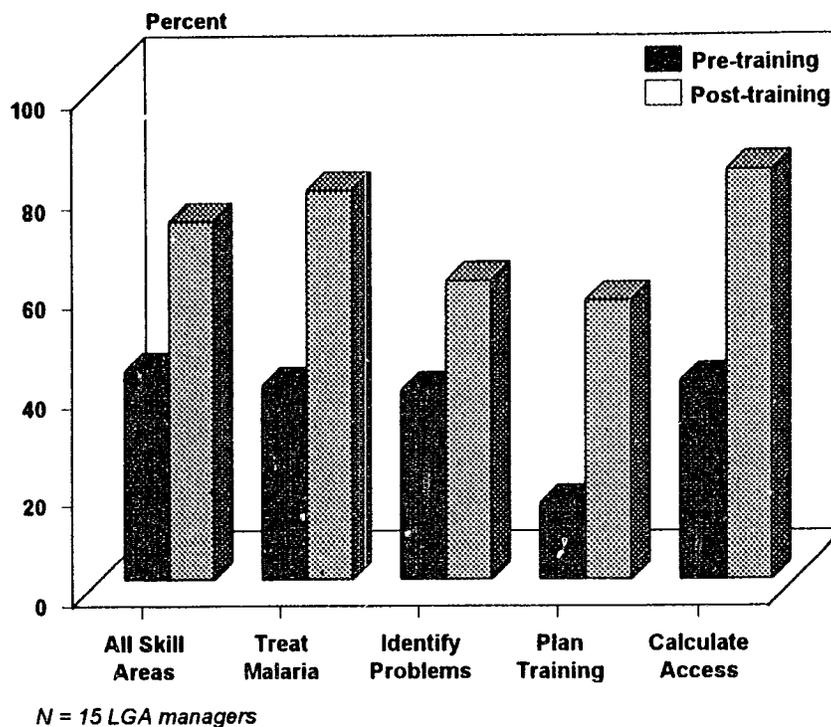
1993 ACTIVITIES

- Established CEUs in Anambra, Kebbi, Osun, Oyo and Sokoto States and conducted Training of Trainers for newly deployed CEU staff.
- Developed and field-tested *Communicating About Health in the Facility* module to improve interpersonal communication skills between health workers and their clients.
- Revised and produced CE lesson plans for use in LGA level training activities.
- Developed training videos with School of Health Technology (SHT) tutors and CEU staff to provide guidance on how to deliver an effective lecture, group discussion, role play, and demonstration.

LESSONS LEARNED

- In addition to management and supervisory skills, health workers need in-service training to update basic technical skills — how to weigh a child, how to calculate chloroquine dosage, etc. While the CE Program has adapted to provide the needed catch-up training, *pre-service training* must be strengthened to provide a long-term solution.
- Training efforts are maximally effective when health workers have the needed *equipment and supplies* and *drugs* to carry out their work. Shortages of vaccines, drugs and equipment continue in some areas and need to be addressed.
- Facility assessment surveys are an effective tool for involving LGA managers and health workers in assessing training needs and monitoring the quality of service delivery.
- A system of regular, purposeful supervision is essential for an effective training program, and requires adequate logistics and transportation support.
- Development of effective interpersonal/communication skills among health workers is essential for improving patient education.
- While many health workers report meeting regularly with community members, additional support is needed to strengthen facility-community linkages through education and outreach.

Pre/Post-Skills Assessment Continuing Education Program, Plateau State, 1992



FUTURE DIRECTIONS

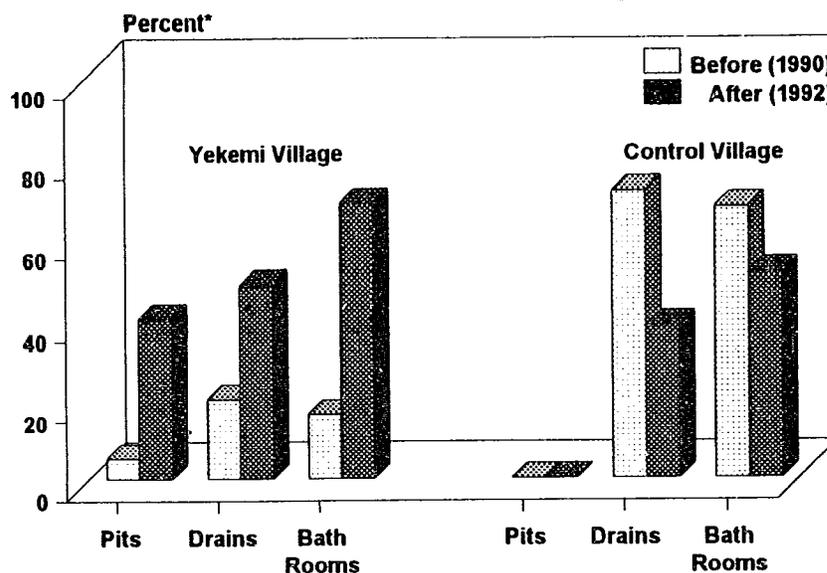
- Finalize *Guidelines for Establishing a Continuing Education System* and distribute to interested partners.
- Establish Annual Meeting for State CEU staff as mechanism for providing in-service training.
- Enhance private-sector involvement in Continuing Education through integration of CE curriculum into Christian Health Association of Nigeria (CHAN) and National Association of Nigerian Nurses and Midwives (NANNM) training networks.
- Coordinate with various partners (Wellstart, FHS, MotherCare) to incorporate additional training modules on nutrition, child spacing, maternal care, etc.; into the CE program
- Expand the State CE program into a *system* encompassing in-service training for all cadres of health workers in the state, including physicians, nurses and pharmacists.
- Reinforce linkages between CEUs and Schools of Health Technology and explore additional means of providing pre-service training support.
- Through State Continuing Education Committees, facilitate donor coordination on continuing education activities.
- Work with State Ministries of Health to ensure sustainability by establishing CE as a line item in the state budget.

HEALTH EDUCATION

Building health education capacity requires support at all levels — community, LGA, state and federal. Since 1987, CCCD has emphasized the development of program planning and implementation skills among health educators involved in child survival programs. The African Regional Health Education Centre (ARHEC), University of Ibadan, conducted four inter-country training courses on health education planning and management for senior health education officers and PHC program managers from six African countries. The ARHEC training program emphasized five significant areas: 1) participant selection, including program managers and *policy makers*, 2) pre-training needs assessments, 3) participatory methods, 4) workplan development, and 5) follow-up site visits. The Yekemi Village Mosquito Control Education Program was carried out by the LGA health educator and community members as a follow up to the 3rd ARHEC Workshop on Health Education for Malaria Control.

Mosquito Control Education Program Yekemi Village, Ife Central, 1990-92

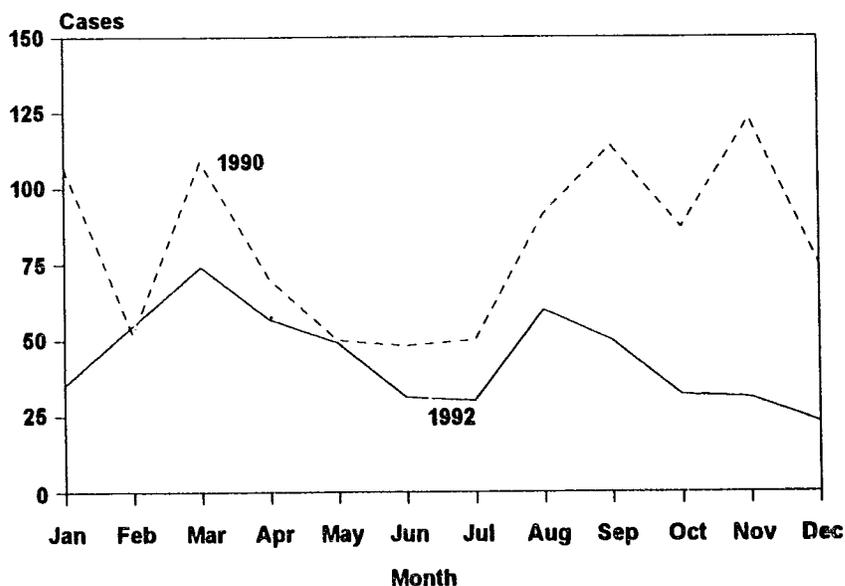
Increase in Sanitary Facilities Intervention and Control Villages



*Percent households with facility; n = Yekemi 92, Control 42

From 1987-90, HEALTHCOM provided technical assistance and logistics support for health communication in Nigeria. At the federal level, HEALTHCOM collaborated with the FMOHSS Health Education Bureau to establish a modern, fully equipped graphics department and photographic laboratory. State-level support, primarily in Niger State, included: formative/behavioral research to establish health priorities; development of IEC promotional/educational materials and child survival radio programmes; establishment of State Material Resource Centers; and training of health educators in communication skills and community participation strategies.

Decrease in Malaria Cases Yekemi Health Centre



At the local level, CCCD has promoted strategies for mobilizing communities to become active partners in identifying needs, planning, implementing and monitoring interventions. District and village health committees have been established and/or strengthened as a vehicle for building community linkages.

1993 ACTIVITIES

- Based on recommendations set forth in the 1992 Health Education Assessment, conducted a four-day retreat with Federal Health Education Bureau (FHEB) officers to develop a Strategic Plan and Effective Organizational Structure for FHEB.
- Supported production of document titled *The Efficacy of Health Education in Nigeria*, a selected review of field work and health education-related research activities in Nigeria between 1980-1992.
- Supported ARHEC Training Workshop for "Enhancing the Capacity of FMOH/SMOH to Provide Training Assistance" to CCCD Focus LGAs in Nigeria.
- Within Focus States and LGAs, supported the establishment and strengthening of District and Village Health Committees as a vehicle for building community linkages.
- Evaluated the impact and effectiveness of the Mosquito Control Education Programme organized by community members of Yekemi Village, Ife-Central Local Government. This effort in community mobilization and involvement was planned and conducted as a follow-up to the 3rd ARHEC Inter-Country Course on Health Education for Malaria Control.

| PROGRAM HIGHLIGHTS | |
|--------------------|---|
| 1987 | HEALTHCOM— FMOHSS Health Education Bureau |
| 1988 | HEALTHCOM— Niger State 1 st ARHEC Course — Health Education for Child Survival |
| 1989 | 2 nd ARHEC Course — Health Education for EPI |
| 1990 | 3 rd ARHEC Course — Health Education for Malaria |
| 1992 | Health Education Assessment in CCCD Focus States |

LESSONS LEARNED

- Behavior change at the community level takes time, and requires the active participation of the community itself in identifying health problems, developing strategies to address these problems and evaluating results.
- Knowledge, attitudes and practices (KAP) surveys and other qualitative methods provide useful data on common beliefs about immunization and health which assist in developing effective health messages.
- Mass media and communications (IEC) support can complement and reinforce — but not substitute for — education and mobilization efforts at the community level.
- ARHEC short courses provide useful orientation for LGA Health Educators in planning and implementing community health programs. Long-term sustainability of such short courses will require establishment of a tuition base and a marketing strategy.
- Involving LGA policy makers in the development of health education workplans is critical for ensuring the successful implementation of workplan activities.
- Long-term training of LGA and State Health Educators through ADHE or MPH training at ARHEC may be necessary to adequately upgrade health education skills.

FUTURE DIRECTIONS

- Develop strategies to further promote *community* health education activities, with local involvement in needs identification, planning and monitoring. Develop *Communicating About Health at the Community Level* module to address this need.
- Improve patient education at health facilities through incorporation of *Communicating About Health at the Facility Level* module into State Continuing Education Programs.
- Coordinate with Family Health Services Project on IEC/communications strategies in selected NCCCD Focus States.
- Enhance private sector involvement in community education and mobilization activities.
- Coordinate with Peace Corps Nigeria to recruit and train volunteers to assist on community health education activities in Focus States and LGAs.
- Coordinate with ARHEC to support ADHE/MPH training for LGA and State Health Educators.

HEALTH INFORMATION SYSTEMS

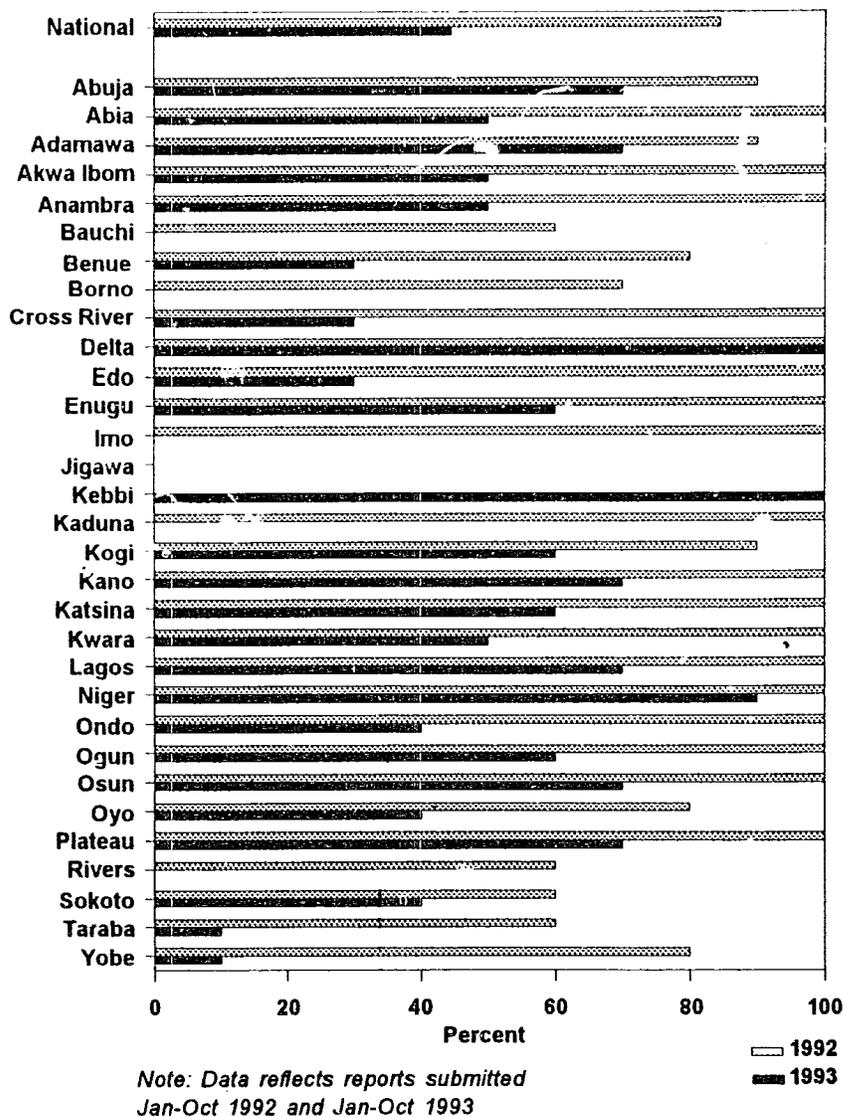
Effective management of health programs requires a functional system for data collection, analysis, use and feedback. Since 1987, CCCD has provided technical assistance for the development and implementation of national Health Information Systems. Technical assistance and logistics support have been provided for the following reporting systems:

- **Disease Surveillance Notification (DSN)** — collects routine data on forty diseases, and immediate reports of selected diseases, from health facilities throughout the country. EPID software, developed with CCCD support, enables state and federal level data management and analysis
- **PHC Monitoring and Evaluation (M&E)** — uses eight reporting forms to monitor health status at the village, facility, LGA and state levels. NICARE software, developed with CCCD support, enables PHC M&E information management at state and federal levels.
- **PHC Sentinel Surveillance** — modified from the original 40-site EPI sentinel surveillance system, PHC surveillance collects additional data on PHC-target diseases from an expanded network of 150-sites. PHC sentinel surveillance data can be entered and analyzed using EPID software.

To support effective data management, CCCD has installed computers and provided computer training for medical records officers and program personnel at the four PHC Zonal Offices, selected State Ministries of Health, and at FMOHSS/NPHCDA offices in Lagos. The PHC Monitoring and Evaluation Unit at Yaba has been equipped for use as a central computer training and data management site.

CCCD has also supported development of a data entry and analysis program (MEDPRO) for in-patient hospital records, classifying admissions by ICD code. Computers and MEDPRO software have been installed at seven University Teaching Hospitals located throughout Nigeria — LUTH/Lagos, UTH/Ibadan, UNTH/Enugu, JUTH/Jos, OTH/Shagamu, Othman-Danfodio/Sokoto and ABU/Zaria — and at Massey Street Hospital in Lagos.

Notifiable Disease (DSN) Reports Submissions to FMOHSS, 1992-93



Between 1992 and 1993, there appears to be an overall decrease in the number of monthly Notifiable Disease reports received at FMOHSS from most states. Currently, state DSN reports do not provide detailed information to FMOHSS on the quality or completeness of reporting. For example, at the national level it is not known how many facility reports are received by LGAs. Likewise, the number of LGA reports received at the state level is not known.

MEDLINE, a computer-based system containing references to journal articles in the biomedical literature, has been installed at the Central Medical Library, Yaba. The system uses CD-ROM technology to provide over two million pages of information in easily accessed form. Since installation in early 1992, approximately 70 requests have been filled each month.

Considerable technical assistance has been provided for strengthening *epidemiologic capacity* among federal, state and local officials. Approximately fifteen Nigerian health professionals have been supported to attend the International Epidemiologic Intelligence Service (EIS) Course at the Centers for Disease Control and Prevention (CDC) in Atlanta. Local support has been provided to investigate disease outbreaks (yellow fever, measles and lassa fever) and toxic environmental exposures. HIV/AIDS surveillance training has been conducted for AIDS programme managers throughout Nigeria.

1993 ACTIVITIES

- Conducted DSN and PHC M&E training in Focus States and LGAs.
- Supported production of *Nigeria Bulletin of Epidemiology*, and State and LGA feedback bulletins.
- Conducted MEDPRO Workshop for medical records officers from selected University Teaching Hospitals.
- Installed computers at Oshodi and Kano national cold stores and field-tested Commodity Logistics Management (CLM) software.
- Provided formal and on-site computer training for selected State Ministry of Health records officers.
- Supported HIV/AIDS Surveillance Workshop for Federal and State AIDS Programme Managers.
- Provided data management support for PHC Baseline Survey in Local Government Areas.

| PROGRAM HIGHLIGHTS | |
|--------------------|---|
| 1987 | CCCD/Nigeria Computer Procurement |
| 1988 | PHC M&E Computer Unit, Yaba |
| 1989 | DSN System Development |
| 1990 | EPID (DSN) Software |
| 1991 | <i>Nigeria Bulletin of Epidemiology</i> UTH Computer Installation |
| 1992 | PHC Sentinel Surveillance UTH Surveillance/MEDPRO Software MEDLINE — Central Medical Library West African Epidemiology Course, UCH/Ibadan |
| 1993 | Commodity Logistics Management (CLM) Program HIV/AIDS Surveillance Workshop |

LESSONS LEARNED

- To be viable, health information systems need to produce data that will be used by health workers and decision makers at *local* levels, as well as at state and federal levels. Sustainable health information systems begin with the collection and use of data at the peripheral level.
- Information flow and use must occur in both directions — from the periphery to central offices, and from central offices to the periphery. Feedback mechanisms such as the *Nigeria Bulletin of Epidemiology* and State and LGA Bulletins are effective mechanisms for sharing information.
- Multiple pathways (and destinations) for data submission reduce the performance of health information systems by spreading supervisory resources, and reducing the completeness and promptness of reporting.
- On-site training and regular systems of supervision are critical complements to organized computer training efforts.
- Integration of reporting systems is important for preventing duplication of data collection, entry and analysis efforts.

- Quality control indicators for HIS reporting are needed to monitor the completeness and accuracy of reporting. State and LGA DSN reports could be modified to indicate the number of facility reports expected and the number received.
- Standard case definitions are needed to enhance the accuracy of disease reporting.
- Sustaining computer systems at federal, zonal and state offices requires a mutually agreed upon workplan for repair/maintenance and procurement of expendable supplies. Strategies to address frequent power outages and fluctuations at some offices must be addressed to ensure effective use and maintenance of computer systems.
- Epidemiology and surveillance have broad practical applications for public health programs. Building epidemiologic capacity in Nigeria will strengthen response to both epidemic and program needs.

FUTURE DIRECTIONS

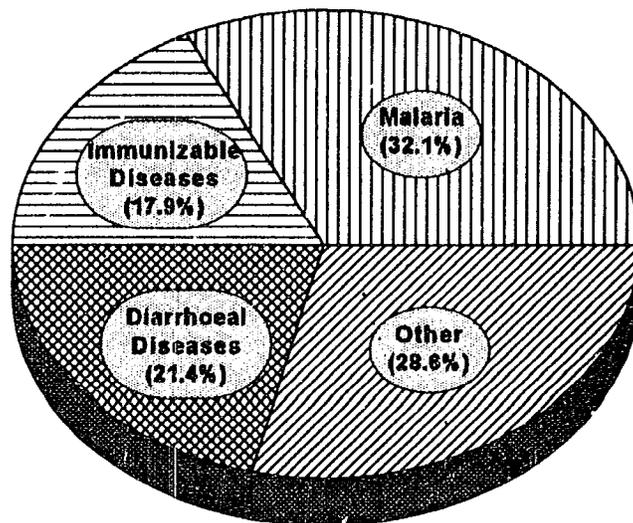
- Strengthen local capacity to develop and manage information systems that provide quality data for use in monitoring and evaluating PHC programs. Focus attention on using data effectively at each level of the health system to formulate policy and programmatic decisions. Train LGA- and state-level staff in data analysis, interpretation and utilization.
- Strengthen feedback and information sharing mechanisms at all levels — federal, state, LGA, health facility and community. Provide training and logistics support for production of *Nigeria Bulletin of Epidemiology*, and State and LGA newsletters.
- Develop a long-term plan for maintaining computers provided to federal, zonal and state offices. Work with counterparts at all levels to review power and supply needs to ensure sustainability.
- Support epidemiology training and local capacity building through establishment of a Nigeria Field Epidemiology Training Program (FETP).
- Promote strategies for integrating data collection and analysis systems.
- Continue support for national HIV/STD surveillance activities.

OPERATIONAL RESEARCH

Since 1987, CCCD has supported activities to strengthen the capacity of Nigerian professionals to carry out health-related operational research. Technical assistance has been provided for proposal design, study implementation, data analysis, presentation and interpretation of findings. Efforts have been made to assist in dissemination of the results of operational research through national health publications, professional meetings and scientific journals.

Operational research studies funded by CCCD have addressed a variety of disease prevention and control issues relevant for primary health care programs — describing the epidemiology of PHC target diseases, evaluating the impact of prevention and control strategies, assessing community knowledge and practices, and field-testing program monitoring techniques and health education/mass media messages for health promotion. Research protocols have focussed primarily on the major CCCD interventions — immunization, diarrhoeal diseases, malaria and acute respiratory infections.

Operational Research Studies Completed by Subject Area, 1987-93



N = 28 completed studies

A Research Review Committee — comprising representatives from FMOHSS, NPHCDA, PHC Zonal Offices, University Schools of Medicine and the Ministry of Science and Technology — meets regularly to review proposed studies and monitor the conduct of the studies. Recently, efforts have been made to integrate the CCCD Research Review Committee within the FMOHSS Department of Planning, Research and Statistics. The FMOHSS now serves as the Secretariat to the National Research Review Committee.

1993 ACTIVITIES

- Supported National Research Review Committee meetings, at which 4 additional proposals were funded.
- Promoted dissemination of findings from completed research protocols.

LESSONS LEARNED

- Integration of the National Research Review Committee within the FMOHSS has promoted sustainability of operational research efforts.
- Technical assistance and follow-up support for funded investigators is most effective for building capacity and ensuring quality.
- Operational research is only meaningful when study findings are disseminated and applied in the appropriate setting.

PROGRAM HIGHLIGHTS

| | |
|------|--|
| 1987 | CCCD Research Review Committee |
| 1988 | <i>Guidelines for Operational Research</i> |
| 1989 | National Operational Research Workshop |
| 1990 | CCCD Operational Research External Review |
| 1991 | Zone C Dissemination Workshop |
| 1992 | National Research Review Committee |

FUTURE DIRECTIONS

- Continue to support relevant PHC-related operational research studies and to build research capabilities among Nigerian health professionals.
- Support additional Operational Research Dissemination Workshops.
- Encourage utilization of research findings and practical application to PHC programs.

CCCD FOCUS STATE ACTIVITIES — 1993

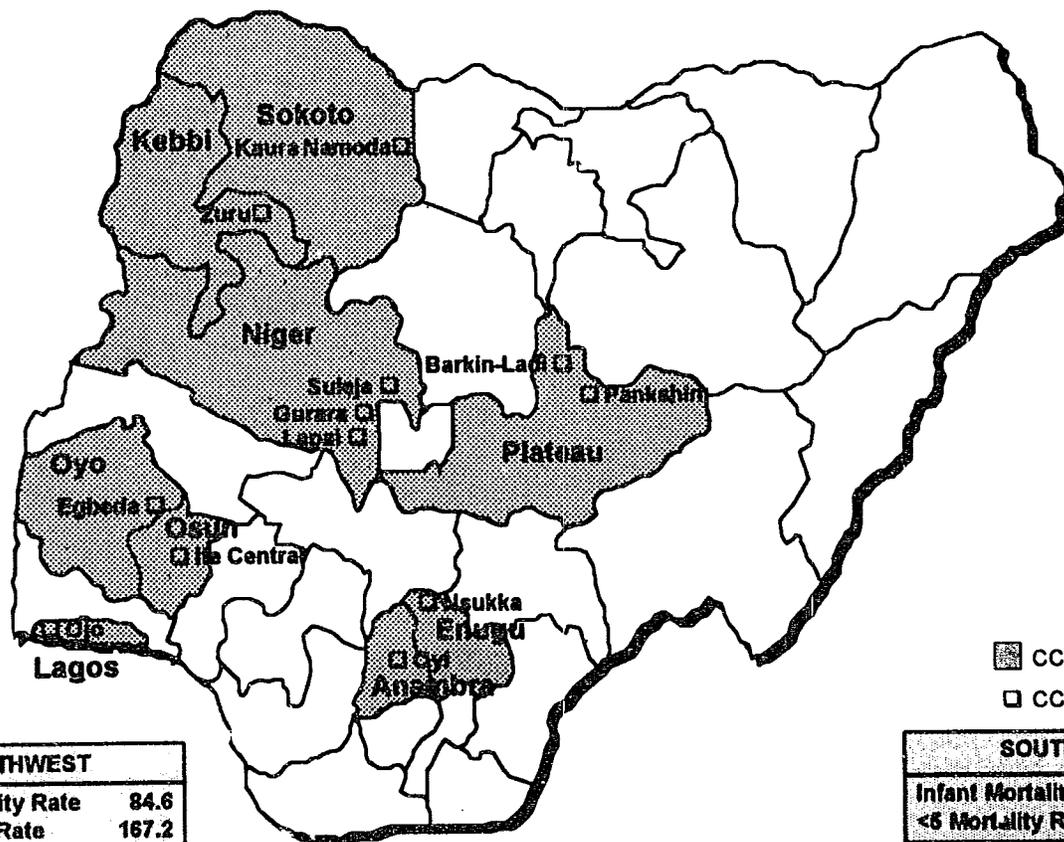
Since late 1990, CCCD has provided technical assistance and support for Primary Health Care implementation in nine Focus States — Anambra, Enugu, Kebbi, Lagos, Niger, Osun, Oyo, Plateau and Sokoto. State-wide support has been directed primarily toward enhancing SMOH technical and supervisory capacity for LGA-level PHC implementation efforts, with emphasis on immunization, diarrhoeal diseases, and malaria control. Additional assistance has been provided for the development and implementation of viable systems of health information and continuing education. Within each Focus State, CCCD has provided intensive technical assistance to one or more Focus LGAs. These Focus LGAs were selected based on input from SMOH officials, using a variety of criteria. Several LGAs were chosen based on their potential for development as PHC “models” that could be replicated by other LGAs in the state. Others were chosen because they had only begun the PHC implementation process, and required substantial technical support to proceed along that path. Within CCCD Focus LGAs, FMOHSS guidelines for PHC implementation have been supported, including establishment of district and village health committees, training of village health workers, placement of home-based records, etc. Additional support has been provided for improving specific PHC program elements — immunization, diarrhoeal diseases and malaria control, health education, training and health information systems.

The wide variation among the nine Focus States and LGAs, both geographically and culturally, has presented challenges and learning opportunities for Primary Health Care program implementation. The following summary highlights major lessons learned and future directions in the nine Focus States.

| NORTHWEST | |
|-----------------------|-------|
| Infant Mortality Rate | 109.8 |
| <5 Mortality Rate | 244.4 |

CCCD FOCUS STATES AND LGAS

| NORTHEAST | |
|-----------------------|-------|
| Infant Mortality Rate | 87.7 |
| <5 Mortality Rate | 214.6 |



| SOUTHWEST | |
|-----------------------|-------|
| Infant Mortality Rate | 84.6 |
| <5 Mortality Rate | 167.2 |

| SOUTHEAST | |
|-----------------------|-------|
| Infant Mortality Rate | 82.7 |
| <5 Mortality Rate | 143.7 |

Rates per 1,000 live births; 1990 NDHS

1993 Population Data For CCD Focus States and LGAs

| Focus State/LGA | 1993 ¹ Total | Age <5 ² | Age <1 ³ | Women of Child Bearing Age ² | Pregnant Women ⁴ |
|-----------------|-------------------------|---------------------|---------------------|---|-----------------------------|
| Anambra | 2,947,883 | 589,577 | 117,915 | 589,577 | 147,394 |
| Oyi | 190,661 | 38,132 | 7,626 | 38,132 | 9,533 |
| Enugu | 3,366,855 | 673,371 | 134,674 | 673,371 | 168,343 |
| Nsukka | 218,180 | 43,636 | 8,727 | 43,636 | 10,909 |
| Kebbi | 2,062,226 | 412,445 | 82,489 | 412,445 | 103,111 |
| Zuru | 171,963 | 34,393 | 6,879 | 34,393 | 8,598 |
| Lagos | 5,635,781 | 1,137,156 | 227,431 | 1,137,156 | 284,289 |
| Ojo | 1,011,808 | 202,362 | 40,472 | 202,362 | 50,590 |
| Niger | 2,482,368 | 496,474 | 99,295 | 496,474 | 124,118 |
| Gurara | 45,938 | 9,188 | 1,838 | 9,188 | 2,297 |
| Lapai | 88,172 | 17,634 | 3,527 | 17,634 | 4,409 |
| Suleja | 125,259 | 25,052 | 5,010 | 25,052 | 6,263 |
| Osun | 2,203,046 | 440,609 | 88,122 | 440,609 | 110,152 |
| Ife Central | 185,256 | 37,051 | 7,410 | 37,051 | 9,263 |
| Oyo | 3,488,789 | 697,758 | 139,552 | 697,758 | 174,439 |
| Egbeta | 275,034 | 55,007 | 11,001 | 55,007 | 13,752 |
| Plateau | 3,283,70 | 4,741 | 131,348 | 656,741 | 164,185 |
| Barkin Ladi | 152,808 | 30,562 | 6,112 | 30,562 | 7,640 |
| Pankshin | 168,718 | 33,744 | 6,749 | 33,744 | 8,436 |
| Sokoto | 4,392,391 | 878,478 | 175,696 | 878,478 | 219,620 |
| Kaura Namoda | 261,800 | 52,360 | 10,472 | 52,360 | 13,090 |

(1) 1993 population estimated from 1991 National Census + 3.2% annual growth rate

(2) 20% of total population (3) 4% of total population (4) 5% of total population

Source: Nigeria National Population Commission (total population)

LESSONS LEARNED

- **Committed leadership and technical capacity at the local level enable effective program implementation.** Implementation of PHC activities has been most successful in places where senior government officials have actively promoted and supported Primary Health Care. Committed and capable technical leadership provides the guidance and direction necessary for effective program implementation.
- **Involving health workers in data collection efforts promotes planning and monitoring.** Where LGA managers and facility health workers have actively participated in the collection, analysis and interpretation of data from community surveys (including 100-household surveys) and facility assessment surveys, these individuals have promoted and facilitated community planning and intervention efforts.
- **Organized systems of continuing education and routine supervision impact positively on health worker performance.** Facility assessment surveys, pre-post skills assessments, and routine supervisory reports demonstrate the positive impact that effectively organized systems of continuing education have on improving the quality of health worker performance.

**Population and Land Area
for CCCD Focus States**

| Focus State | 1993 Population | % of Nigeria Population | Land Area (Sq. Km.) | Density (Pop/Sq. Km.) |
|--------------|-------------------|-------------------------|---------------------|-----------------------|
| Anambra | 2,947,883 | 3.13 | n/a | n/a |
| Enugu | 3,366,855 | 3.57 | 12,721 | 265 |
| Kebbi | 2,062,226 | 2.33 | n/a | n/a |
| Lagos | 5,685,781 | 6.42 | 3,577 | 1,693 |
| Niger | 2,482,368 | 2.80 | 74,244 | 33 |
| Osun | 2,203,046 | 2.49 | 8,883 | 264 |
| Oyo | 3,488,789 | 3.94 | 25,948 | 143 |
| Plateau | 3,283,704 | 3.71 | 53,585 | 65 |
| Sokoto | 4,392,391 | 4.96 | 65,092 | 72 |
| Total | 29,913,043 | 33.35 | n/a | n/a |

*Note: Population estimated from 1991 National Census + 3.2% yearly growth rate
Source: Nigeria National Population Commission (total population)*

· **Involving communities in defining their health problems and identifying solutions to these problems is essential for effecting change.** Where community members have been actively involved in identifying health concerns and developing solutions to problems, the likelihood of long-term change in a positive direction increases dramatically.

· **Potent vaccines and essential drugs must be available to enable effective case management.** Decreases in immunization coverage in most Focus States and LGAs are attributable in large part to the lack of availability of needed vaccines and EPI supplies/equipment. Where well-functioning revolving drug funds exist, regular supplies of quality essential drugs are available, and health workers can work effectively and productively.

· **State/LGA Annual Review Meetings are valuable tools for monitoring program performance.** Annual review meetings held in CCCD Focus States and LGAs during 1993 focussed on reviewing the status of CCCD activities, identifying problem areas, and developing strategies for improvement. State-level meetings highlighted issues such as vaccine/ORS availability, counterpart contributions and donor coordination. LGA meetings included representation by various members of the PHC community — political leaders, PHC team members, district supervisors, facility health workers, district/village chiefs, village health workers and traditional birth attendants. Using data from facility assessments and community surveys, LGA health priorities were identified, follow-up plans developed, and preliminary plans for monitoring intervention efforts discussed.

· **Administrative support is critical to program implementation.** A functional system for providing and releasing CCCD funds at the SMOH and LGA levels is essential for implementing workplan activities.

FUTURE DIRECTIONS

- Support EPI acceleration efforts in Focus States and LGAs, and promote strategies for strengthening routine immunization services and outreach. Consider strategies for enhancing support to urban LGAs with greater population density.
- Promote utilization of data for program planning and monitoring at the State and LGA levels, and establish mechanisms for providing regular feedback to LGA program managers and health workers in all Focus States.
- Continue to support and reinforce state-wide continuing education program activities aimed at improving the quality of health service delivery at health facilities. Promote strategies to improve integrated case management skills among health workers, with emphasis on the diagnosis and treatment of sick children.
- In response to needs identified in LGA facility assessment surveys in all Focus States, promote strategies to strengthen interpersonal communication skills among health workers and their clients.
- Establish community participation as a priority, and support strategies to enhance education and outreach efforts.
- Incorporate nutrition and maternal health activities within state/LGA workplans in selected Focus States and LGAs.

- Consider strategies for implementing cost recovery activities in Focus LGAs to ensure a regular supply of quality essential drugs.
- Reassess strategies for incorporating private sector activities into Focus State and LGA activities, with particular emphasis on continuing education, health information systems, and PHC/immunization.
- Strengthen state-level zonal offices to enable more effective technical and supervisory support for LGA-level PHC implementation.
- Support management training at the local level, including planning, problem solving, resource utilization, integration, etc.
- Strengthen epidemiologic capacity among state and LGA health officers to respond to outbreaks and assess program needs.
- Establish guidelines for ensuring the regular and timely release of CCCD funds to support scheduled activities in Focus States and LGAs.

| | |
|-------------------------|--------------------|
| ANAMBRA STATE | |
| Population: | 2,947,883 |
| # LGAs: | 16 |
| Focus LGAs/pop.: | Oyi 203,059 |

1993 ACTIVITIES

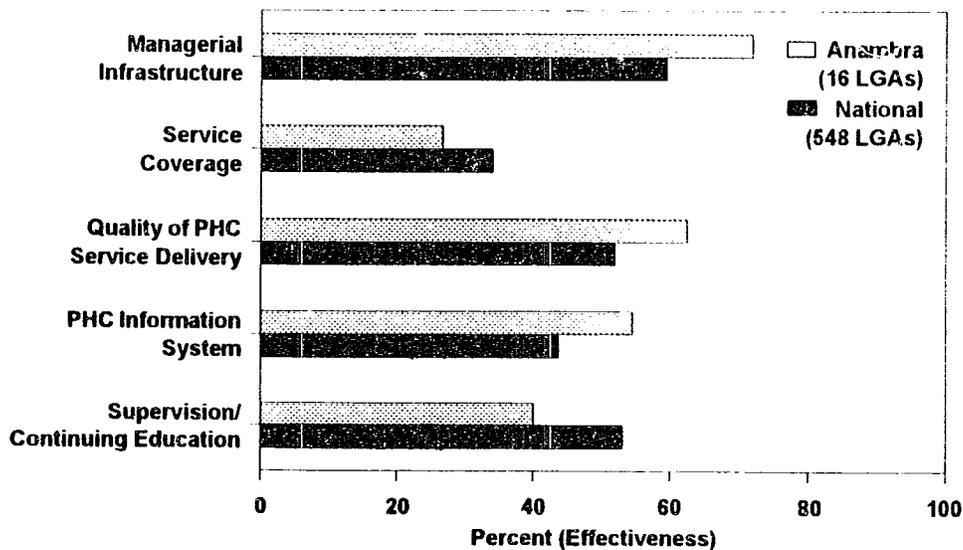
- Constructed generator house for State EPI Cold Store.
- Established Diarrhoea Training Unit at General Hospital in Awka, and conducted ORT clinical training for hospital staff.
- Conducted malaria orientation for private sector providers, including patent medicine vendors and pharmacists.
- Established Continuing Education Unit at Awka School of Health Technology and provided orientation for five newly appointed CEU tutors.
- Provided on-site computer training on EPID/NICARE software for medical records officers at the SMOH Planning, Research and Statistics (PRS) Division.

- Completed retrospective review of in-patient pediatric admissions from 1988-92 at General Hospital, with plans to use data for monitoring morbidity/mortality trends related to key childhood illnesses.

In Oyi LGA —

- Strengthened PHC infrastructure through reactivation of district and village health committees.
- Conducted facility assessment survey at government health facilities, documenting health worker practices related to immunization and diarrhoea/malaria case management, and highlighting the need for improved patient education.
- Conducted EPI/CDD orientation workshop for LGA PHC staff and facility health workers. Refurbished EPI vehicle to improve immunization outreach and supervision. Equipped ORT units/corners in PHC facilities, and conducted clinical ORT training for facility health workers.
- Trained facility M&E Officers on DSN and M&E reporting systems.

**PHC Implementation
Baseline Data for Five Composite Management Indicators
Anambra State, 1992**



Source: NPHCDA PHC Baseline Survey, 1992

| | |
|-------------------------|-----------------------|
| ENUGU STATE | |
| Population: | 3,366,855 |
| # LGAs: | 19 |
| Focus LGAs/pop.: | Nsukka 232,367 |

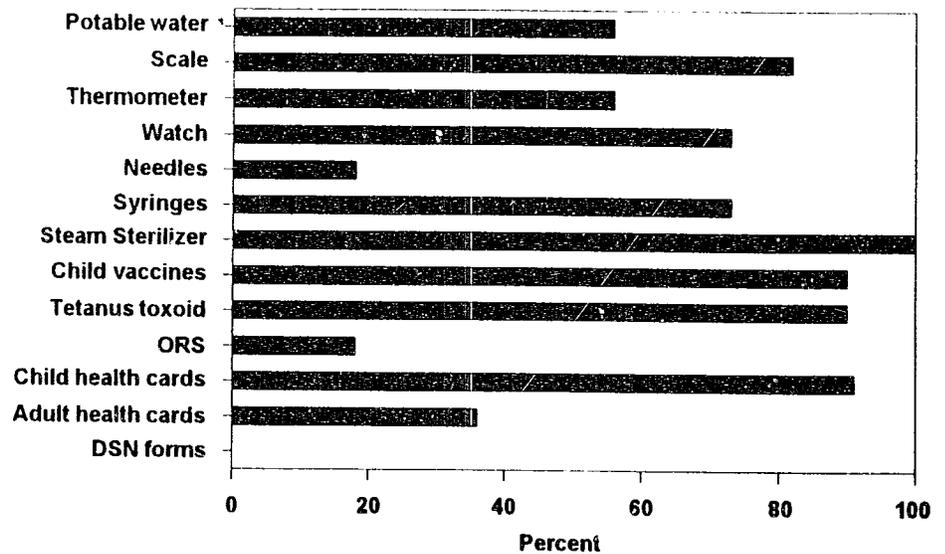
1993 ACTIVITIES

- Conducted PHC Orientation Workshop, including guidelines on how to write PHC-related operational research protocols, for State Ministry of Health and University researchers.
- Repaired State EPI Cold Room and rehabilitated cold chain equipment.
- Conducted malaria orientation for private health practitioners and pharmacists.
- Appointed new Coordinator to State Continuing Education Unit at Oji River School of Health Technology, bolstering in-service training activities. Upgraded clinical practice site at Oji River, and renovated/equipped SMOH Health Education Unit. Supported health education/CEU staff to participate in health education course at ARHEC/University of Ibadan.
- Renovated State M&E Office and conducted training on DSN/M&E reporting systems. Held regular quarterly meetings with LGA Medical Records Officers. Drawing on the experience of the long-standing EPI sentinel surveillance system in Enugu State, promoted implementation of new PHC sentinel surveillance system.

In Nsukka LGA —

- Completed construction of LGA PHC Secretariat, providing needed office space for PHC Coordinator and Assistant Coordinators.
- Rehabilitated LGA cold chain equipment, including two refrigerators and a deep freezer.
- Initiated quarterly meetings with facility-based M&E officers.
- Integrated LGA PHC staff into CCCD-supported operational research study examining the efficacy of permethrin impregnated bed nets and curtains.
- Conducted facility assessment survey, which documented serious shortages of PHC essential drugs and EPI vaccines. In response to this problem, established a Drug Revolving Fund (DRF) within the LGA. Needed drugs are now available at Nsukka General Hospital.

Equipment, Supplies, Vaccines, ORS Availability at Health Facilities, Nsukka LGA, 1991



Source: Nsukka Facility Assessment, 1991
11 Facilities

KEBBI STATE

Population: 2,196,320
LGAs: 17
Focus LGAs/pop.: Zuru 183,145

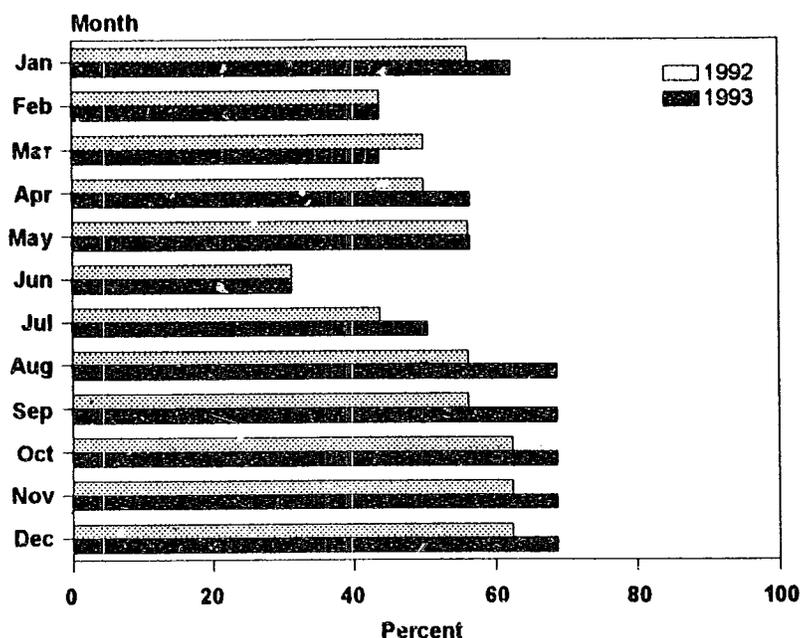
1993 ACTIVITIES

- Conducted PHC Orientation Seminar for newly appointed PHC Program Managers.
- Established a Continuing Education Unit at Jega School of Health Technology, and provided orientation for five CEU staff. With substantial shortages of trained manpower in the north, the CE program is an important means for providing needed training support. The excellent commitment and technical capacity of the CEU Coordinator has laid the groundwork for a successful program.
- In an effort to enhance state epidemiologic capacity, supported State PHC Director to attend the International Epidemic Intelligence Service (EIS) course at the U.S. Centers for Disease Control and Prevention, Atlanta, GA.
- Conducted assessment of HIS resources and needs at the State Ministry of Health, and developed plan for installing computer and providing needed training.
- Supported newly appointed State CDD Manager for orientation and training at Zone D Diarrhoeal Training Unit.

In Zuru LGA —

- With support and advocacy from the LGA Chairman and senior officers, established five health districts and facilitated training of newly appointed district supervisors.
- Conducted facility assessment survey at thirteen government health facilities and reviewed findings with LGA officials and program officers.
- Trained and provided re-orientation for village health workers and traditional birth attendants.
- Provided management/supervisory skills training for LGA Managers through State CEU in Jega.
- Coordinated with LGA to upgrade EPI Cold Store and provide needed EPI equipment and supplies.

**Disease Surveillance Notification System
 Percentage of Reports Received from LGAs
 by Month, Kebbi State, 1992-93**



Source: Kebbi State Ministry of Health,
 Department of Planning, Research and Statistics

| | |
|-------------------------|----------------------|
| LAGOS STATE | |
| Population: | 9,055,493 |
| # LGAs: | 12 |
| Focus LGAs/pop.: | Ojo 1,077,600 |

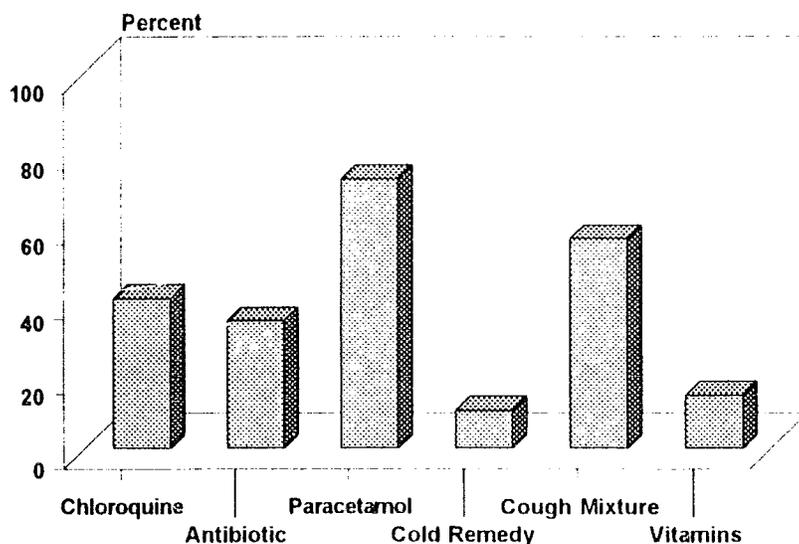
1993 ACTIVITIES

- In collaboration with REACH Urban EPI Initiative, collected baseline information on EPI-related activities in LGAs throughout Lagos State — cold chain equipment and supply inventories, EPI coverage surveys and a state-wide facility assessment to describe missed opportunities for immunization and quality of service delivery. Developed indices for monitoring EPI performance, improved monitoring/supervision systems, and promoted strategies for social mobilization and interpersonal communication.
- Continued in-service training activities on EPI, CDD, malaria and ARI through the State Continuing Education Unit, and supported production of "Health Flash," a quarterly bulletin of the State CEU.
- Conducted health education workshop with FMOHSS/ARHEC support to strengthen health education capacity. Conducted state-wide Health Education Week with a theme of "Clean Food Promotes Good Health."
- Published maiden edition of Lagos State Bulletin of PHC and Disease Control. Conducted regular meetings of State HIS Committee and improved data collection efforts with NGO and private sector involvement.

In Ojo LGA

- Intensified EPI outreach efforts to achieve target of 50% coverage. Conducted EPI campaign using local drama for publicity.
- Equipped ORT units/corners in PHC facilities throughout the LGA.
- Enhanced support for Ibeshe PHC Clinic to address problems related to patient underutilization. Following CE training for clinic staff and strengthened facility-community linkages, patient utilization data showed significant increases in attendance (total and pediatric) and immunization visits.
- Trained Village Health Workers and Traditional Birth Attendants and provided medical kits.
- Through State CEU, trained approximately 300 health workers on immunization, diarrhoeal diseases and malaria.
- Conducted school and market place health education program.

**ARI Treatment at Health Facilities
Drugs Administered to Children, Ojo LGA, 1992**



Source: Ojo Facility Assessment Survey, 1992
N = 50 Observations

NIGER STATE

| | |
|-------------------------|-----------------------|
| Population: | 2,643,781 |
| # LGAs: | 19 |
| Focus LGAs/pop.: | Gurara 48,925 |
| | Lapai 93,905 |
| | Saleja 133,404 |

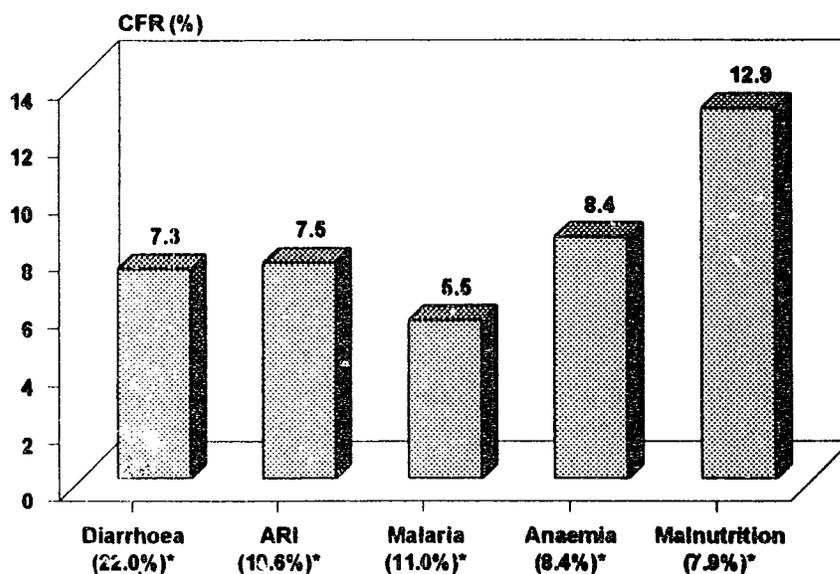
1993 ACTIVITIES

- In response to noted decreases in EPI coverage, mobilized SMOH to promote LGA acceleration efforts and enhance supervision. Conducted cold chain maintenance training for LGA managers.
- Through State Continuing Education Unit established in 1990, completed training on core modules for LGA managers (including newly created LGAs, which funded their own training) throughout Niger State. Assisted in production of training video series, and field-tested *Communicating About Health at the Facility* module intended to improve patient education skills. Conducted training for School of Health Technology tutors, nurses and midwives. Upgraded SHT Clinical Practice Site.
- Conducted ORT clinical case management training for LGA managers throughout the state, and distributed 130,000 ORS sachets provided by CCCD and UNICEF.
- Conducted orientation for private sector providers, including patent medicine vendors and pharmacists, on diarrhoea/fever case management. Procured microscopes and conducted laboratory/diagnostic training for hospital and rural health centre staff.
- Reorganized State HIS Unit and upgraded facilities. Provided technical support for State HIS Bulletin, "Health Scope," and produced Niger State 1992 Annual Statistical Bulletin. Conducted DSN and M&E training, including orientation of hospital medical records officers on in- and out-patient registers. Conducted facility assessment of record keeping at health facilities and used results to promote improved submission of HIS reports. Completed retrospective record review of in-patient pediatric admissions from 1987-91 at Minna General Hospital.

In Gurara LGA —

- Established schedule for regular quarterly meetings with district and village heads to review PHC activities, and with heads of facilities and district supervisors to plan/monitor program activities. Continued with placement of home-based records.
- Produced first Annual LGA Statistical Bulletin, using DSN data to show disease trends.
- With partial support from CCCD, established a functional Drug Revolving Fund (DRF) at LGA, district and facility levels to ensure provision of quality essential drugs to government health facilities.

Case Fatality Rates for Five Leading Causes of Pediatric (<5) Deaths Minna General Hospital, Niger State, 1987-91



Source: Minna General Hospital, Medical Records Dept.
*Percent of all deaths (N = 455)

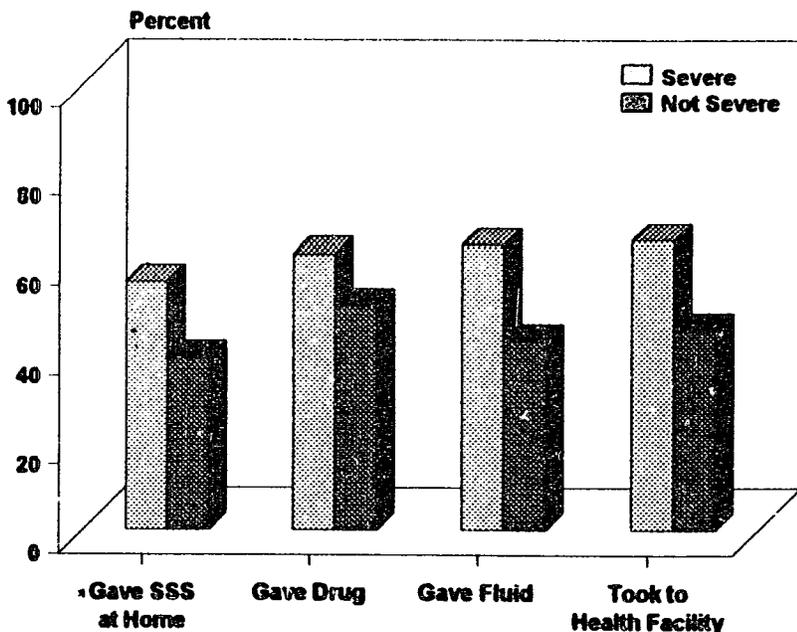
In Lapai LGA —

- Conducted orientation for facility health workers on basic health education, and identified opportunities for improving patient education.
- Trained private practitioners, including patent medicine vendors, on diarrhoea and fever case management.
- Repaired microscopes and conducted laboratory diagnostic training at selected facilities.
- Conducted clinical ORT training for facility health workers.
- Completed renovations and procured basic equipment/supplies for four Maternal and Child Health Clinics.

In Suleja LGA —

- Supported clinical ORT training for PHC workers. Strengthened ORT corners at health facilities and incorporated nutrition education at selected locations.
- Conducted health education orientation and continuing education training for LGA managers and health workers.
- Supported efforts to strengthen routine EPI services and outreach from static facilities.
- Conducted training on in- and out-patient registers for Medical Records Officers at Suleja General Hospital.

Diarrhoea Treatment Practices by Severity of Episode, Suleja LGA, 1991



Source: Suleja Community Survey
 N = 340 children with diarrhoea in the two weeks preceding the survey
 n (severe) = 99, n (not severe) = 241
 Note: "Severity" as perceived by mother

| OSUN STATE | |
|------------------------|----------------------------|
| Population: | 2,347,297 |
| # LGAs: | 22 |
| Focus LGA/pop.: | Ife Central 197,302 |

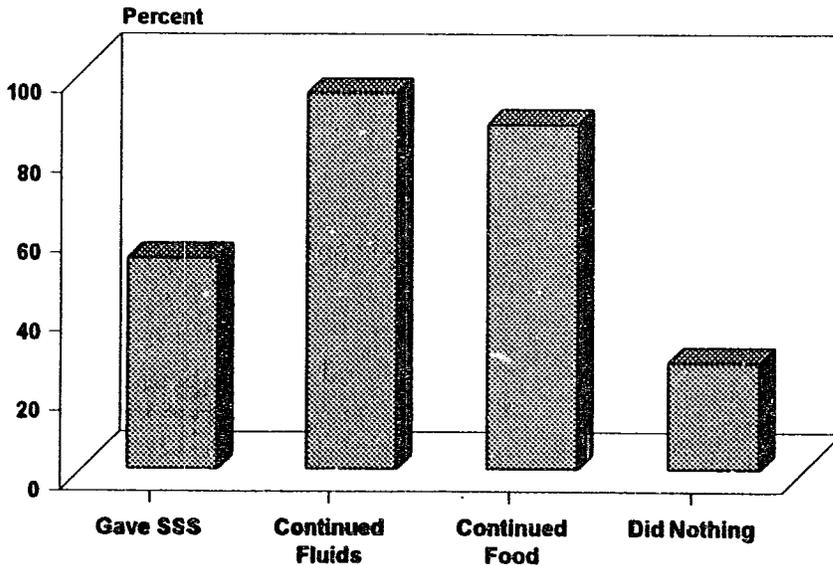
1993 ACTIVITIES

- Established PHC Monitoring system at the State, LGA and facility levels. At the facility level, monitoring has seven components focussed on completion of records, calculation of indicators, and graphing. The LGA collates facility information for planning and monitoring purposes. Likewise, the State collates LGA information.
- Produced State Ministry of Health Annual Activities Report titled *Monitoring of Primary Health Care in Osun State*.
- Established Continuing Education Unit at the Elesha School of Hygiene, and provided orientation for five newly deployed CEU tutors.
- Conducted State-wide KAP Study on ORT usage, documenting home treatment practices and environmental sanitation issues.
- Conducted *State-wide Assessment of Nutritional Status of Children*.

**Home Treatment of Diarrhoea
Osun State, 1993**

In Ife-Central LGA —

- Used information from clinic master cards — cards placed at health facilities showing number of persons per household in the catchment area — to estimate target population of the LGA.
- CCCD State-based Epidemiologist presented a paper, "Environmental Quality as a Factor in Spatial Distribution of Diarrhoeal Diseases in Ife Central LGA," at an Ife Central LGA-sponsored seminar on environmental pollution and its health impacts.
- "Bi-Annual Health Bulletin" published by PHC department.



Source: Osun State ORT Usage Survey, 1993
 N = 1,353 children with diarrhoea in the two weeks preceding the survey

| OYO STATE | |
|------------------------|-----------------------|
| Population: | 3,175,644 |
| # LGAs: | 24 |
| Focus LGA/pop.: | Egbeda 292,918 |

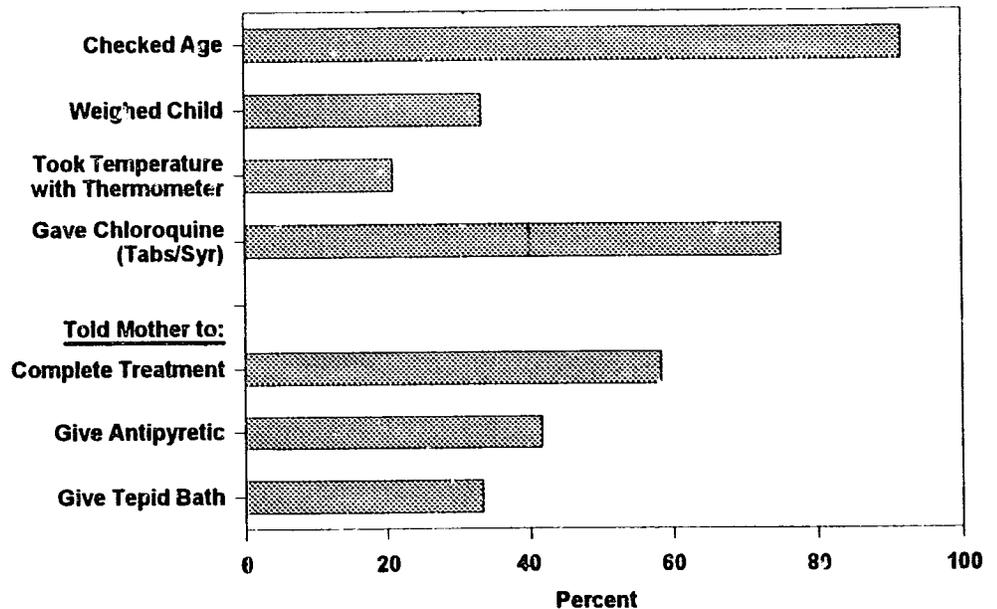
1993 ACTIVITIES

- Conducted SMOH and zonal HIS training workshops to build capacity of PRS staff for data analysis and use of data for decision-making.
- Conducted state-wide immunization coverage survey, which confirmed precipitous decline in EPI coverage during past three years.
- Established Continuing Education Unit at School of Health Technology, Ibadan, and provided orientation for newly deployed CEU tutors.
- Provided books to form the nucleus of a new library at the School of Hygiene, Eleyele.
- Provided technical assistance to Department of Planning, Research and Statistics (DPRS) staff to analyze immunization data for each LGA in Oyo State, including antigens administered, coverage and drop-out rates.
- Assisted DPRS staff in an analysis of monthly diarrhoeal diseases data for 1992.

In Egbeda LGA —

- Established Village Development Committees in ten health districts, and conducted PHC mobilization meetings for District Development Committees.
- Conducted Facility Assessment Survey, documenting health worker practices related to diarrhoea and fever case management, and equipment/supply inventories.

**Case Management of Fever
and Education by Health Workers
Egbeda LGA, 1993**



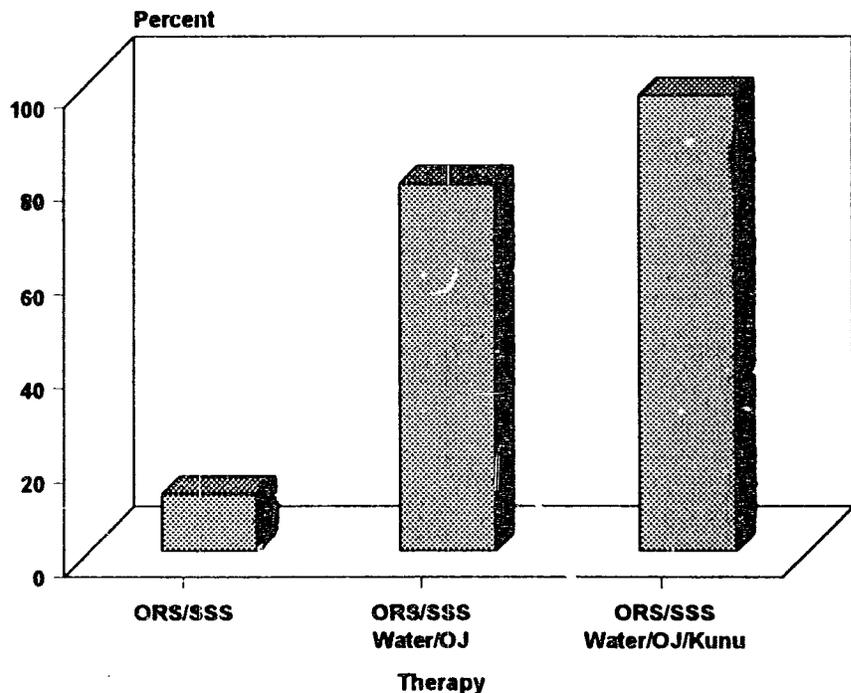
Source: Egbeda Facility Assessment Survey, 1993

| | |
|--------------------------|----------------------------|
| PLATEAU STATE | |
| Population: | 3,497,224 |
| # LGAs: | 23 |
| Focus LGAs/pops.: | Barkin-Ladi 162,744 |
| | Pankshin 179,689 |

1993 ACTIVITIES

- Supported Plateau State Council on Health, a forum comprising LGA Chairmen and PHC Coordinators who meet regularly to review health/PHC technical and policy issues. During 1993, LGA Chairmen voted to support LGA EPI acceleration efforts as a strategy to improve coverage.
 - Provided orientation and training for 23 State Technical Facilitators, who provide technical assistance for PHC implementation in LGAs throughout Plateau State.
 - Established Diarrhoea Training Unit at Jos University Teaching Hospital and conducted ORT case management training for hospital staff and health workers. Coordinated with WHO to conduct State-wide CDD Survey, documenting diarrhoea incidence and ORT usage rates at home.
 - Continued support for Continuing Education Program established in 1992, with training on EPI/CDD and malaria for LGA managers, and public- and private-sector health workers. Supported Zawan School of Health Technology through provision of library books and laboratory equipment, and promotion of monthly technical updates with CEU staff.
 - Convened State Ministry of Health HIS Coordination Committee to strengthen integration of various reporting systems and improve coordination. Conducted HIS/computer orientation seminar for SMOH officials and program directors. Produced 1992 Plateau State Statistical Bulletin and fourth edition of *Health Watch*, a quarterly bulletin for sharing information on disease trends and PHC topics with health workers throughout Plateau State. Produced *Health Alert* special edition on Lassa Fever, providing guidance on prevention and control efforts.
 - Provided epidemiologic support to investigate lassa fever outbreak in several LGAs.
 - Provided technical assistance for State-wide HIV/AIDS Surveillance System.
 - Supported State Health Education officers to participate in ARHEC Health Education Capacity-Building Workshop.
- In Barkin-Ladi LGA —**
- Pilot-tested 100 Household Survey in four health districts as tool for routine monitoring of community practices related to immunization, diarrhoea, fever and nutrition.
 - Supported PHC Coordinator for management training course at International

**Oral Rehydration Therapy (ORT) Usage Rates
Plateau State, 1992**



Source: Plateau State CDD Survey, 1993
N = 1,902 children with diarrhoea in the two weeks preceding the survey

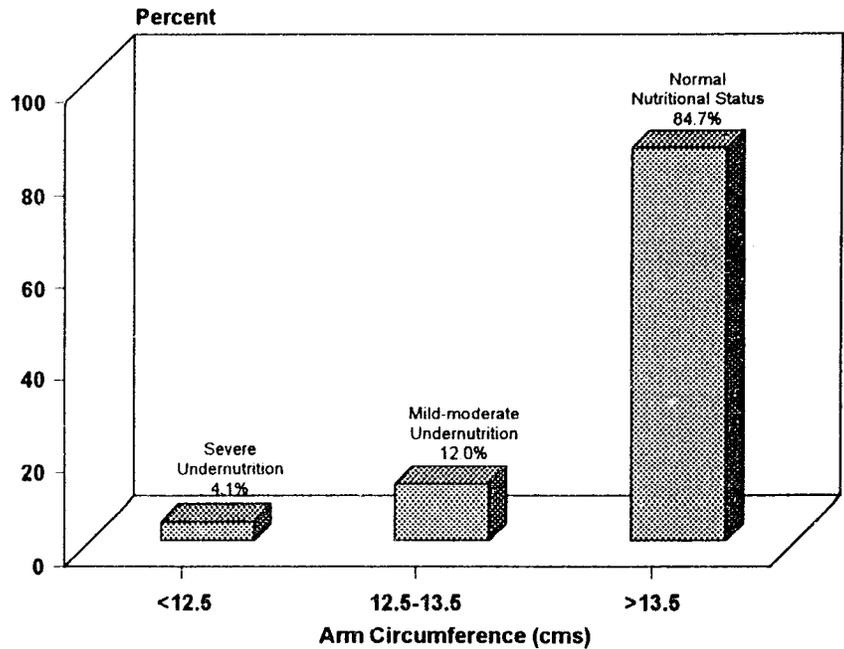
Health Services Association (INSA), at which proposal for district management training was developed.

- Conducted malaria training for patent medicine vendors, and provided health worker training on laboratory diagnosis.
- As a demonstration site for integration of AIDS into Primary Health Care, supported AIDS education and awareness efforts.

In Pankshin LGA —

- Supported PHC infrastructure development through training of village health workers, establishment of district and village health committees, and placement of home-based records.
- Furnished ORT corners at PHC facilities, and distributed ORS sachets procured through CCCD.
- Completed construction of new PHC Secretariat, with office space for PHC Coordinator and Assistant Coordinators.

Nutritional Status Among Children 1-5 Years by Mid-Upper Arm Circumference Barkin-Ladi LGA, 1992



Source: Barkin-Ladi Community Survey, 1992
N = 1,143 children 1-5 years

| SOKOTO STATE | |
|------------------------|-----------------------------|
| Population: | 4,678,002 |
| # LGAs: | 28 |
| Focus LGA/pop.: | Kaura Namoda 278,823 |

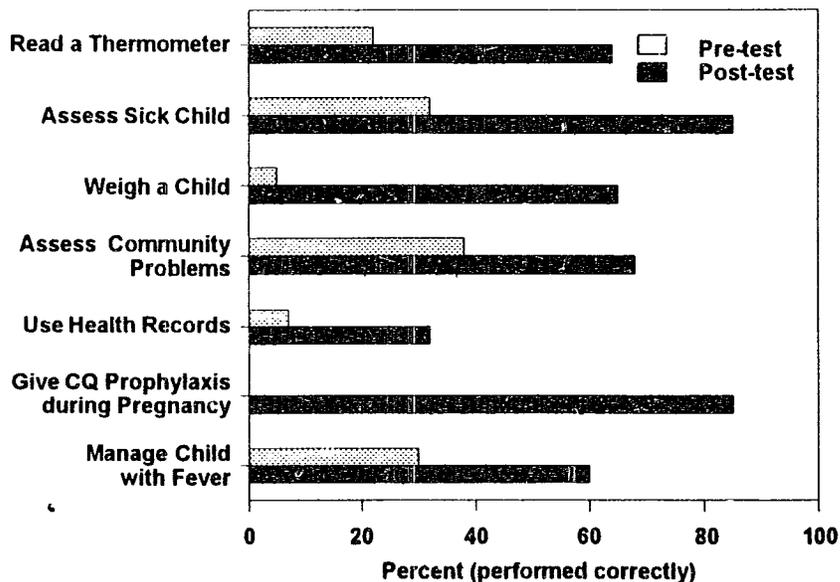
1993 ACTIVITIES

- Established a Continuing Education Unit at the newly constructed Gwadabawa School of Health Technology. Equipped the CEU and provided orientation for five CEU staff. Excellent commitment and technical capacity of the CEU Coordinator has been a strong catalyst for the CE program.
- Supported newly appointed State CDD Manager for orientation and training at Zone D Diarrhoea Training Unit, and established a State ORT Unit. Distributed ORS sachets through State-level zonal offices.
- In an effort to enhance state epidemiologic capacity, supported State PHC Director to attend the International Epidemic Intelligence Service (EIS) course at the U.S. Centers for Disease Control and Prevention, Atlanta, GA.
- Installed computer at Planning, Research and Statistics (PRS) Division and provided computer training.

In Kaura Namoda LGA —

- Conducted facility assessment survey at seven government health facilities and reviewed findings with LGA officials and program officers.
- With support and advocacy from the LGA Chairman and senior officers, established five health districts and facilitated training of newly appointed district supervisors.
- Trained and provided re-orientation for village health workers and traditional birth attendants, and provided needed kits and drugs.
- Provided management and supervisory skills training for LGA Managers through State CEU.

**Pre-/Post-Skills Assessment
Continuing Education Program
Sokoto State, 1993**



Source: Sokoto MOH/NCCCD Training Project Report, 1993
N = 14 LGA Managers

MONITORING AND EVALUATION

In 1986, a CCCD Project evaluation framework was established reflecting the core ACSI-CCCD indicators — infant and child mortality, immunization coverage, case management of diarrhoea and malaria, and community treatment of diarrhoea. Estimated 1993 levels for CCCD Project indicators show substantial improvements since 1986.

In 1991, a *Monitoring and Evaluation Plan for CCCD Interventions* was developed, with two primary objectives in mind: 1) to assist Nigerian counterparts at all levels in the development of a sustainable system that would provide usable data for program decision-making, and 2) to monitor the process and outcomes of CCCD-supported interventions in the nine Focus States and model LGAs within those States. Indicators were identified at three levels — community, facility and LGA. Data collection methods included community surveys, facility assessment surveys, and routine data, i.e. record reviews, hospital sentinel surveillance and M & E reports.

Original CCCD National Indicators and Targets

| Indicator | Baseline 1986 (est) | End of Project Target | 1993 (est) |
|--|------------------------|-----------------------------|------------|
| Infant Mortality | 110/1,000 | 75/1,000 | 87/1,000 |
| 1-4 Year Mortality | 120/1,000 | 70/1,000 | 110/1,000 |
| Immunization Coverage (by 12 Months) | 10% | 80% | 30% |
| Neonatal Tetanus Protection (TT2 Coverage) | 10% | 80% | 70% |
| Health Facility Use of ORT | 25% | 90% | 70% |
| Community (Mothers') Use of ORT | 20% | 75% | 35% |
| Appropriate Malaria Treatment ¹ at Health Facilities | 25% | 80% | 70% |

Source (1993 est): 1990 NDHS; LGA Facility Assessment Surveys and Community Surveys

Using Data for Decision-Making in Barkin-Ladi LGA

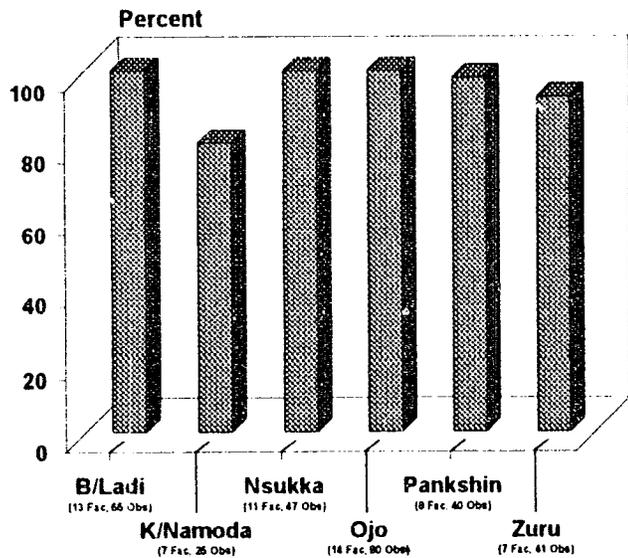
To promote use of data for decision-making in Barkin-Ladi —

- LGA health staff and PHC workers participated in collecting and analyzing data from: 1) an LGA Community Survey which examined immunization coverage and diarrhoea/fever home treatment practices, and 2) a Facility Assessment Survey which documented health worker performance related to immunization and diarrhoea/fever case management, and the availability of equipment and supplies.
- Key survey findings were discussed with LGA political leaders, district and village chiefs, Health Department staff, district supervisors, and facility and village-based health workers.
- Based on survey findings, five key concerns were outlined — low measles coverage, undernutrition, inadequate home treatment with fluids for children with diarrhoea, inappropriate use of drugs and home remedies for children with fever, and low tetanus toxoid coverage among pregnant women — and a commitment was made to strengthen PHC efforts in these areas.
- Program objectives and targets were established and a plan of action was developed. Workplan activities included improved community outreach and mobilization, involvement of local churches and women's groups, continuing education for health workers, and use of media resources.
- A simple monitoring plan, with indicators to assess progress against program objectives, was developed to provide feedback on program efforts. Priority indicators addressing coverage, quality, access, and utilization were selected for monitoring at all levels - LGA, district, facility, community. Information collected on a regular basis (using simple tools such as the 100 Household Survey, supervisory checklists, and routine morbidity reports) would be complemented by larger population-based surveys and facility assessments conducted on an annual or bi-annual basis.

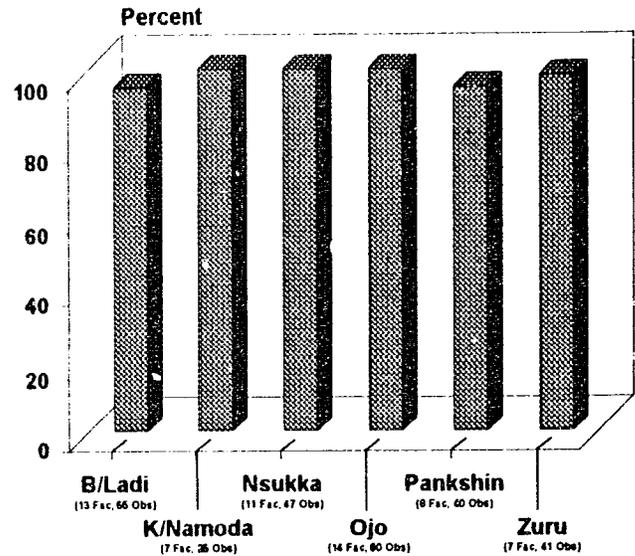
BASELINE DATA FOR SELECTED FACILITY-LEVEL INDICATORS

IMMUNIZATION PRACTICES AMONG HEALTH WORKERS

Sterile Needle/Syringe

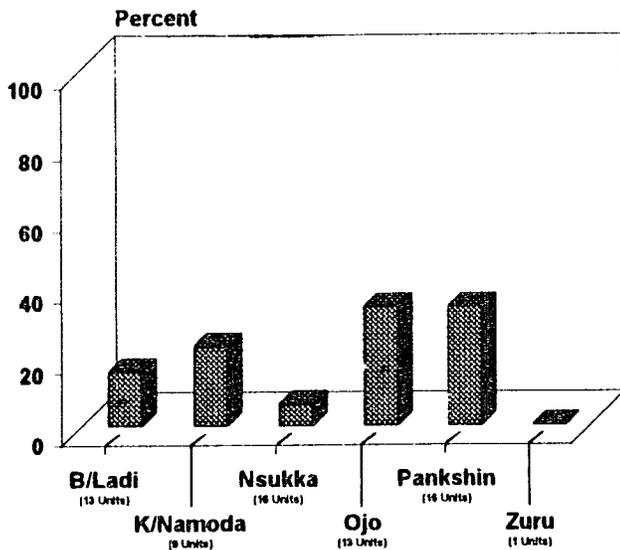


Correct Dose/Site

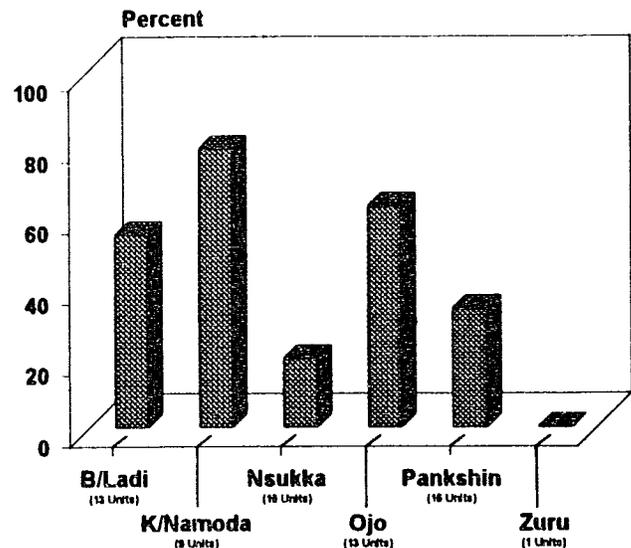


COLD CHAIN MAINTENANCE AT HEALTH FACILITIES

Temperature Chart for Refrig/Cold Box



Thermometer in Refrig/Cold Box

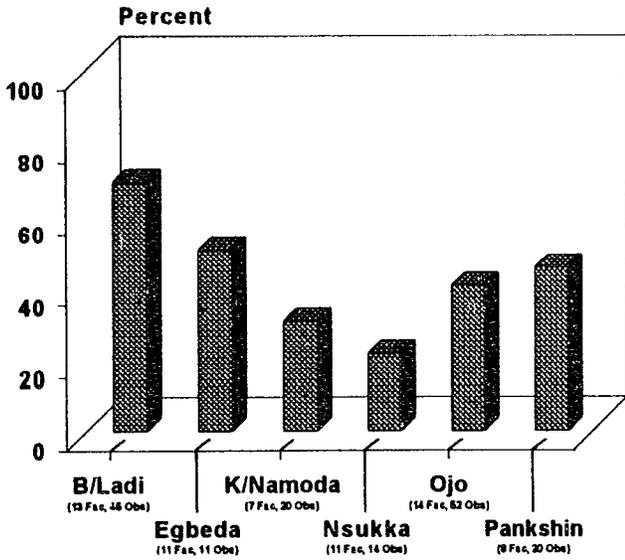


Baseline data for most CCD Focus LGAs indicate that immunization technique among health workers is generally very good. Sterile needles and syringes are used to administer immunizations, and the correct dose of each antigen is given at the correct site. While correct technique is essential, this alone will not ensure effective immunization. Necessary equipment and supplies, along with adequate cold chain maintenance, are critical for ensuring vaccine potency. Further efforts are required to ensure the availability of thermometers and temperature charts, and health workers must be encouraged to monitor the temperature of refrigeration units on a daily basis.

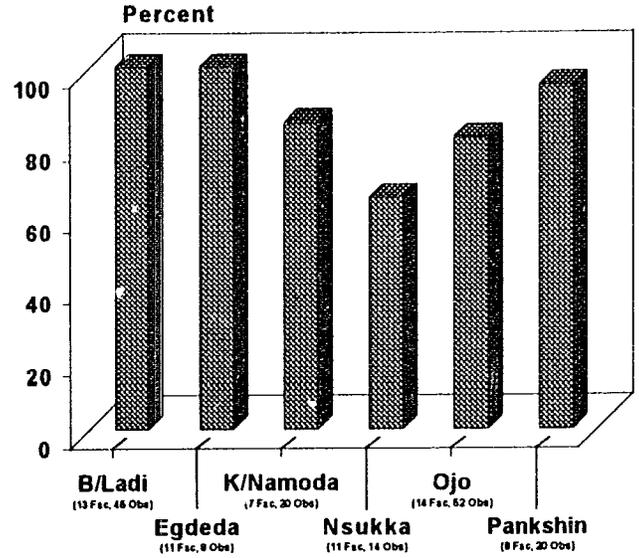
BASELINE DATA FOR SELECTED FACILITY-LEVEL INDICATORS

DIARRHOEA CASE MANAGEMENT SKILLS AMONG HEALTH WORKERS

Ask if Blood

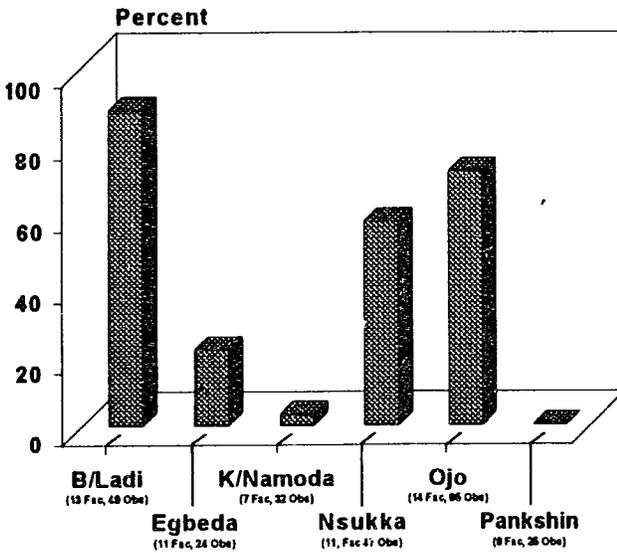


Give ORT

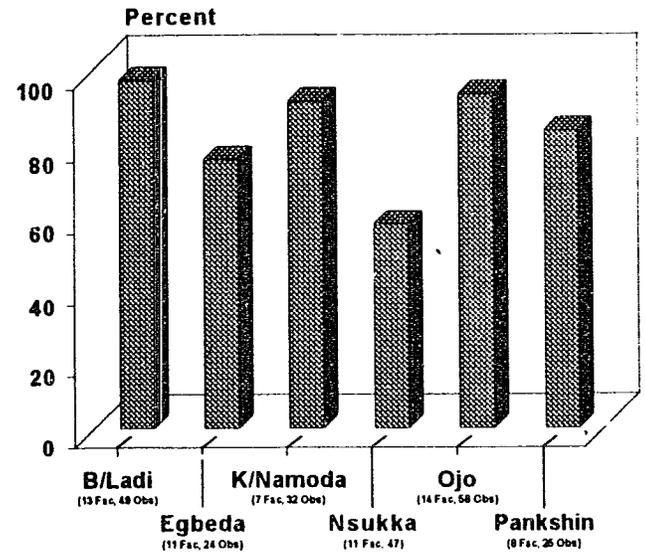


FEVER CASE MANAGEMENT SKILLS AMONG HEALTH WORKERS

Take Temperature



Give Chloroquine

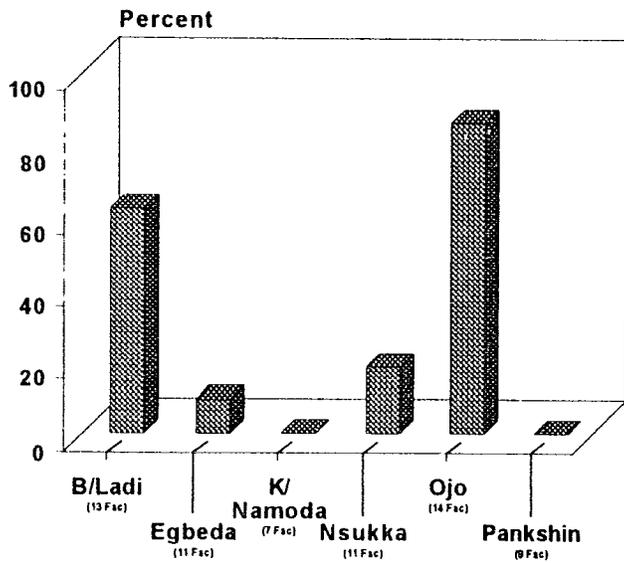


Health worker skills in assessing and providing correct case management for sick children with diarrhoea and/or fever require further strengthening in some LGAs. Continuing education programs for LGA managers and PHC workers have been implemented to improve case management skills. At health facilities having adequate supplies of essential drugs, health workers generally administer Oral Rehydration Therapy and/or chloroquine to sick children with diarrhoea and/or fever.

BASELINE DATA FOR SELECTED FACILITY-LEVEL INDICATORS

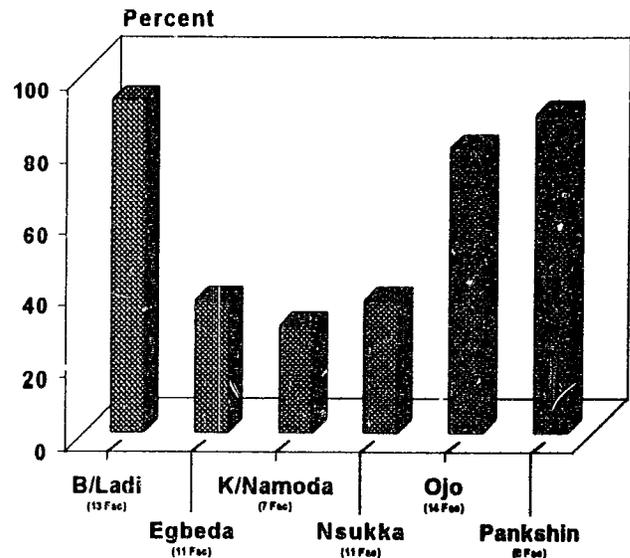
ESSENTIAL DRUGS AVAILABLE AT HEALTH FACILITIES

ORS Sachets



ORS = either 600 ml or 1L

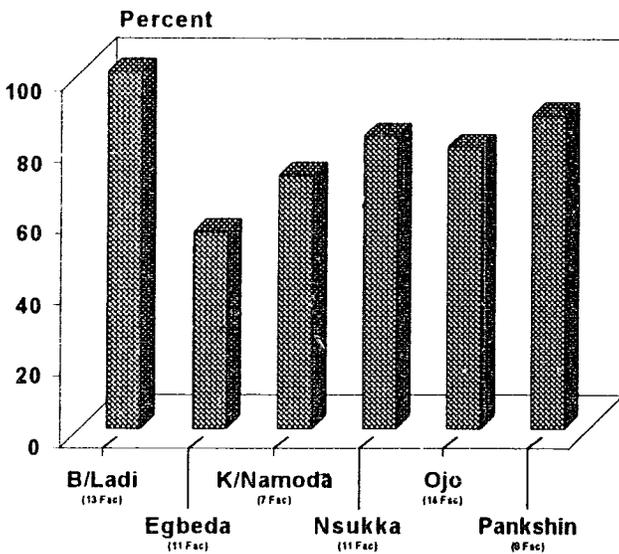
Chloroquine



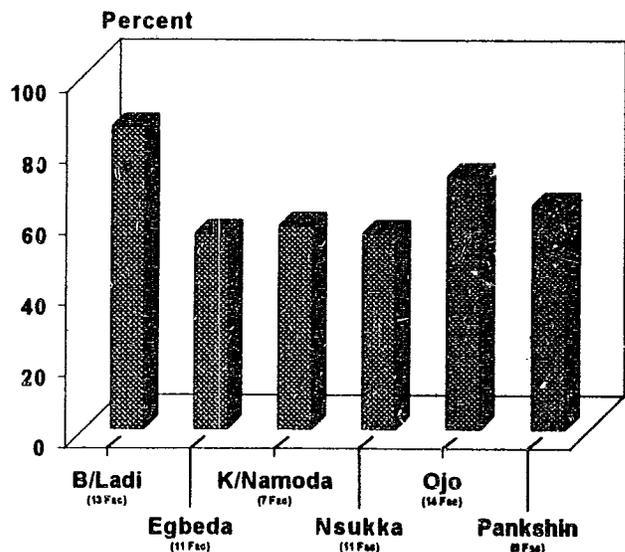
CQ = either tabs or syrup

EQUIPMENT AND SUPPLIES AT HEALTH FACILITIES

Baby Weighing Scales



Thermometer



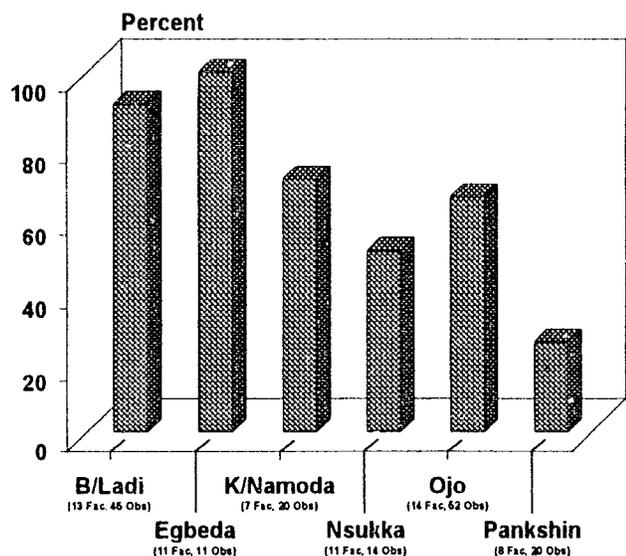
Lack of availability of essential drugs, including ORS sachets and chloroquine, is a major problem in many Focus LGAs. LGAs with a well-functioning Drug Revolving Fund (DRF) generally experience fewer drug shortages. Inavailability of basic equipment and supplies, such as weighing scales and thermometers, further hamper effective case management efforts.

BASELINE DATA FOR SELECTED FACILITY-LEVEL INDICATORS

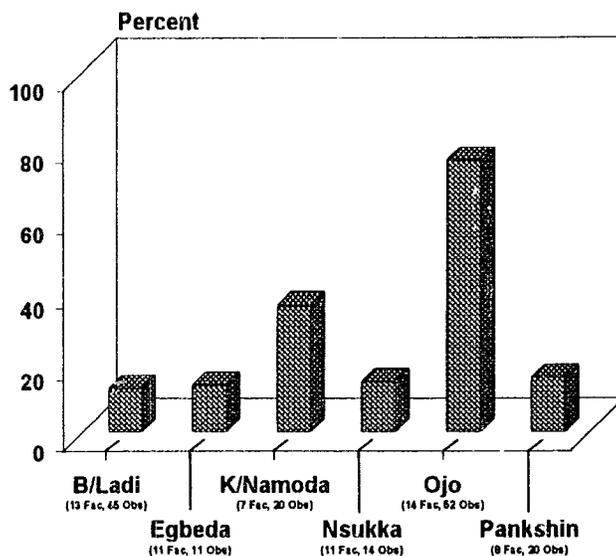
EDUCATION PRACTICES AMONG HEALTH WORKERS

MOTHERS OF CHILDREN WITH DIARRHOEA

Give More Fluid

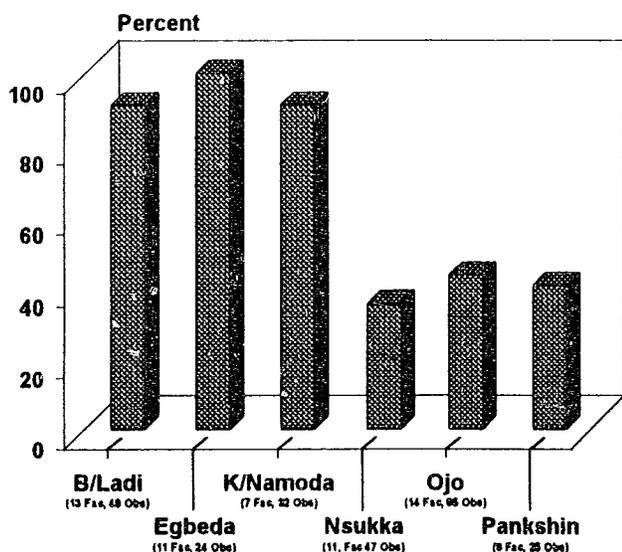


Return Demonstrate SSS

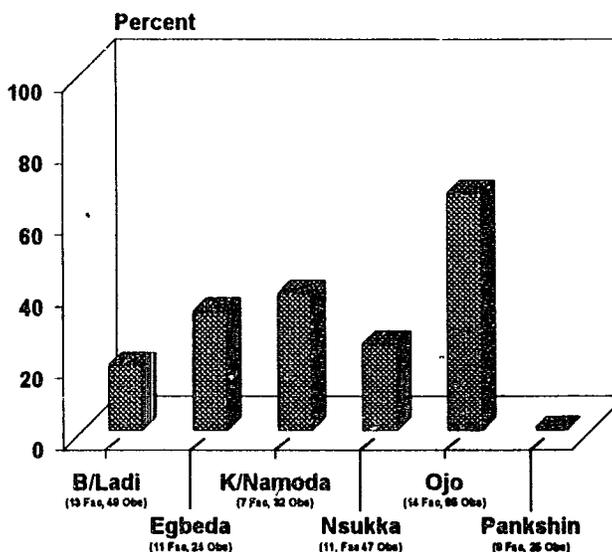


MOTHERS OF CHILDREN WITH FEVER

Take Chloroquine 3 Days



Give Tepid Bath



Basic messages regarding home treatment and prevention practices are often not relayed to mothers accompanying their sick children to health facilities. Communication skills among health workers must be strengthened to ensure that clients receive information needed to provide appropriate home treatment. The *Communicating About Health at the Facility* module, recently incorporated into the Continuing Education program, addresses this need area.

**LGA Monitoring and Evaluation
Facility-Level Indicators
Baseline Data for Selected CCCD Focus LGAs**

| Indicator | B-Ladi 1991 | Egbeda 1993 | K-Namoda 1993 | Nsukka 1991 | Ojo 1992 | Pankshin 1991 | Zuru 1993 |
|---|----------------|----------------|------------------|----------------|-------------|------------------|--------------|
| Health Worker Performance | | | | | | | |
| <i>Immunization</i> | | | | | | | |
| % Immunizations using sterile needle/syringe | 98.5 | n/a | 80.0 | 100.0 | 94.0 | 97.5 | 92.7 |
| % Immunizations given with correct dose at correct site | 95.4 | n/a | 100.0 | 100.0 | 100.0 | 97.5 | 97.6 |
| % Refrigeration units having temperature chart | 15.9 | n/a | 22.2 | 6.3 | 23.1 | 25.0 | 0.0 |
| % Refrigeration units with thermometer inside | 53.8 | n/a | 77.8 | 18.8 | 61.5 | 25.0 | 0.0 |
| <i>Diarrhoea</i> | | | | | | | |
| % Mothers of children with diarrhoea asked about presence of blood in stool | 68.9 | 50.0 | 30.0 | 21.4 | 40.0 | 45.0 | 80.4 |
| % Mothers of children with diarrhoea asked about number of stools and duration of diarrhoea | 88.9 | 62.5 | 55.0 | 50.0 | 65.0 | 45.0 | 82.6 |
| % Children with diarrhoea given ORS | 43.3 | 18.2 | 0.0 | 0.0 | n/a | 0.0 | 0.0 |
| % Mothers of children with diarrhoea told to give increased fluids | 91.1 | 100.0 | 70.0 | 50.0 | 65.0 | 25.0 | 64.0 |
| % Mothers of children with diarrhoea told to continue feeding the child | 44.5 | 62.5 | 55.0 | 21.4 | 67.0 | 10.0 | 26.0 |
| % Mothers of children with diarrhoea for whom SSS mixing is demonstrated | 30.5 | 37.5 | 30.0 | n/a | 81.0 | 5.0 | 19.6 |
| % Mothers of children with diarrhoea asked to demonstrate SSS preparation | 11.6 | 12.5 | 35.0 | 14.2 | 75.0 | 15.0 | 15.2 |
| <i>Fever</i> | | | | | | | |
| % Children with fever who receive oral antimalarials | 87.3 | 75.0 | 76.5 | 61.7 | 93.0 | 82.8 | 72.9 |
| % Mothers of children prescribed oral antimalarial who are instructed to give the medicine for three days | 91.2 | 100.0 | 90.6 | 38.0 | 88.0 | 40.0 | 83.3 |
| Patient Education | | | | | | | |
| % Mothers who know treatment for side effects | 53.8 | n/a | 62.5 | 72.3 | 78.2 | 65.0 | 56.1 |
| % Mothers who know when to return for child's next immunization | 67.7 | n/a | 32.7 | 82.3 | 84.0 | 49.5 | 70.7 |
| % Mothers able to describe treatment to be administered at home following health center visit for febrile child | 68.4 | 86.4 | 69.4 | 77.8 | 79.0 | 68.5 | 53.8 |
| % Mothers taught a recipe for SSS who are able to mix SSS correctly upon leaving facility | 80.0 | n/a | 45.0 | 20.0 | n/a | 20.0 | 26.1 |
| Supplies and Equipment | | | | | | | |
| % Facilities with sufficient stocks of all vaccines | 69.2 | 18.2 | n/a | n/a | 71.4 | n/a | n/a |
| % Facilities with ORS packets available | 61.5 | 18.2 | 0.0 | 18.2 | 85.7 | 0.0 | 0.0 |
| % Facilities with oral chloroquine | 92.3 | 36.4 | 28.6 | 36.4 | 78.6 | 75.0 | 66.7 |

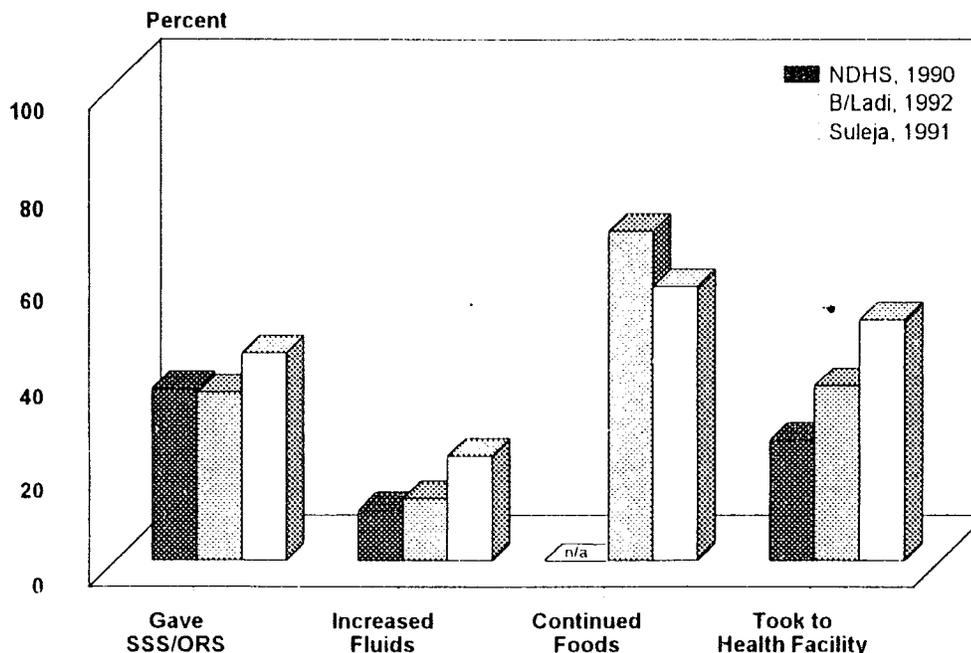
Sources: LGA Facility Assessment Surveys

B/Ladi (91) = 13 facilities; Observations = Immunization 65, Diarrhoea 45, Fever 49
 Egbeda (93) = 11 facilities; Observations = Immunization 0, Diarrhoea 11, Fever 24
 K/Namoda (93) = 7 facilities; Observations = Immunization 25, Diarrhoea 20, Fever 32
 Nsukka (91) = 11 facilities; Observations = Immunization 47, Diarrhoea 14, Fever 47
 Ojo (92) = 14 facilities; Observations = Immunization 80, Diarrhoea 52, Fever 85
 Pankshin (91) = 8 facilities; Observations = Immunization 40, Diarrhoea 20, Fever 25
 Zuru (93) = 7 facilities; Observations = Immunization 41, Diarrhoea 46, Fever 48

Note: In most LGAs, vaccines were brought to the facilities to enable health workers administer immunizations and demonstrate technique.

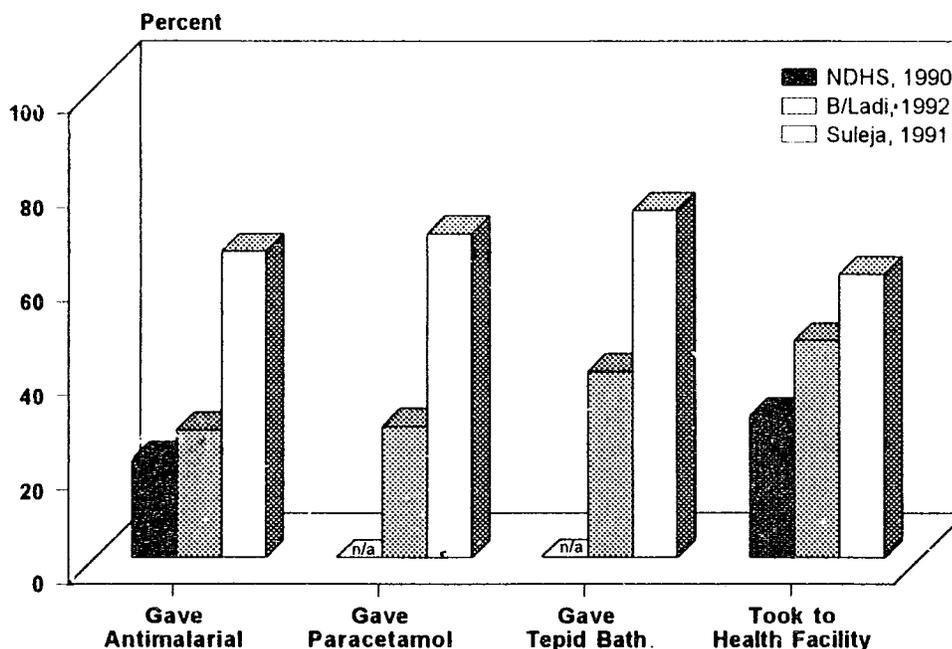
BASELINE DATA FOR SELECTED COMMUNITY-LEVEL INDICATORS

Diarrhoea Home Treatment Practices



N (children with diarrhoea in the two weeks preceding the survey) = NDHS 1,256; B/Ladi 469; Suleja 340

Fever Home Treatment Practices



N (children with fever in the two weeks preceding the survey) = NDHS 2,291; B/Ladi 507; Suleja 425

Baseline information from community surveys indicate that mothers of children with diarrhoea and fever in Barkin-Ladi and Suleja Local Governments are generally better informed and practice correct home management more often than the majority of mothers in Nigeria. Nonetheless, mothers' knowledge and home treatment practices require further improvement. Strategies for strengthening community education and participation in health are being developed to address this need.

**LGA Monitoring and Evaluation
Community-Level Indicators
Baseline Data for Selected CCD Focus LGAs**

| Indicator | B-Ladi 1992 | Suleja 1991 |
|--|------------------------|------------------------|
| Immunization | | |
| % Children <1 year who received BCG | 89.6 | 89.1 |
| % Children <1 year who received OPV 1 | 73.9 | 62.3 |
| % Children <1 year who received DPT 3 | 66.1 | 42.6 |
| % Children <1 year who received measles | 52.7 | 33.2 |
| Diarrhoea | | |
| Average # episodes per child each year | 5.7 | 4.6 |
| % Children with diarrhoea in past two weeks | 29.2 | 20.8 |
| % Children with diarrhoea who received oral rehydration therapy (SSS or ORS) during last diarrhoea episode | 35.2 | 43.5 |
| % Children with diarrhoea who received fluids during last diarrhoea episode | 81.4 | 73.5 |
| % Children who were fed during last diarrhoea episode | 69.4 | 57.6 |
| Fever | | |
| Average # episodes per child each year | 6.6 | 8.8 |
| % Children with fever in past two weeks | 31.5 | 25.2 |
| % Children who received antimalarial during last fever episode | 27.0 | 65.1 |
| % Children who received 3-day CQ treatment | 32.3 | n/a |
| % Children who receive sponge bath | 39.4 | 15.1 |
| % Children who received paracetamol | 27.8 | 62.9 |
| % Children with fever taken to health facility or VHW | 46.0 | 60.2 |
| Nutrition | | |
| % Children 1-5 years with MUAC in 'red' zone (<12.5 cm) | 4.1 | n/a |

Sources: LGA Community Surveys

Note: Immunization Coverage = corrected, card + history

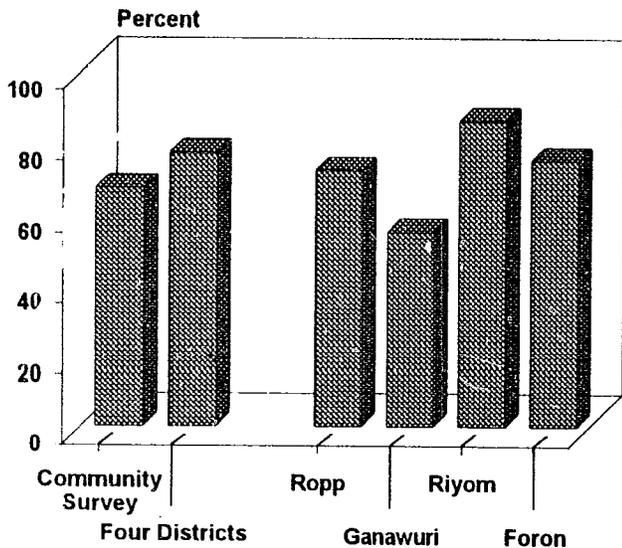
N (B/Ladi) = 1,605 children under five years; 469 diarrhoea; 507 fever

N (Suleja) = 1,637 children under five years; 340 diarrhoea; 425 fever

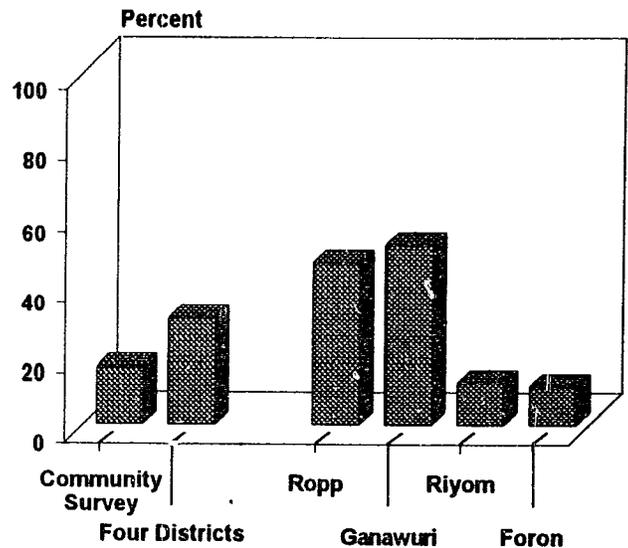
BASELINE DATA FROM 100-HOUSEHOLD SURVEYS

Barkin-Ladi LGA, by District, 1993

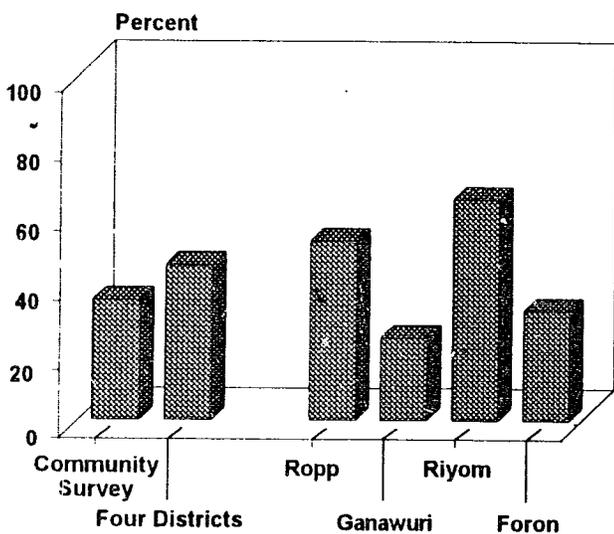
Measles Coverage



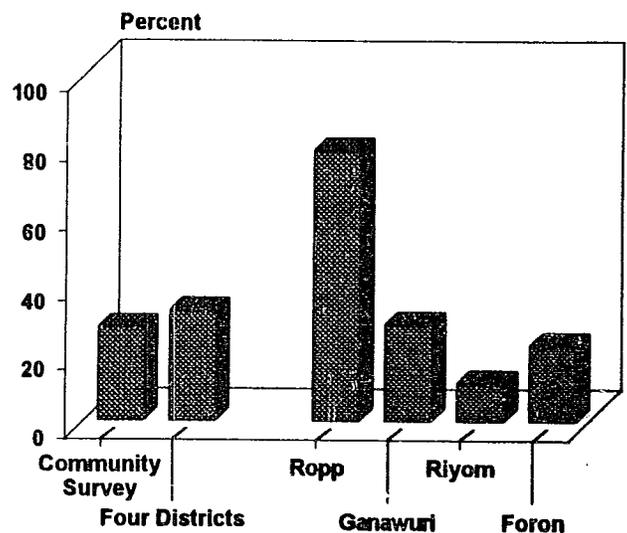
Nutritional Status Children with MUAC <13.5 cm



Home Treatment of Diarrhoea With SSS



Home Treatment of Fever with Chloroquine



While community surveys provide valuable population-based estimates, the financial cost, time involved, and personnel and technical support requirements preclude their use on a regular basis. Simple and inexpensive tools are needed for monitoring the progress of health programs on a regular basis. In Barkin-Ladi Local Government, the 100 Household Survey approach was adapted to collect information from households situated nearest the health facility, assessing immunization coverage and home treatment practices among those mothers of children under five with easiest access to PHC services. A single page questionnaire, reflecting indicators related to key health priorities, was used by district supervisors and health workers. Completed questionnaires were hand tallied and analyzed by staff of the health facility. Data collection, analysis and interpretation were completed for each district health facility within 10 days. In addition to serving as a suitable tool for routine monitoring, this technique brings health workers into direct contact with the people they serve, increasing the awareness of local health needs and providing direct motivation to improve PHC services in the local community.

Appendix A

CCCD LEADERSHIP IN NIGERIA — 1993

Federal Ministry of Health and Social Services

| | | |
|--|-------------------|--|
| CDD/ARI | Dr. Salawu | Assistant Director |
| EPI | Dr. M.D. Adejeji | Assistant Director |
| Epidemiology | Dr. A. Nasidi | Chief Consultant |
| Health Education | Mr. J. Ola | Head of Bureau |
| HIV/AIDS | Dr. Tilley-Gyado | Coordinator, NASCP |
| Malaria | Dr. O.J. Ekanem | Director, NMVCD CHIEF CONSULTANT |
| Operations Research | Dr. Ogunye | Chairman, OR Committee |
| Planning, Research & Statistics | Dr. J. Makanjuola | Director |

National Primary Health Care Development Agency

| | | |
|----------------------------------|--------------------|--------------------|
| NPHCDA | Dr. A.O. Sorungbe | Executive Director |
| CDD | Mrs. N. Smith | Coordinator |
| EPI | Dr. S. Mahdi | Director, O&S |
| Monitoring and Evaluation | Dr. O.O.K. Dokunmu | Deputy Director |

States and Local Government Areas

CCCD gratefully acknowledges the leadership and cooperation of Commissioners of Health, Directors General, Department Directors and Program Coordinators at Ministries of Health in the nine CCCD Focus States. Within Focus LGAs, CCCD acknowledges with gratitude the leadership and support provided by LGA Chairmen, Supervisory Councillors for Health, PHC Coordinators and Assistant Coordinators and District Supervisors.

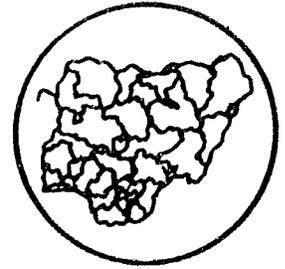
Appendix B

CCCD PROJECT STAFF

| | |
|--|--|
| Project Coordinator | James Herrington Warren Jones John Nelson |
| Epidemiologist | Richard Spiegel Jason Weisfeld |
| Technical Officer/Kaduna | Barbara Maciak |
| National Epidemiologist | Olusegun Babaniyi |
| State-Based Epidemiologists | Hezekiah Adesina, Osun/Oyo Doyin Fagbule, Lagos Peter Olise, Anambra/Enugu Bayo Parakoyi, Plateau Zakari Wambai, Niger |
| Senior HIS Support Staff | Gerald Ochuku Akpaka Kalu Oyetunje Ajiboye Stanley Amadiogwu Elizabeth Iyama |
| Senior Administrative Staff | Helen Nwabuoku, Project Assistant Henry Akinsulere, Finance Officer Kingsley Amofah, Admin. Manager/Kaduna Kingsley Ebule, Administrative Assistant |
| Technical Advisor, Continuing Education | Anu Adegoroye |



NIGERIA BULLETIN OF EPIDEMIOLOGY



Volume 3 Number 2

June 1993

A publication of the Epidemiological Division, Department of Primary Health Care and Disease Control
Federal Ministry of Health and Social Services, Lagos, Nigeria.

Editorial

This edition of the Nigeria Bulletin of Epidemiology focuses on three diseases which occur in Nigeria, particularly among rural populations.

Guinea worm: Taming the "fiery serpent"

Guinea Worm occurs among people with no access to potable water. The disease causes disabilities among its victims resulting in disruptions in their economic and social lives.

As part of the global efforts to eradicate this disease by 1995, the Federal Ministry of Health, in collaboration with global 2000 set up the Nigeria Guinea Worm Eradication Programme (NIGEP) in 1988. The programme has succeeded in reducing the incidence of the disease by about 70% from 653,620 cases in 1988 to 202,917 cases in 1992. This achievement is a positive testimony to the impact of the use of community-based interventions in disease control programmes.

Onchocerciasis (River Blindness) which is transmitted by the black fly, is a disease that affects people that dwell or earn their livelihood around the banks of fast-flowing streams. The major disability caused by the disease is blindness. We present in this issue, the results of an epidemiological study carried out in Idah LGA of Kogi State.

The survey confirmed high infection rate in all the villages surveyed. The Nigerian Onchocerciasis Control Programme is aimed at eradicating the disease in the communities.

Yellow fever continues to constitute a public health problem in Nigeria. To address this issue the Federal Government of Nigeria has approved the mass immunization of all Nigerians and the campaign has been launched this year in Delta State.

The Federal Vaccine Production Laboratory, Yaba, is being upgraded to produce yellow fever vaccine locally enough to meet national needs. The expansion exercise is being supported by the Canadian IDRC, the WHO and the EEC. The building to accommodate the production facilities has been commissioned and production is expected to start early 1994.

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Guinea Worm Eradication
A Status Report

In 1991, the World Health Assembly passed a resolution which called for the total eradication of Guinea Worm by the year 1995.

To eradicate Guinea Worm Disease, surveillance and control measures must be extended to *all* the villages in the world where guinea worm is to be found. As at September 1992, 22,868 villages in Africa (in 16 countries), India and Pakistan still had Guinea Worm. ¹

Progress toward eradication can be measured in several ways:

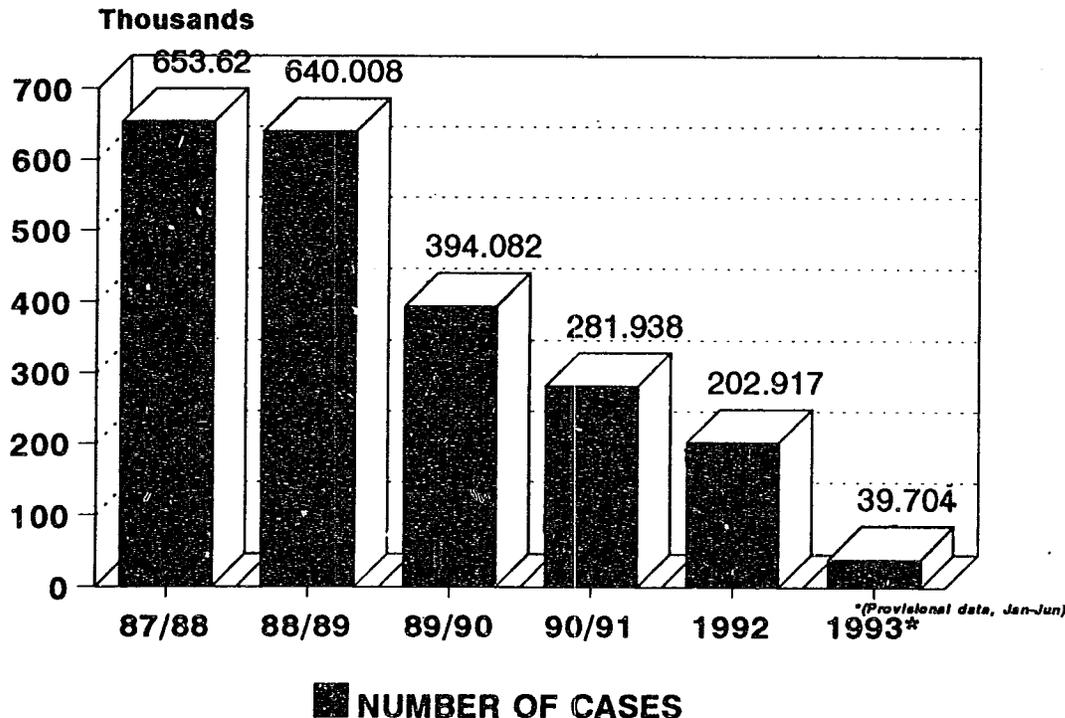
- a decline in the number of people with Guinea Worm Disease,
- a decline in the number of villages where

there is Guinea Worm Disease,
- and increases in the number of villages which have control measures implemented. These control measures include training village based health workers, distribution of cloth water filters, health education, and provision of a safe water supply.

Guinea Worm Disease—the Basics

Guinea Worm Disease (GWD) is caused by a roundworm (*Dracunculus Mendinensis*) that lives under the skin. When a female worm emerges from the skin, a painful blister appears on the trunk or legs. If the blister gets infected, more disability, or tetanus, can result. When the Guinea Worm Disease blister is immersed in water, the worm releases her larvae, which infect water fleas (cyclops) that live in water. People get infected by drinking the water containing the cyclops.

NIGERIA GUINEA WORM ERADICATION PROGRAM
NUMBER OF REPORTED CASES, 1987-1993



It requires the interaction of humans, water and infected cyclops to perpetuate the cycle. Conversely, the exclusion of one of them obstructs the transmission process, terminates the cycle and hence eradicates Guinea Worm Disease.

The disease affects people of all ages and in particular those aged 15-55 years who constitutes the economically active age group. Disabilities from Guineaworm results in pupils' absence from school, losses in agricultural production and disruption of other economic and social activities.

Treatment

There is no drug which can prevent or cure Guinea Worm Disease. Care for persons with GWD centres on the dressing of lesions, and the prevention and treatment of secondary infection.

Nigeria's Programme

The Nigerian Federal Ministry of Health and Social Services and Global 2000 established a Secretariat in 1988, to coordinate the Nigeria Guinea Worm Eradication Programme (NIGEP). The goal of the Programme was to *eradicate* Guinea Worm Disease by the end of 1995. This is part of a global effort to rid the world of this disease by 1995.

Inspite of the long history of Dracontiasis (Guinea Worm Disease) in Nigeria, few control efforts had been made before NIGEP, except for some individual efforts, mainly among university based researchers.

The success of NIGEP may be attributed to:

- A new sense of National commitment
- Improved Social Mobilization and Advocacy
- Donor support (particularly from

Global 2000, UNICEF, the Japanese Government and USAID)

Improved reporting: the results of the active case searches meant a better understanding of the pattern of distribution of the disease.

Village based surveillance provide valuable data for planning and monitoring efforts.

Case Searches

Since 1987, NIGEP has conducted four nationwide active case searches. The goal of this was to find active Guinea Worm Disease cases and to identify all the villages affected; in addition, information was collected on water supply.

The fourth National case search was carried out from July 1, 1990 to June 30, 1991. It found that 270,404 cases of Guinea Worm Disease were found in 4,744 villages in the Federation (Table 1). Cases were found in all states except Akwa Ibom, Anambra and Kaduna. Four states were highly endemic-Sokoto, Enugu, Ondo and Borno states had more than 30,000 cases each (high endemicity). Six states-Abia, Niger, Katsina, Bauchi, Kebbi and Plateau had more than 5,001 and fewer than 30,006 ases (moderate endemicity). Kano, Kwara, Oyo, Jigawa, Cross River, Yobe, Borno, Ogun and Kogi States had between 1,001 and 5,000 cases(low endemicity). Nine states had between one and 1,000 cases of Guinea Worm Disease: Osun, Delta, Edo, Adamawa, Rivers, Lagos, Abuja, Taraba and Imo.

The findings of this case search showed a considerable decrease in the number of cases compared to 1988 figures as shown below:-

Table 1

Guinea Worm Case Searches

| | | |
|------------|---------|---------|
| 1st Search | 1987/88 | 653,620 |
| 2nd Search | 1988/89 | 643,765 |
| 3rd Search | 1989/90 | 394,782 |
| 4th Search | 1990/91 | 270,404 |

Status Of The Disease

A decrease of 69% has been realized from the peak year in 1987/88 when 653,620 cases were reported compared with 202,917 cases reported in 1992. Out of the 294 GWD most endemic LGAs, only 86 accounted for 91% of all the cases in 1992. By the end of 1992, only 56 of these 86 LGAs, had the disease, accounting for 163,570 cases, which represents 80.6% of all cases seen that year. During this period, 17 LGAs which recorded more than 500 cases were added to the 56 to give a total of 73 most endemic LGAs in Nigeria. These 73 LGAs now account for 181,175 or 89% of the total cases for 1992.

Village Based Surveillance

A new surveillance system was introduced. In every village that had had Guinea Worm Disease, a Village-Based Health Worker (VBHW) was trained to look for cases and to report them every month. The surveillance system has improved through the training and retraining of these VBHWs.

The NIGEP is in the process of categorising all infected villages into three groups:-

* Those that reported one or more cases in 1992.

* Those that reported zero cases in 1992.

* Those that did not report in 1992.

This is with a view to accurately list and redefine the degree of endemicity of the villages for proper planning and intervention.

Clean Water

Guinea worm disease can be eradicated if people have access to, safe supply of water. Bore-holes with hand-pumps are a good solution, but they are expensive, especially for small communities. Filtering water for domestic use is another solution. As of June 1993, NIGEP has supplied 89% of all endemic villages and 95% of the villages in the most endemic LGAs with filters.

Clean Water in Rural Areas?

There are several sources of information on water supply for Nigerians. A Situation Analysis Report on Children and Women in Nigeria by UNICEF and the FGN in 1990, indicated an estimate of 58% and 22% for urban and rural areas respectively which had access to safe drinking water. In 1980, the status was 34% (urban) as against 20% for rural areas.

According to the General Household Survey (done between April 1991 to March 1992), pipe-borne water is available to 69% of urban household and to only 11% of rural households. Forty percent of rural households get water from streams. Wading into streams to collect water is the process by which infected human hosts expel guineaworm larvae into the water for transmission to other stream-water users.

Nigeria's Primary Health Care Goal for *potable water* is that "40% of the population will live within 200 metres of a source of potable water" by the year 1992.

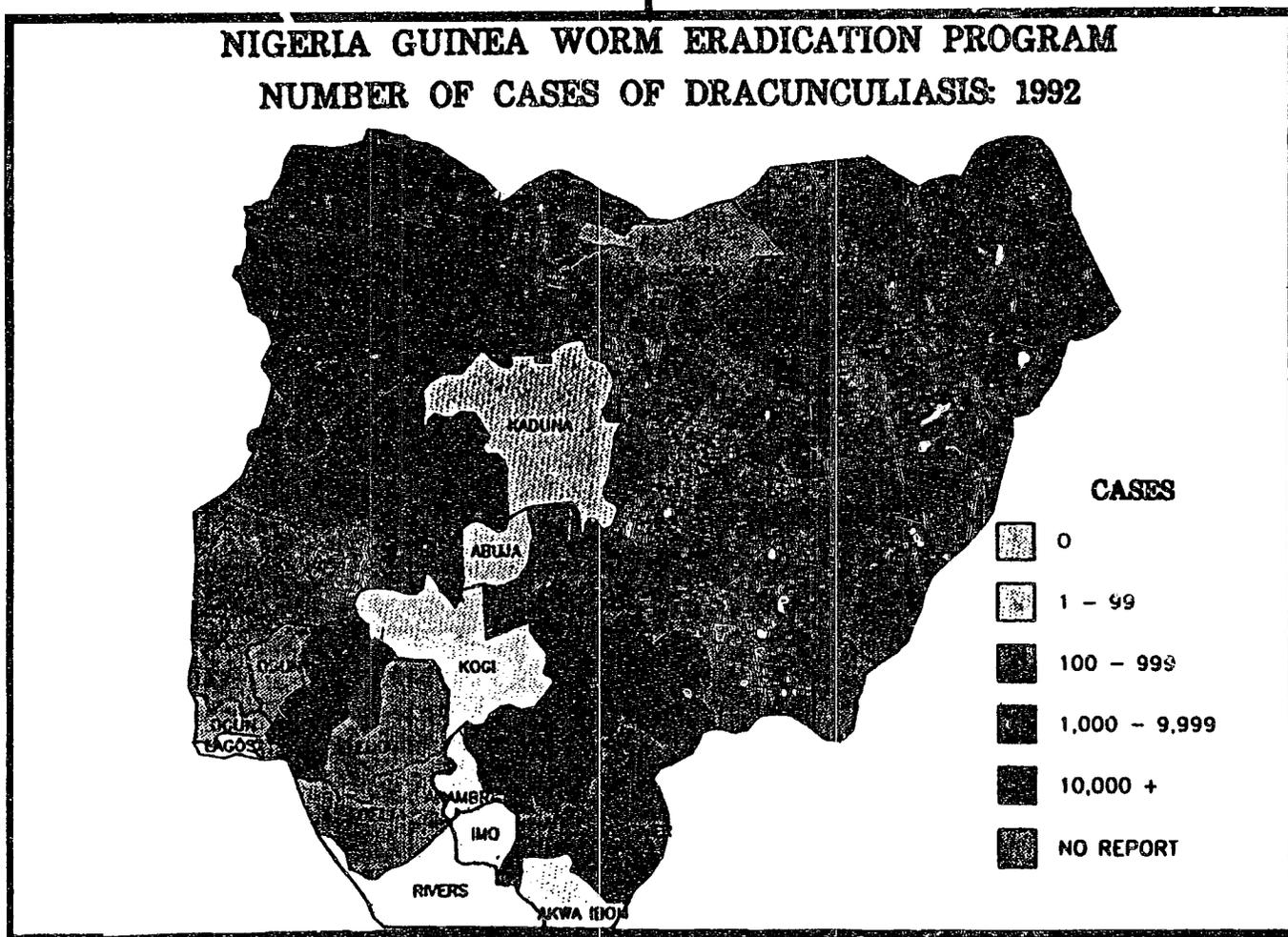
ROLE OF HEALTH EDUCATION

Health education is central to other components of PHC. The Guinea worm eradication programme has been integrated into the National Primary Health Care (PHC) system. Health education is more than just the dissemination of information (in the media, or by means of posters or traditional channels, such as town criers). In order to better communicate, health education investigates factors antecedent to a given health problem, in relation to the desired outcomes in designing interventions. This ensures that interventions appropriately address the problem: solutions can be presented to people in terms they understand, and which make sense to them.

Antecedent factors include among others perceptions, beliefs and knowledge concerning the disease (causation, prevention and treatment) and use of water.

**Traditional Beliefs:
Challenges and Opportunities**

The perceived mystical or mythical nature of the disease among people has contributed to the age-long search for equally mystical remedies or fatalistic resignation to the disease as an act of supernatural forces. It has been documented that some victims see the disease as the result of a spell cast by ill-wishers, while some others have seen it as a normal development in their body anatomy. Persistence of traditional beliefs must be considered when designing health education messages. People's culture strongly influences



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"Guineaworm is the only disease that can be completely eradicated exclusively by the provision of safe drinking water."

their perception of causation and remedies. Guinea worm re-infection is common among victims, which means that these people either failed to comply with recommended preventive measures or perhaps they may never have been told that the disease can be prevented.

But studies have shown that knowledge alone may not be enough as knowledge about causation and prevention have not always led to action. Even where there is access to potable water, some people prefer to drink water from streams or ponds. Factors that influence readiness to adopt recommended actions include an individual's perception of threat of the disease, perception of susceptibility to the disease, socio-cultural factors (which influence beliefs about causation, prevention and treatment). Cues to action are also important, they include health messages, media information and the influence of others such as opinion leaders or relatives and neighbours who may or may not have suffered from the disease.

Community Involvement

At its best, health education not only provides opportunities by which people voluntarily adopt healthful behaviours but also enables them to contribute to decisions that affect their health. It aims at community diagnosis by identifying and prioritizing problems and then identifying solutions at affordable costs.

In the case of Guinea Worm eradication, community diagnosis and health education

play a role in the planning and implementation of the restoration of faulty water pumps or pipes, the identification of locations for wells or bore-holes and mounting surveillance to ensure that water sources are not polluted.

Community involvement can not only convince the people of their own responsibilities but can also eliminate long-held views that government ought to provide water. Community diagnosis can also identify alternatives, such as deciding to adopt the use of nylon cloth filters, dig a well, drill a bore-hole or embark on a piped-water project. Experience is that communities tend to adopt and accept interventions in which their own views or inputs were taken into consideration rather than those imposed by outsiders.

Village meetings provide opportunities to educate community members concerning Guinea Worm. In infected villages Guinea Worm should form part of the agenda at such meetings. Traditional leadership structures in most communities command authority and respect. Village leaders can establish a system of rewards or sanctions in respect of protection/pollution of village water sources.

Four interrelated strategies (community organization, mass education, training of village health workers and advocacy) have been used to control Guinea Worm Disease in Idere, Oyo State, in Nigeria, where extensive studies on the disease have been carried out.

Using these strategies have resulted in:

- * mobilization of local resources for self-reliance and establishing self-sustaining mechanisms through the formation of local cooperatives.
- * Mass education concerning protection of water sources and using innovations such as the monofilament cloth filter,

or the filter bucket.

- * Training Village Health Workers who being local persons, easily earn credibility and respect among their kins and are able to influence other community members.
- * Community involvement in the design, pricing, distribution and promotion of the nylon cloth filter.

**Guinea Worm Programme Review:
Recommended Actions for Nigeria:**

- * Continue to prioritize areas for intervention at state level.
- * Commence case containment implementation in less endemic areas before next transmission season.
- * Routinely conduct independent assessments of the extent and quality of interventions and surveillance with priority to most highly endemic areas.
- * Ensure newly endemic villages are detected, included in the surveillance system and covered by control interventions as quickly as possible.
- * Each zone should develop a comprehensive plan for the use of Abate during 93/94 year.

For Guinea Worm prevention, there are two common behaviours that health educators have focussed on:

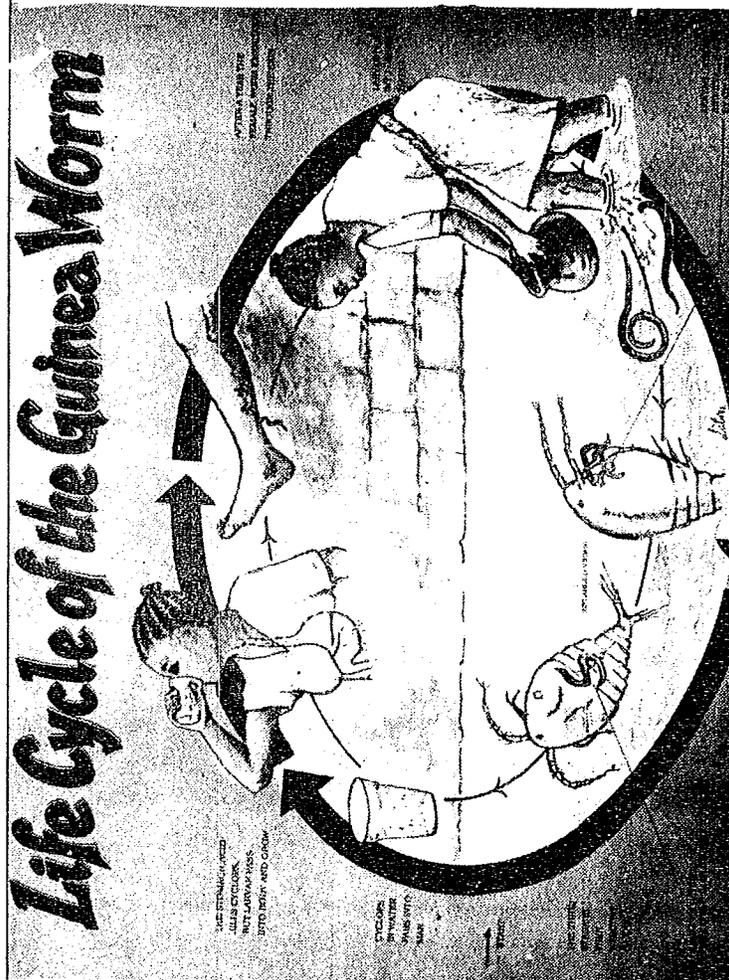
- (i) Wading in drinking water sources by infected persons
- (ii) Drinking contaminated water.

Role of Women

In Nigeria, women play a significant role in collecting water for domestic use. Women (and children old enough to collect water for their families) should therefore form a vital focus for Guinea Worm eradication messages. Messages should emphasize causation and prevention of guineaworm.

** Written by S.E. Ewoigbokhan and A.E. Rodman, in collaboration with NIGEP Secretariat, Lagos .*

(References are available on request from the editor)



SB

AN EPIDEMIOLOGICAL STUDY OF ONCHOCERCIASIS (*River Blindness*) IN IDAH LGA, KOGI STATE, NIGERIA

BREW-GRAVES¹ S H, OKOUKWU² SH, OCHEJA³ U, AYELE⁴ T.

INTRODUCTION

Onchocerciasis is wide spread in Nigeria. Infection occurs in about 22 States of the federation. An estimated 38,484,542 people are at risk of infection and about 6,808,790 million people are infected, of which 113,600 are blind (1). Infection rate varies from village to village and in some villages, it reaches as high as 90% (2). Knowledge of the prevalence of infection is rapidly growing in Nigeria. However, very little is known on vector biology, except the extensive study of 24 endemic sites in Kaduna, Niger, Plateau, Kano, Abuja (Federal Capital Territory) and Kwara States carried out by WHO from 1979 to 1988 (3).

The objective of the study was to determine the magnitude of the problem of onchocerciasis in Idah Local Government Area (LGA) to initiate control within the primary health care (PHC) programme.

METHOD

Study Population.

After discussion with PHC Coordinator and health institutions on the endemicity of onchocerciasis in Idah LGA, the team went to Odolu district situated 137 km East of Idah town.

From a total of 11 villages, 6 were randomly selected. All houses in the six villages were numbered and every alternate house was randomly selected. The occupants of these houses were subjected to parasitological examination. Odolu town was included in the study to satisfy the people as they were unhappy for not being selected during sampling.

The control of river blindness is now based on yearly administration of the drug ivermectin to all communities where there is a high risk of blindness or of other serious complications of the disease.

The risk is higher when many people in an area are infected (the prevalence) and when those infected have a heavy infection (the intensity).

The prevalence and intensity of infection can be measured in a community survey in which investigators take small snips of skin from community members and examine the skin with a microscope and count the number of microfilariae seen.

Parasitological Examination

Skin snips were taken from both iliac crests. The longest diameter of each snip was measured and recorded on the survey form. All adults and children, 5 years of age and above, were included in the survey. The snips were incubated for at least 30 minutes in buffered physiological saline before

1. WHO Representative, Nigeria.
2. Epidemiologist, WHO Office Lagos.
3. Coordinator, PHC Department, Idah LGA.
4. Epidemiologist, WHO Office Lagos.

examination. The number of microfilariae in each snip was counted and recorded, using the Brinkman Nomogram. The parasite density in microfilaria per milligram of skin (mf/mg) was calculated for each snip.

RESULT

A total of 6 villages and Odolu town were surveyed. From a total of 295 persons examined, 156 persons were found positive. The overall infection rate was 52.9%. Intensity of infection was 11.32 mf/mg. Community microfilaria load was 5.98 mf/mg. The spatial distribution of onchocerciasis and prevalence of infection is presented in Table 1. Infection rate by locality and gender, intensity of infection and community microfilarial load and intensity of infection by age group are presented in tables 2, 3 and 4 respectively.

HABITAT

Habitat observation revealed the presence of 3 fast running streams in the vicinity of the study villages. The habitat is an open Savannah interspersed with riverine vegetation.

DISCUSSION

The disease occurred in all the villages surveyed (Table 1). The prevalence was higher in Akolo, Ekungude and Ayokpa villages. This was probably due to the proximity of these villages and agricultural activities to the streams. All age groups above 5 years of age were infected, but both infection rate and intensity of infection were higher in older age groups. Intensity of infection in Odolu is quite high compared to other villages. This may be due to the examination of volunteers and not a sampled population (Table 3).

Table 1

ONCHOCERCIASIS INFECTION RATE BY LOCALITY AND AGE GROUP, IDAH LGA, 3 - 14 AUGUST, 1992

| VILLAGE | 5-10 YRS | | | 11-20 YRS | | | 21-30 YRS | | | 31+ | | | TOTAL | | |
|--------------|----------|-----|------|-----------|-----|------|-----------|-----|------|-----|-----|------|-------|-----|------|
| | No. | +ve | %+ve | No. | +ve | %+ve | No. | +ve | %+ve | No. | +ve | %+ve | No. | +ve | %+ve |
| ODOLU | 7 | 2 | 28.6 | 22 | 15 | 68.2 | 13 | 5 | 38.5 | 119 | 55 | 46.2 | 161 | 77 | 47.8 |
| AKOLO | 12 | 5 | 41.7 | 7 | 5 | 71.4 | 8 | 4 | 50.0 | 35 | 26 | 74.3 | 62 | 40 | 64.5 |
| EKUGUDE | 9 | 7 | 77.8 | 2 | 1 | 50.0 | 3 | 1 | 33.3 | 7 | 6 | 85.7 | 21 | 15 | 71.4 |
| UDI CAMP II | 4 | 1 | 25.0 | 1 | 0 | 0.0 | 2 | 1 | 50.0 | 10 | 6 | 60.0 | 17 | 8 | 47.1 |
| AJAFU | 7 | 2 | 28.6 | 4 | 2 | 50.0 | 3 | 1 | 33.3 | 5 | 4 | 80.0 | 19 | 9 | 47.4 |
| AYOKPA | 3 | 1 | 33.3 | 0 | 0 | 0.0 | 0 | 0 | 0.0 | 5 | 4 | 80.0 | 8 | 5 | 62.5 |
| UDI CAMP III | 1 | 0 | 0.0 | 2 | 0 | 0.0 | 1 | 0 | 0.0 | 3 | 2 | 66.7 | 7 | 2 | 28.6 |
| TOTAL | 43 | 18 | 41.9 | 38 | 23 | 60.5 | 30 | 12 | 40.0 | 184 | 103 | 56.0 | 295 | 156 | 52.9 |

Table 2

**ONCHOCERCIASIS INFECTION RATE BY LOCALITY AND GENDER,
IDAH LGA 3 - 14 AUGUST, 1992**

| VILLAGE | MALE | | | FEMALE | | | TOTAL | | |
|--------------|------------|-----------|-------------|------------|-----------|-------------|------------|------------|-------------|
| | No. | +ve | %+ve | No. | +ve | %+ve | No. | +ve | %+ve |
| ODOLU | 89 | 47 | 52.8 | 72 | 30 | 41.7 | 161 | 77 | 47.8 |
| AKOLO | 37 | 26 | 70.3 | 25 | 14 | 56.0 | 62 | 40 | 64.5 |
| EKUGUDE | 13 | 11 | 84.6 | 8 | 4 | 50.0 | 21 | 15 | 71.4 |
| UDI CAMP II | 9 | 4 | 44.4 | 8 | 4 | 50.0 | 17 | 8 | 47.1 |
| AJAFU | 7 | 5 | 71.4 | 12 | 4 | 33.3 | 19 | 9 | 47.4 |
| AYOKPA | 4 | 3 | 75.0 | 4 | 2 | 50.0 | 8 | 5 | 62.5 |
| UDI CAMP III | 5 | 2 | 40.0 | 2 | 0 | 0.0 | 7 | 2 | 28.6 |
| TOTAL | 164 | 98 | 59.7 | 131 | 58 | 44.3 | 295 | 156 | 52.9 |

TABLE 3:

**ONCHOCERCIASIS INTENSITY OF INFECTION, COMMUNITY MICROFILARIAL
LOAD BY LOCALITY, IDAH LGA 3 - 14 AUGUST, 1992**

| VILLAGE | NO. OF PERSONS SCREENED | NO. OF PERSONS POSITIVE | INTENSITY OF INFECTION | COMMUNITY MF LOAD (mf/mg) |
|--------------|----------------------------|----------------------------|---------------------------|------------------------------|
| ODOLU | 161 | 77 | 1189.85 | 7.39 |
| AKOLO | 62 | 40 | 367.78 | 5.9 |
| EKUGUDE | 21 | 15 | 112.56 | 5.36 |
| UDI CAMP II | 17 | 8 | 41 | 2.4 |
| AJAFU | 19 | 9 | 40.68 | 2.14 |
| AYOKPA | 8 | 5 | 11.58 | 1.45 |
| UDI CAMP III | 7 | 2 | 0.48 | |

TABLE 4:

**INTENSITY OF INFECTION AND INFECTION RATE OF ONCHOCERCIASIS
BY AGE GROUP, IDAH LGA, 3 - 14 AUGUST, 1992**

| AGE GROUP | NO. OF PERSONS SCREENED | NO. OF PERSONS POSITIVE | % POSITIVITY | INTENSITY OF INFECTION (mf/mg) |
|-----------|----------------------------|----------------------------|-----------------|--------------------------------------|
| 5-10 | 43 | 18 | 41.9 | 92.22 |
| 11-20 | 38 | 23 | 60.5 | 339.29 |
| 21-30 | 30 | 12 | 40.0 | 262.29 |
| 31+ | 184 | 103 | 56.0 | 1073.15 |

Infection rate was slightly higher in males than in females and this is probably due to longer exposure of men to transmission site near perennial rivers where intense agricultural activity was taking place (Table 2).

Leopard skin and total blindness due to onchocerciasis, was not found during the survey. The only case of total blindness found during the survey, was due to glaucoma.

Onchocerciasis is wide spread in the villages surveyed. The prevalence is moderate and intensity was low. A search for hyperendemic areas should continue in Idah LGA for large scale ivermectin distribution.

ACKNOWLEDGEMENT

We are grateful to Mr. A. M. Onuche, Chairman, Idah LGA; Mrs R. Abu, Supervisor for Health; Dr. C. S. Musa, Medical Officer, General Hospital; and Staff members of PHC and School of Technology for their assistance in the conduct of the survey. We also thank Chief D. A. Enefolo, the Onuilo of Akolo for his help and hospitality during the survey.

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2. Gage, G.N. (1990) National Onchocerciasis Control Programme, Nigeria, Draft Report on a mission.
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Guinea worm Disease (*Dracunculus Mendinensis*) has been known since ancient times. It is believed by some writers to be the "fiery serpent" which was sent by God as a scourge to punish the disobedient children of Israel. The disease has been common in tropical African countries, the Middle East, Asia, South America and Arabia.

It is contracted by swallowing water contaminated with infected cyclops, a genus of the crustacean known as copepod. On drinking water containing infected cyclops, the infective larvae of the worms are released into the alimentary canal of the host. The larvae invade and penetrate the walls of the intestine and develop into adult worms in the body of the victim. It is the female worm that is of pathological significance.

It takes 9-12 months for the worms to grow to maturity, at which stage it migrates to the skin (particularly of the lower limbs) where it forms a blister. The worms cause painful disabling effects, and an affected person could be physically incapacitated for several weeks or months. When an infected person wades in water the blister ruptures and guinea worm embryos are released into the water. Cyclops ingest the embryos and when swallowed along with water by a person the life cycle continues.

Exclusive Breast-Feeding

Most infants born in Nigeria are breast-fed. In fact, most of the children born in the world are breast-fed, but, as in Nigeria, not enough of them are *exclusively breast-fed*. Exclusive breast-feeding means giving an infant *only* breast milk—and nothing else. No other fluid or food is given. The results of scientific and clinical trials are clear: children who are given supplementary fluids become ill more than children who are exclusively breast-fed, and they are also breast-fed for a shorter time. Studies have shown that supplementary fluids are not needed by healthy infants, even in hot climates. (*List of references available on request from the editor*).

Less Diarrhoea - Fewer Deaths

- * Exclusive breast-feeding during the first 4-6 months greatly reduces the risk of severe or fatal diarrhoea; the risk of other serious infections is also reduced.
- * Giving infants supplementary fluids such as water or teas in addition to breast milk is associated with a risk of diarrhoea. In a study in a poor urban community in Peru, children less than 6 months old who got supplemental fluids were twice as likely to get diarrhoea as children who only got breast-milk.
- * Young infants who get supplementary feeds get *less* breast milk and are breast-fed for a shorter period than children who are exclusively breast-fed.

Fluid requirements in the first 6 months of life

The average daily fluid requirement of a healthy infant ranges from 80-100ml/kg in the first week of life to 140-160 ml/kg between 3 and 6 months. Because of the low concentrations of sodium, chloride, potassium and nitrogen in breast milk, only a relatively small fluid intake

is needed for the excretion of waste products.

Calculations indicate that healthy infants who consume enough breast milk to satisfy their energy needs receive enough fluid to satisfy their fluid requirements, even in a hot and dry climate.

No additional fluid is needed

Supplementation in the form of water and teas in early infancy is a common practice and is associated with increased morbidity and mortality from diarrhoea. It has been scientifically demonstrated that supplementary fluids are not needed to maintain water balance in health infants younger than 6 months who are exclusively breast-fed.

WHO discourages supplementary fluids

The WHO discourages the use of supplementary fluids, and *advises that exclusive* breast-feeding should be promoted as the ideal feeding practice during the first 4-6 of life.

from Facts about Infant Feeding, WHO August 1992.

NIGERIAN CDD PROGRAMME TARGETS

- * *To reduce diarrhoeal diseases mortality by 35% and morbidity (incidence) by 20% in children under the age of five years.*
- * *To provide correct home treatment (ORT, continued feeding, and maternal knowledge) to 80% of children with diarrhoeal diseases.*
- * *To provide correct case management to 40% of children seen at health facilities (public and private) by 1995.*
- * *80% of cases should use ORT (SSS, other recommended home fluids, or ORS) and 80% of the population should have access to ORS through private and public health providers.*

YELLOW FEVER LABORATORY UPGRADED

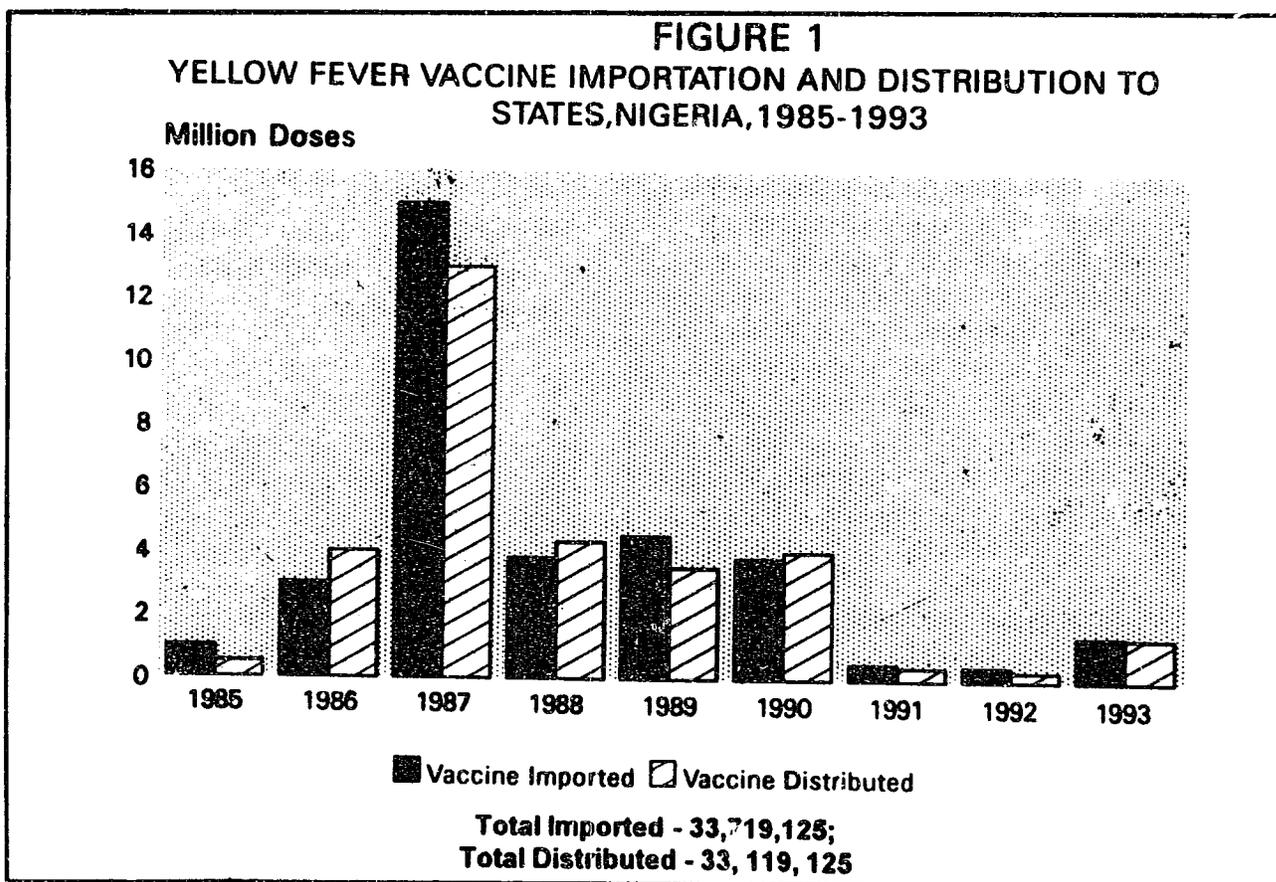
Historic Laboratory at Yaba

Yellow Fever once ranked among the greatest of human afflictions; it conquered attempts at colonial settlement and economic development, and caused epidemics with much suffering in towns and villages in endemic regions. The conquest of Yellow Fever began in 1900 with Dr. Walter Reed's discovery of disease transmission by *Aedes aegypti*.

In June 1920, a Rockefeller Foundation team led by General Gorgas, left New York for the West African Coast. Among the team that arrived Lagos in July 1920 were Drs Adrian Stokes, Hideyo Noguchi and A.F. Mahaffy. This team established the Yellow Fever Laboratory at the West African Medical Research Council, Yaba.

By the end of June, 1927, the work of these great scientists had led to the isolation of the Yellow Fever Virus from a Ghanaian patient called Asibi. Dr Stokes actually died from Yellow Fever in the Laboratory, while Dr. Noguchi died from the same disease in Accra, Ghana. Within a decade of this discovery, tests were developed for measuring human immunity, and the French Neurotropic and 17D live, attenuated vaccines were developed.

In 1937 Dr. Max Theiler of the Rockefeller Foundation, New York used the Asibi strain of the Yellow Fever virus isolated in the Laboratory to develop the 17D Yellow Fever vaccine, an achievement for which he was honoured with a Nobel Prize in the year 1951.



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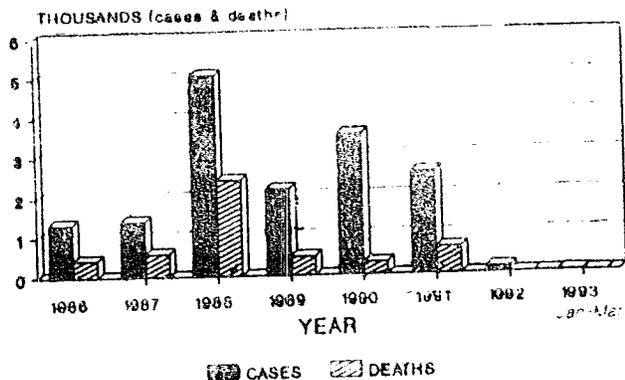
* The former Hon. Minister of Health, Prof. O. Ransome-Kuti (centre) cutting the tape to mark the commissioning of the up-graded laboratory. Looking in admiration are the Ministry's Director-General, Dr. S.K. Gyoh (right) and the Chief Consultant Epidemiologist, Dr. A. Nasidi (left)

Yellow Fever Vaccine Produced in Nigeria

The Vaccine Production Laboratory at Yaba produced between 50 to 100 thousand doses of Yellow Fever vaccine a year between 1954 and 1966. The progress of this Laboratory was however, affected by the Nigerian Civil War of the late 1960s, as most of the staff of the Laboratory were indigenes of the then Eastern Nigeria, who had to abandon their posts because of the crisis. Attempts were made from time to time to upgrade the laboratory, but nothing substantial happened until 1986, when an outbreak of Yellow Fever occurred, affecting Benue and Cross Rivers States. The severity of that outbreak shook the Nation and the World, as it affected 9,800 people and caused the death of 5,400.

Figure 2

REPORTED YELLOW FEVER IN NIGERIA 1986-1993*



SOURCE: FMOH & 28 EPID DIV

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As at the time the outbreak was reported to the Federal Ministry of Health and Social Services, the only Yellow Fever vaccine available for use in the country, was the small quantity produced by the Federal Vaccine Production Laboratory (FVPL), Yaba and this was exhausted before the arrival of the imported vaccines. Tests done by the team from the Centers for Disease Control (CDC), Atlanta, USA confirmed that vaccine produced in Nigeria was efficacious and gave a 98.5% protection rate; a level that compared favourably with Yellow Fever vaccine produced by Pasteur Institute and others. This encouraging result boosted morale and stimulated the increase in the level of production 10 fold from about 100,000 doses a year to 1.2 million doses a year by 1988, without substantial increase in funding.

Nonetheless, the quantity was still well below the national annual requirement, which is about 5 million doses. Proposals to upgrade the FVPL were supported by the Canadian Government, the Swedish Government and the European Economic Community. This project is implemented with the collaboration of the Oswaldo Cruz Foundation, Rio De Janeiro, Brazil, a beneficiary of similar assistance from the Canadian Government. Fifteen members of staff have since been trained by this Institution in modern techniques of vaccine production.

National Institute for Vaccines and Biological Substances

Thus, the foundations were in place for the National Institute for Vaccines and Biological Substances, Abuja and Lagos. This Institute, established by the Federal Government in 1991, aims at making Nigeria self-sufficient in vaccines and related therapeutic, prophylactic and biological substances.

Since 1986, the FVPL has been actively participating in field researches and in control of disease outbreaks. The experience gained has made it clear that it is imperative for the FVPL

to conduct research as well as to produce vaccines.

Yellow Fever Control Strategies

In the wake of devastating Yellow Fever epidemics, the Ministry's experts recommended short and medium term control strategies:

- immediate institution of effective vector control,
- importation of sufficient Yellow Fever vaccine for mass immunization campaigns and
- the establishment of a Task Force on Epidemic Disease Control.

Between 1986 and 1992, the Ministry imported 27,000,000 doses of Yellow Fever Vaccine, and about 22.5 million Nigerians have since been vaccinated against this disease. However, epidemic and sporadic cases of yellow fever continue to occur.

The long term strategy recommended by experts was the upgrading of the Federal Vaccine Production Laboratories at Yaba, to produce enough doses of Yellow Fever Vaccine to meet the national requirements. When completed the laboratory will be capable of producing 5 million doses at first instances, and subsequently produce well above 20 million doses of Yellow Fever vaccine, a level far higher than the national requirement. Therefore, the Laboratory will generate foreign exchange for the nation, through the export of the surplus doses of vaccine.

The Laboratory is expected to serve as a regional centre for vaccine and biological substances manufacture and a centre for epidemiological field research and disease control for the region. As soon as these activities are put in place, the FVPL will be upgraded to the level of an Institute and the second phase could be started in Abuja, to produce the EPI vaccines, as previously planned.

Yellow Fever Vaccine now part of EPI

Another long term strategy for the control and eradication of the disease in Nigeria is the inclusion of Yellow Fever Immunization in the Expanded Programme on Immunization (EPI).

The Yellow Fever Vaccine will be administered to infants at age 9 months, at the same time as measles vaccine. Experience in other endemic countries shows that there is no interference when the two vaccines are given at the same time and the immune response in recipients is good.

The Federal Government should provide all vaccines required, while the cost of mass immunization will be shared between the Local, State and Federal Governments. The estimate is not less than 110 million doses.

South-South Collaboration

The Federal Ministry of Health and Social Services has initiated a South-South collaboration, between Nigeria and Brazil, as part of the Nigeria-Brazil Technical cooperation agreement, to provide the nation with high technology for the production of vaccines. When completed, the expanded and modernised Yaba Yellow Fever Vaccine Production Laboratory will be capable of producing enough yellow fever vaccine to meet the national need and thus enable us implement a plan to eliminate yellow fever in Nigeria at affordable cost. The expansion of the Laboratory is being carried out with the assistance of the Canadian International Development Research Centre (IDRC) and the World Health Organization.

Yellow Fever Task Force

To ensure the successful implementation of the Yellow Fever control efforts, a Yellow Fever Task Force has been established. This National Task Force is made up of experts in virology and epidemiology, under the chairmanship of Dr. Shehu Sule. Dr Nasidi, the Chief Consul-

tant Epidemiologist serves as the Project Leader and National Coordinator.

Apart from supervising the completion of the vaccine production laboratory, the Task Force shall also advise the Ministry on the best way of permanently stopping the frequent epidemics of Yellow Fever in Nigeria, and supervise the immediate efforts to get all Nigerians vaccinated against this deadly disease.

NATIONAL TASK FORCE ON
YELLOW FEVER & VACCINE PRODUCTION



NATIONAL YELLOW FEVER
ERADICATION PROGRAMME

**DON'T BE A VICTIM OF
YELLOW FEVER,
GET VACCINATED NOW!**

LETTERS TO THE EDITOR

Question: I am having difficulty convincing people to donate blood. They are afraid they will get AIDS. Is this true?

Answer: *Educate the people on the transmission of AIDS. Assure them that they do not have to be afraid of getting AIDS while donating blood. Tell them about safety precautions and ensure that these are observed while collecting blood from donors.*

Question: How can I tell if a person is infected with HIV?

Answer: *There is no way you can tell that a person has HIV except through laboratory investigations.*

Question: I have been sending in reports of diseases for the last 10 years. I do not know what the reports are used for and I have never received acknowledgement concerning reports sent. Why do I have to send them so often?

Answer: *It is regretted that you have never been given feed-back concerning disease reports which you send. Your reports are put together with others and used to determine trends and patterns of the reported diseases. These are then used for planning control measures. Also, Nigeria owes it as an obligation to report some diseases to international donor agencies. It is possible some intervention measures in*

your State/LGA may have been in response to some of your reports. With improvements in communication, it will be possible to send you direct feed-back concerning your reports. This bulletin is one of the ways we can reach you. In the mean time, read it regularly.

Question: In the maiden issue of the Nigeria Bulletin of Epidemiology, you reported that in 1989 only 244 cases of Guinea Worm disease were reported, but in the same issue you reported that the NIGEP search found 643,765 cases in 1988-1989. How is this possible?

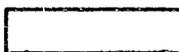
Answer: *The disparity between the number of cases reported and the number from active case search for the same period, reveals that most of the victims of guineaworm do not commonly report the disease at health institutions. This behaviour probably derives from individual's notion of causation and remedy of the disease. Studies have found that some people consider guineaworm as a "normal" condition rather than a disease. Such people are those that are unlikely to report to the official health system. In addition, NIGEP does not routinely send reports of cases to the Federal Epidemiological Division. The lower number of cases you referred to are from routine reports to the Epidemiological Division.*

**MONTHLY ROUTINE DISEASE NOTIFICATION
RECEIVED FROM STATES FOR JAN-APR 1993**

| STATES | MONTHS | | | | TOTAL |
|-------------|---------|----------|-------|-------|-------|
| | JANUARY | FEBRUARY | MARCH | APRIL | |
| ABIA | | | | | 0/4 |
| ADAMAWA | ■ | | | | 1/4 |
| AKWA IBOM | ■ | ■ | | | 2/4 |
| ANAMBRA | ■ | ■ | ■ | | 3/4 |
| BAUCHI | | | | | 0/4 |
| BENUE | | | | | 0/4 |
| BORNO | | | | | 0/4 |
| CROSS RIVER | | | | | 0/4 |
| DELTA | ■ | | | | 1/4 |
| EDO | ■ | | | | 1/4 |
| ENUGU | | | ■ | ■ | 2/4 |
| ABUJA | | | | | 0/4 |
| IMO | | | | | 0/4 |
| JIGAWA | | | | | 0/4 |
| KEBBI | | | | | 0/4 |
| KADUNA | | | | | 0/4 |
| KOGI | | | | | 0/4 |
| KANO | | | | | 0/4 |
| KATSINA | | | | | 0/4 |
| KWARA | ■ | | ■ | | 2/4 |
| LAGOS | ■ | | | | 1/4 |
| NIGER | | | | | 0/4 |
| ONDO | ■ | ■ | ■ | ■ | 4/4 |
| OGUN | | | | | 0/4 |
| OSUN | | | | | 0/4 |
| OYO | ■ | | | | 1/4 |
| PLATEAU | ■ | | ■ | | 2/4 |
| RIVERS | | | | | 0/4 |
| SOKOTO | | | | | 0/4 |
| TARABA | | | | | 0/4 |
| YOBE | | | | | 0/4 |



REPORT RECEIVED



REPORT NOT RECEIVED

As at 15th June 1993

Source: Epid. Division FMOH & SS

ROUTINE DISEASE REPORTS FOR 1992*

| DISEASE | CASES | DEATHS | CFR |
|---|-----------|--------|---------|
| ACQUIRED IMMUNE DEFICIENCY SYNDROME | 25 | 5 | 20.00% |
| ANTHRAX (HUMAN) | | | |
| BRUCELLOSIS (HUMAN) | 69 | 1 | 1.45% |
| CEREBROSPINAL MENINGITIS | 6,418 | 563 | 8.77% |
| CHICKEN POX | 17,657 | 6 | 0.03% |
| CHOLERA | 8,687 | 663 | 7.63% |
| DIARRHOEA (SIMPLE WITHOUT BLOOD) | 372,700 | 469 | 0.13% |
| DIARRHOEA WITH BLOOD (DYSENTRY) | 182,101 | 125 | 0.07% |
| DIPHThERIA | 2,351 | 3 | 0.13% |
| DRACUNCULIASIS (GUINEA WORM) | 6,749 | | |
| FILARIASIS | 12,895 | 8 | 0.06% |
| FOOD POISONING | 10,066 | 127 | 1.26% |
| GONORRHOEA | 41,299 | 6 | 0.01% |
| HEPATITIS | 8,291 | 48 | 0.58% |
| LASSA FEVER | | | |
| LEPROSY | 14,875 | 35 | 0.24% |
| LOUSE-BORNE RELAPSING FEVER | 8,702 | | |
| LOUSE-BORNE TYPHUS FEVER | 6,928 | 2 | 0.03% |
| MALARIA | 1,219,348 | 1,068 | 0.09% |
| MEASLES | 85,965 | 1,032 | 1.20% |
| ONCHOCERCIASIS (RIVER BLINDNESS) | 2,879 | | |
| OPHTHALMIA NEONATORUM | 3,494 | | |
| PERTUSSIS (WHOOPING COUGH) | 22,164 | 1 | |
| PLAGUE | | | |
| PNEUMONIA | 138,884 | 492 | 0.35% |
| POLIOMYELITIS | 957 | | |
| RABIES (HUMAN)** | 64 | 64 | 100.00% |
| SCHISTOSOMIASIS | 17,006 | 125 | 0.74% |
| SNAKE BITE | 34 | 1 | 2.94% |
| SYPHILIS | 3,073 | 7 | 0.23% |
| OTHER SEXUALLY TRANSMITTED DISEASES (STD) | 19,934 | 10 | 0.05% |
| TETANUS (NEONATAL) | 896 | 102 | 11.38% |
| TETANUS (OTHERS) | 2,544 | 125 | 4.91% |
| TRACHOMA | 5,434 | 4 | 0.07% |
| TRYPANOSOMIASIS (SLEEPING SICKNESS) | 1,660 | 1 | 0.06% |
| TUBERCULOSIS | 14,802 | 230 | 1.55% |
| TYPHOID AND PARATYPHOID FEVERS | 19,003 | 108 | 0.57% |
| VIRAL INFLUENZA | 5,130 | 1 | 0.02% |
| YAWS | 1,973 | 1 | 0.05% |
| YELLOW FEVER | 149 | 8 | 5.37% |

* This supersedes previous reports.

** 28 additional cases of dog-bites were recorded, but did not result in full-blown rabies.

UNICEF NIGERIA, GETS NEW REP.

A New Representative has been appointed for UNICEF, Nigeria.

He is **Mr Kunio Waki**, a National of Japan. He received his early education in Japan before proceeding to the USA where he obtained a B.A Degree in Political Science at the Grinnell College.

**Mr. Waki**

He also received an M.P.I.A in Economic and Social Development from the Graduate School of Public and International Affairs from the University of Pittsburgh.

He worked with Japanese Consulting Firms and Japan International Co-operation Agency.

Mr Waki joined UNICEF in India in 1971. Since then, he has worked in Bangladesh, New York, Bangkok and Pakistan before coming to Nigeria in October, 1992.

Most recently he was the UNICEF Representative in Pakistan and Deputy Regional Director, for East Asia and the Pacific, Bangkok and Thailand.

It is a privilege to have a man with Mr. Waki's credentials and wealth of experience as UNICEF's Representative in Nigeria. Among others, Mr. Waki has pledged to continue supporting Child Survival Programmes, as his predecessor. The Federal Ministry of Health and Social Services welcomes Mr. Kunio Waki to Nigeria and enjoins all health workers in the Federation to give him the support he requires to fulfil his pledge.

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Appendix D**CCCD NIGERIA OPERATIONAL RESEARCH STUDIES COMPLETED**

| No. | Title | P.I. | Institution | Preceptor |
|------------|--|--------------------|-------------------------------------|-------------------|
| 87/001 | Evaluation of Relative Efficacy of Antimalarial Drugs in Children Under Five Years of Age | Dr. A Sowunmi | University of Ibadan | Mrs. O. Desalu |
| 87/004 | Studies on Cerebral Malaria in Nigeria: Risk Factors and Evaluation of Different Treatment Regimens | Dr. O. Walker | University of Ibadan | Mrs. O. Desalu |
| 87/007 | Trends in Drug Utilization Patterns for Various Causes of Childhood Morbidity in a General Outpatient Department | Dr. C.O. Oyejide | University of Ibadan | Dr. M.O. Ogundeji |
| 87/009 | In Vivo and In Vitro Sensitivity of Plasmodium Falciparum to Pyrimethamine in Pregnant Women in Ilorin | Prof. O. Ogunbode | University of Ilorin | Prof. L.A. Salako |
| 87/010 | Incidence of Poliomyelitis and Neonatal Tetanus in Ilorin | Dr. O. A. Babaniyi | Kwara State Ministry of Health | Alh. Y.M. Anka |
| 88/004 | Acute Respiratory Infections in Childhood | Dr. D. Fagbule | University of Ilorin | Dr. M.O. Ogundeji |
| 88/006 | Estimation of Infant and Under Five-Year-Old Mortality Rates by the Indirect Method | Dr. E.A. Bamgboye | University of Ibadan | Dr. M.O. Ogundeji |
| 88/008 | Effect of Malaria Chemoprophylaxis on the Outcome of Pregnancy in Zaria | Dr. E.A. Bamgboye | University of Ibadan | Dr. M.O. Ogun |
| 88/009 | Loss of Maternal Measles Antibody During Infancy in Ilorin | Dr. O.A. Babaniyi | Kwara State Ministry of Health | Dr. M.O. Ogundeji |
| 88/010 | Determination of Plasmodial Rates in Two Communities in Plateau State | Dr. J.K. Ikwueke | University of Jos | Prof. L.A. Salako |
| 88/016 | Evaluation of Home Capacity to Mix and Use Sugar — Salt Solution in a Rural Area, Oyo State | Mr. M.K. Jinadu | Ibafemi Awolowo University, Ile-Ife | Dr. M.O. Ogundeji |

| No. | Title | P.I. | Institution | Preceptor |
|--------|---|---------------------|---|--------------------|
| 88/017 | Studies of the Effectiveness, Safety and Acceptability of Fluids Derived from Local Foodstuff in the Prevention and Management of Dehydration Caused by Diarrhoea in Children, Ogun State | Dr. O.Olusanya | Ogun State Teaching Hospital, Sagamu | Dr. M.O. Ogundeji |
| 88/023 | Otitis Media in Children 0—5 Years of Age in Zaria | Dr. U. Yusuf | Ahmadu Bello University | Alh. Y.M. Anka |
| 88/025 | Malaria Morbidity and Mortality Pattern in Children 0-5 Years in Dutain-ma LGA, Katsina State | Mr. D. Abubakar | Katsina State Ministry of Health | Dr. A.M. Yakubu |
| 88/026 | Assessment of Knowledge and Practices Concerning Management of Fevers in Children 0—5 Years Among Parents and Drug Sellers in Edu LGA, Kwara State | Dr. A.C. Oyeyipo | Kwara State Ministry of Health | Alh. Y.M. Anka |
| 88/027 | Quality Assurance Testing of Chloroquine in Eastern Nigeria | Prof. L.A. Salako | University of Nigeria Teaching Hospital | Dr. J.E. Ogbuokiri |
| 89/002 | Community-Based Research on Knowledge, Attitudes, Practices and Media Habits of the People of Ogun State about the Expanded Programme on Immunization | Dr. M.O. Shoremi | Ogun State University, Ago-Iwoye | Mrs. O. Desalu |
| 89/003 | Community Knowledge, Attitudes and Practices of ORT in Lagos State | Dr. R.A. Akinfeleye | Lagos State Ministry of Health | Mrs. O. Desalu |
| 89/006 | Knowledge, Attitudes, and Practices Study of ORT Promotion, Bendel State | Dr. O.Ogbeide | Univeristy of Benin | Mrs. O. Desalu |
| 89/007 | Formative Research on the Knowledge, Attitudes, Practices and Media Habits about EPI of Those Who Have Responsibility for the Care of Children Under Five Years, Oyo State | Dr. I.O Adigun | Oyo State Ministry of Health | Dr. M.O. Ogundeji |
| 89/010 | Anemia in Under-Five Children: A Community-Based Survey in Rural Nigeria (Idere, Oyo State) | Dr. E.A.O. Aljor | University College Hospital, Ibadan | Dr. M.O. Ogundeji |

| No. | Title | P.I. | Institution | Preceptor |
|--------|--|-------------------|-------------------------------|-------------------|
| 89/011 | A Community-Based Survey of the Factors Influencing the Acceptability and Utilization of ORT in the Management of Diarrhoea in Children in Lagos | Dr. E.E. Ekanem | University of Lagos | Dr. A.O. Sorungbe |
| 89/024 | Incidence of Acute Lower Respiratory Infections in 0-5-year-old Children at ABU Teaching Hospital, Zaria | Dr. P.D.P. Inusa | ABU Teaching Hospital, Zaria | Allh. Y.M. Anka |
| 90/003 | Community-Based Research to Improve Coverage of Tetanus Toxoid Immunization in Kaduna Local Government | Mrs. R.K. Binchan | ABU Teaching Hospital, Zaria | Dr. A.O. Sorungbe |
| 90/004 | Quality Assurance Testing of Chloroquine Tablets in Northern Nigeria | Mr. T.A.S. Midala | Amadu Bello Univeristy, Zaria | Prof. L.A. Salako |
| 90/007 | Cluster Survey on Neonatal Tetanus: The Magnitude and Epidemiology in Kano Metropolis, Northern Nigeria | Dr. C.O. Eregie | Bayero University | Dr. S. Mahdi |
| 90/021 | Medical and Socio-Cultural Aspects of Treatment of Diarrhoea in Under-Fives in Oyo State, a KAP Study | Dr. B. Falashade | University of Ibadan | Dr. Ogundeji |
| 91/005 | Determination of Appropriate Community-Based Nutrition Interventions for a Fishing and Farming Community in Nigeria | Dr. O.A. Abosede | University of Lagos | Dr. P. Ogunye |

Appendix E

SELECTED CCCD NIGERIA RESOURCE MATERIALS

DIARROHEAL DISEASE CONTROL

- Akinfeleye, R.A., Mosanya, M.E., Osynkoya, T.I., Oyem, B.O., Arogun, A.A., Odu, S., Osinubi, T. Community Knowledge, Attitudes and Practices (KAP) Study on ORT/SSS and Media Habits and Practices in Lagos State. 1989.
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 - Know and Involve the Community
 - Plan and Monitor the Activities of Health Workers
 - Manage Logistics and the Cold Chain
 - Plan and Provide Immunization Services
 - Prevent Diarrhoea
 - Treat Diarrhoea
 - Set Targets
 - Evaluate Progress
 - Malaria

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