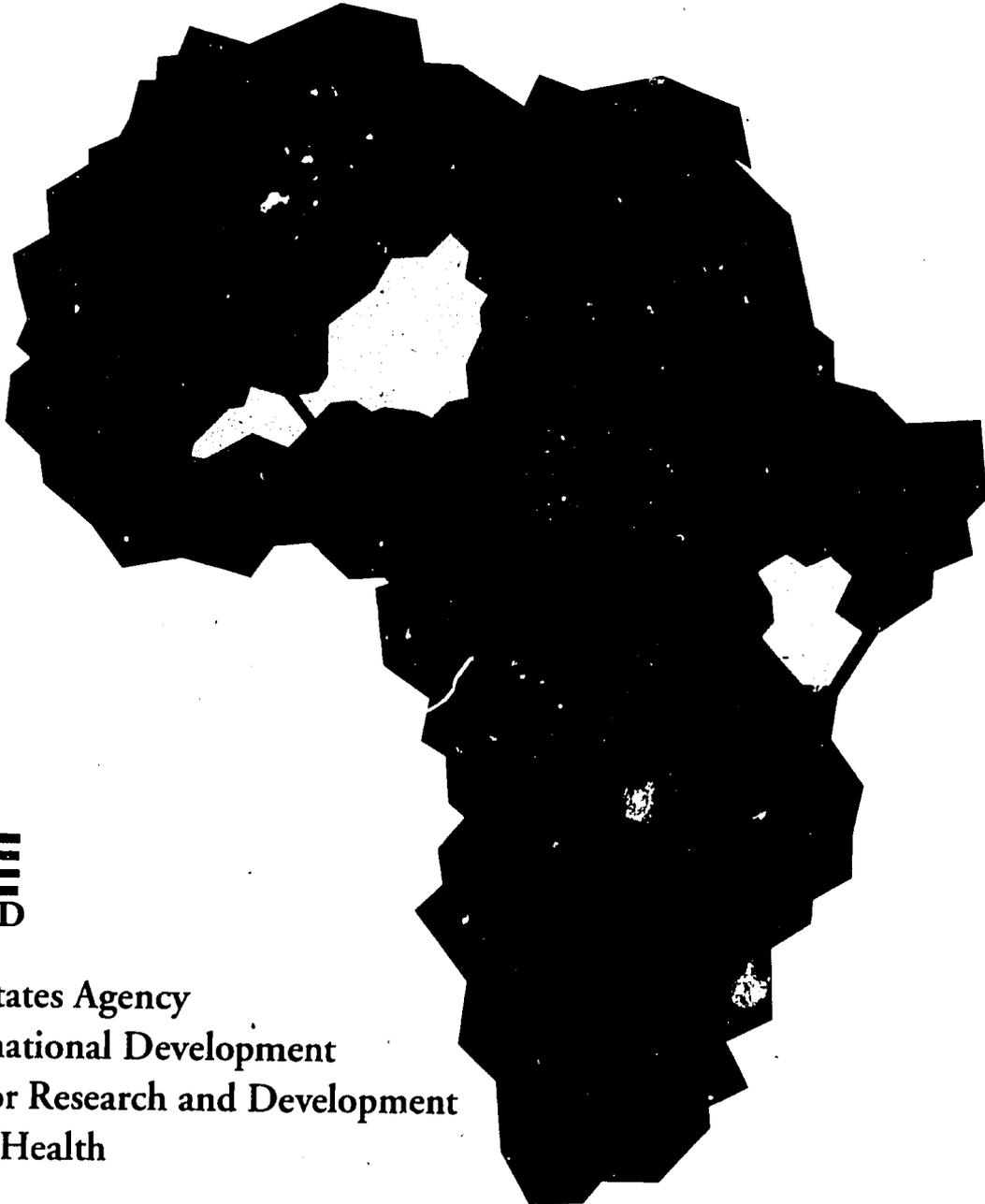


MEASLES INITIATIVE

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United States Agency
for International Development
Bureau for Research and Development
Office of Health

ASSESSMENT VISIT
KENYA

A Collaborative Report By:

The REACH Project

The HealthCom Project

The Quality Assurance Project

Nairobi, Kenya

March 1 - 28, 1992

MEASLES INITIATIVE: ASSESSMENT VISIT

KENYA

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LIST OF ACRONYMS

| | |
|------------------|--|
| A.I.D. | Agency for International Development |
| DANIDA | Danish International Development Agency |
| DHMT | District Health Management Team |
| DMOH | District Medical Officer of Health |
| DPHN | District Public Health Nurse |
| DPT | Diphtheria, Pertussis, Tetanus vaccine |
| EPI | Expanded Program on Immunization |
| GOK | Government of Kenya |
| HEALTHCOM | Communications for Child Survival Project |
| KAP | Knowledge, Attitudes, and Practices |
| KEPI | Kenya Expanded Programme on Immunization |
| MI | Measles Initiative |
| MOH | Ministry of Health |
| MTO | Measles Technical Officer |
| MU | KEPI Management Unit |
| OPV | Oral Polio Vaccine |
| QAP | Quality Assurance Project |
| REACH | Resources for Child Health Project |
| SDP | Service Delivery Point |
| UNICEF | United Nations Children's Fund |
| WHO | World Health Organization |

I. EXECUTIVE SUMMARY

The Measles Initiative (MI) is a centrally-funded activity to improve measles control in three sub-Saharan African countries: Kenya, Niger, and Burkina Faso. The MI is managed by three projects funded by the Office of Health, Bureau for Research and Development, namely, the Resources for Child Health (REACH) Project, the Quality Assurance Project (QAP), and Communications for Child Survival (HealthCom). The project was developed in late 1991 and is intended to run through September 30, 1993.

Representatives from all three projects visited Kenya during the dates of March 1-28, 1992 to conduct an assessment of immunization program efforts as they influence measles control at the national level and in the districts of Kisumu and Siaya. The assessment consisted of a review of documents and records, discussions with key officials at the national and district levels plus donors, and analysis of different sets of data pertaining to immunization, measles, quality of services, and communications.

The original scope of work had as a major component a health facility assessment that was to be conducted at approximately 12 facilities in Kisumu and Siaya. The MI team trained surveyors and initiated the assessment in Kisumu. Due to civil disturbances in the districts during the time of this visit, however, the facility assessment had to be discontinued. Other sources of data on performance of services were identified and analyzed in Nairobi to gain an understanding of some of the factors contributing to the performance of EPI in the two districts.

In light of the information available, the MI team prepared a draft workplan for MI activities. The workplan outlines a phased approach, with a first phase of formative research, a second phase of pilot implementation at the district level, and a third phase of refinement of approaches and replication of a few key interventions in some additional districts, time and resource-permitting. Given the results of recent coverage surveys and other data, the project will focus on reducing vaccination drop-out rates through stimulating demand for measles vaccination, reducing missed opportunities for immunization, and tracing defaulters in the community. Identification of high-risk areas for early transmission of measles will be addressed through the initiative. Some new interventions, including vitamin A administration and operations research on a two-dose measles vaccination schedule, may be implemented on a limited scale.

In addition to Kisumu and Siaya, it was agreed that a third district would be selected as a contingency in case activities were interrupted in the two originally-selected districts. A coverage survey will be conducted in this third district, possibly Kilifi or Meru, during the first phase of MI activity. Experience will also be reviewed in one high performing district to learn what methods have already been put into practice in Kenya to overcome obstacles to measles immunization.

REACH, as the designated lead project in Kenya, will provide continuity between the MI and the national measles workshop. REACH will also coordinate with the Management Unit of the Kenya Expanded Programme on Immunization (KEPI) to ensure that MI activities are incorporated into the five year Plan of Operations currently under preparation. Finally, REACH will proceed with hiring a Measles Technical Officer and part-time Coordinator, and will make in-country preparations for completing the first phase of MI activity.

In carrying out MI activities, every effort will be made to address the concerns raised by the KEPI Manager and other individuals that project interventions transferrable to the local situation in a sustainable way and that they fully utilize the capabilities of Kenyan counterpart staff.

II. PURPOSE OF VISIT

During a Measles Initiative (MI) planning visit to Kenya in January 1992, representatives from USAID/Nairobi, the MI team, and the Kenyan Ministry of Health decided that an initial MI activity would be to conduct an assessment of the current situation in Kenya with regard to measles control. The purpose of the present visit was to carry out this situation analysis, with particular attention given in the two MI focus districts, Kisumu and Siaya. Members of all three MI projects participated in this assessment to assure that their perspectives were represented in both the analysis of findings and in the development of a preliminary workplan for the MI in Kenya.

The scope of work for this visit included data collection at the central level on policies and practices of the Kenya Expanded Programme on Immunization (KEPI) as they pertain to measles control and strengthening of EPI in general. This was to be followed by one week each in Kisumu and Siaya for more detailed data collection through discussions with district health management staff, facility assessments, exit interviews with mothers, and review of documents.

The principal outcome from this assessment was a general workplan to address measles control, particularly in the two target districts. In addition, the visit provided the opportunity to recruit a full-time Measles Technical Officer and to provide findings to be presented at the REACH-sponsored national workshop on measles, scheduled for April 6-10, 1992.

III. BACKGROUND

In 1990, the U.S. Agency for International Development (A.I.D.) affirmed its commitment to reducing the morbidity and mortality of African children due to measles. The following year this commitment was demonstrated through a decision by the Office of Health, Bureau for Research and Development, to allocate funds for measles control in three countries in sub-Saharan Africa. This Measles Initiative (MI) was structured to provide for collaborative technical assistance from three centrally-funded projects: the Resources for Child Health (REACH) Project, the Quality Assurance Project (QAP), and the Communication for Child Survival (HealthCom) Project. In each country selected for MI activity, one of the three projects was to be designated as a lead project and assume primary responsibility for project management within the country, including hiring of local technical staff to implement MI activities. The MI was intended to run from late 1991 through September 30, 1993.

A one-week planning visit to Kenya was conducted in January 1992 by representatives from the Office of Health and the three projects to explore interest on the part of the Government of Kenya (GOK) and the Ministry of Health (MOH) and to conduct preliminary discussions of the elements and terms of the MI. During this visit, it was determined that Kenya would become one of the countries selected for MI activities, along with Niger and Burkina Faso. It was also decided that REACH would be the lead project and that MI activities would be focused in one or two districts of the country. On a brief follow-up visit in late January by REACH Acting Technical Director Robert Steinglass, the districts of Kisumu and Siaya in Nyanza province were selected as focus districts for the MI. Criteria for selection of the two districts included relatively low rates of measles vaccination coverage, high drop-out rates, high population density, good access to services, and good district management of health services.

As a first step towards implementation of the MI in Kenya, REACH provided technical assistance in conducting three 30-cluster coverage surveys in Siaya and Kisumu in February-March 1992. The surveys ascertained current vaccination coverage rates, and provided detailed information on indicators of program performance, as well as basic information on knowledge, attitudes and

practices of caretakers with respect to EPI and measles. Survey results were provided to the MI assessment team upon their arrival in country and helped form the basis the assessment team's findings.

IV. TRIP ACTIVITIES

Various activities were conducted to gather information concerning KEPI and other collaborating organizations. Some of the major activities included:

- A. A plan to conduct a rapid field assessment of facilities in the two districts of Kisumu and Siaya. The purpose of this assessment was to identify strengths and possible problems in KEPI service delivery and other support services.

The survey started in Kisumu district the second week of the visit. After a day of discussions with the Kisumu District Medical Officer of Health and the District Public Health Nurse (DPHN), arrangements were made for the selection of facilities and interviewers/observers. Six facilities were selected representing rural and urban clinics, one district hospital and two dispensaries. All interviewers selected were either nurses or public health technicians with experience in immunization. Interviewers participated in a half day training session to review data collection instruments. Minor changes were introduced to the instruments (Appendix B) based on suggestions made by participants.

The training was followed by a field visit to two of the six selected sites. Two teams of three persons each visited the facilities of Chulaimbo Rural Health Training Center and Maseno Missionary Hospital. Team members were able to observe a total of 16 vaccinations and conduct 16 exit interviews with mothers. Interviews were also conducted with the officials responsible for EPI management at the two health facilities.

However, the unexpected civil disturbances that occurred in Kisumu prevented the team from continuing the survey as planned. As an alternative approach to the implementation of the survey in Kisumu, the team analyzed data from a training assessment survey pertaining to the Kisumu district. The survey was conducted in five selected districts in summer 1991 by Development Solutions for Africa. The purpose of the survey was to assess the KEPI training program and its impact on health workers' performance. The results of the assessment have not been formally approved by KEPI, so must be considered provisional. Data for Kisumu district were retrieved from the aggregate data and analyzed by the MI team. Results of this assessment are presented in section V of this report.

- B. Interviews with key officials from the KEPI Management Unit, members of District Health Management Teams in Kisumu, Siaya, Meru, Kilifi, and donors and NGOs. These included representatives from USAID, UNICEF, DANIDA, SIDA, and AMREF. The purpose of these meetings was to learn about the activities of each group in Kenya and to develop effective cooperative links among key local collaborators. A list of institutions visited and individuals met is presented in Appendix A.
- C. Review of Documents. A number of documents pertaining to KEPI policies, training, coverage surveys, studies and reports from key donors and NGOs were reviewed. A list of these documents is presented in Appendix C.
- D. Analysis of data on measles and district level management of KEPI. At the time of this visit, KEPI was just completing a comprehensive data collection exercise in all districts of the country to better understand and define the problem of measles in Kenya. A member of the MI team assisted in analyzing some of these data in preparation for the

national measles workshop in April and conducted a more general review of the rest of the data to gain a better idea of some of the issues surrounding measles control in the country as a whole.

- E. Recruitment of local staff to support the MI. Job descriptions were prepared and advertisements placed in the daily newspaper, the Nation (Appendix D) and a newsletter for the positions of Measles Technical Officer (MTO) and REACH Technical Coordinator, respectively. (The latter, based in Nairobi, is expected to spend roughly half of his or her time on management of MI activities.) Interviews were held with several candidates for the positions and two leading candidates for the Measles Technical Officer were selected.

V. FINDINGS

A. Kisumu Health Facility Assessment

While the plan to conduct a field assessment of facilities in Kisumu could not be completed as planned, the team was able to visit two facilities where they observed 16 vaccination procedures and interviewed 16 mothers. This small sample showed fairly good health worker performance of vaccination tasks and the use of proper techniques. Communication between health workers and mothers was also observed to be good. More emphasis is needed, however, on providing information on possible side effects. Almost all mothers were satisfied with the service and knew when they should come back.

B. Training Assessment Survey

A rapid training assessment survey of KEPI was conducted by Development Solutions for Africa, Ltd. in mid-1991. The purpose of the evaluation was to assess the impact of KEPI training on health workers' performance at the operational, supervisory, and management levels. The survey involved the measurements of health workers' knowledge, attitudes and performance of activities including vaccination, cold chain management, record keeping, supervision and communication with mothers. Two teams of seven members conducted the survey in five selected districts visiting a total of 83 facilities, observing 102 vaccination sessions, and interviewing 147 mothers. Standard research techniques used in the assessment, including review of documents and management data, observation of immunization activities, follow-up interviews, exit interviews with mothers, interviews with clinical staff, management and trainers, review of KEPI records, and focus groups discussions.

The following is a summary of the findings from Kisumu district:

1. Performance of Immunization Techniques

A total of 23 observations of health workers administering vaccines were made in Kisumu using an observation checklist. In 61% (n=14) of the cases, health workers handled needles and syringes correctly to maintain a sterile condition. Health workers put syringes and needles in a bowl of clean water around 61% of the time. However, an assessment of 20 health facilities indicated that 32% of facilities either reported problems in using their steam sterilizers or were not using them. Boiling of instruments was being done instead of steam sterilization.

The observation checklist also revealed some weaknesses in cold chain management. Vaccines were left on top of ice packs during the immunization session in only two out of the 23 cases observed (31.8%). Leaving vaccines in the carrier during the immunization session was a common procedure (43.5%) which is not recommended. In another 43.5%

of the cases, vaccines were not kept cool during the immunization session. Moreover, in less than 40% of cases did health worker wash their hands before immunizing.

Results of the survey showed acceptable performance among health workers regarding the administration of vaccines. Out of the 14 polio vaccinations observed, 12 (85.7%) were administered correctly, i.e., two drops were placed in the child's mouth without touching lips or tongue with dropper. Also, 11 out of 14 observed health workers administering DPT cleaned the injection site with cotton wool moistened with methylated spirit and gave an intramuscular injection correctly in the upper lateral quadrant of the thigh. Finally, all observed health workers administered correctly the measles vaccine subcutaneously on the right upper arm.

2. Communication with Mothers

Health workers were observed to be friendly with mothers most of the time (63.6%). However, most health workers did not provide enough information on the number of doses needed, and how to deal with possible side effects. Only 14.7% of the health workers giving polio and 8.3% of those giving BCG explained to the mother about the number of doses needed to obtain full immunization. An explanation of possible side effects of DPT was given in 58.3% of the times compared to 33.3% for measles. Finally, the majority of health workers observed (70%) did not ask the mother at the end of the session whether she had any questions.

3. Record Keeping: Tally Sheets and Health Cards

In general, health workers performed well in recording information and properly documented vaccinations given. Tally sheets were accurately completed in more than 65% of the cases, with polio and DPT showing better reporting (78.6% and 83.3% respectively) than BCG and measles. All health workers observed recorded the proper information on the child's health card after vaccination.

4. Supplies and Management of Cold Chain

Some problems in the cold chain were revealed in the assessment. Six facilities reported difficulties with supplies in the last 12 months, mainly with gas. Vaccine carriers had cracks or broken rubber seals in 30% of facilities assessed. The majority of facilities did not use the cold chain monitor (85%) which is not surprising; however, only 60% of facilities assessed maintained a log of refrigerator temperatures on a daily basis. Refrigerators were reliable in 84.6% of facilities; but 85% of refrigerators observed had more the 1/8 of an inch of ice around the freezer compartment, indicating a need for defrosting. In 35% of the facilities assessed, other drugs were stored in the refrigerator along with vaccines. Almost half (47.4%) of facilities did not have running water in the immunization area to facilitate handwashing.

5. Exit Interviews with Mothers

Thirty-four mothers were interviewed in Kisumu as they were leaving the facility using an exit interview checklist. Almost all mothers (96.4%) had their child's health card with them. Review of these cards by interviewers showed that of 28 eligible children, health workers missed four cases of children who should have been immunized during that visit (14.3%). The vaccination status of the majority of children (75%) seen at the facility was up-to-date.

More than half of the mothers interviewed reported that the health worker had told them about the name of the vaccine that their child was receiving. Most mothers reported that health workers told them when or if to come back for the next vaccine (67.8%); however, only 25% of these mothers mentioned that health workers explained to them possible side effects.

When mothers were asked about their source of information about vaccination, the majority reported the health worker at the facility to be source (67.6%). Radio was another important source of information for another 38.2% of the women.

The knowledge of mothers was also assessed in the exit interview. When asked about the appropriate age for giving measles vaccine for children, around half of the women knew the right answer, i.e.; nine months. However, 35.1% of mothers either gave a wrong answer or said that they don't know when a child should be vaccinated against measles.

Almost all mothers interviewed (91%) indicated that the health workers were either friendly or very friendly. About one fifth reported having been confused in the past about information on immunization that was given to them at the facility. Over one third (35.3%) reported that they had previously had the experience of coming to the facility for immunization but had not received the vaccination that day.

6. Supervision

In Kisumu, half of health workers interviewed reported that they have been visited once or twice by the DPHN or DMHT at the facility in the last three months. Among those who were visited, 48% reported being observed by a supervisor while administering vaccine. Staff meetings appear to be a common practice in these facilities. While the exact purpose of these meetings is not well known, more than 70% of workers said that supervisors hold these meetings regularly to discuss problems and ask questions.

7. Other Findings

The health facility assessment component of this study revealed that of 20 facilities observed, 6 (30%) did not provide EPI services all day long, five days per week, as specified by MOH policy. In interviews with supervisors of vaccinators, almost one quarter (4 out of 13) interviewed could not postulate a purpose for filling in monthly tally sheets of doses administered, other than to send the sheets on to the district level. Some 65% of the 23 vaccinators interviewed either did not know or had forgotten how to estimate monthly targets for immunization; among those who could cite a method, some responses were incorrect. These findings indicate some unfamiliarity with the applications of routinely collected data.

In general, the performance of vaccinations showed most ratings in the 50% range. Improvements in the use of proper sterile technique, however, should be achieved through better training and supervision, especially in maintaining and using steam sterilizers.

Correct cold chain management procedures were not maintained at all times. Greater emphasis should be placed on improving the handling (storing, organizing, and using) of vaccines and cold chain equipment.

Recording of data on the child health card appears to be well maintained in Kisumu. Recording of data on tally sheets should be improved, however, and more emphasis is needed on how the vaccinator and supervisor are to use such data once they are collected.

While most communication between health workers and mothers is reported to be "friendly", health workers were less likely to explain to mothers about possible side effects.

Over one-third of existing service delivery points were not providing immunization services at all recommended times, and over one third of mothers interviewed cited the experience of coming to a health facility to receive vaccination (for self or child) only to be turned down. The reasons for these two related findings should be investigated further.

In brief, the results of the training assessment indicated an average level of contact between the supervisors and immunizers. Half of those who have been visited indicated that they were observed by supervisors. These findings suggest that in the district of Kisumu, where supervisory visits are found to be more frequent than other districts, more emphasis should be focused now on the content of these visits.

C. Coverage Surveys in Kisumu and Siaya

1. Coverage Rates and Indicators of Performance

In February and March 1992, REACH organized three vaccination coverage surveys that were carried out in Siaya, rural Kisumu, and municipal Kisumu. The surveys were conducted in accordance with standard WHO/EPI methodology for 30-cluster, population-based surveys and were analyzed by Coverage Survey Analytical Software (COSAS) to generate estimates of coverage as well as information on indicators of program performance. In addition, the routine questions on knowledge, attitudes, and practices (KAP) included in coverage surveys were modified to provide more focused information on reasons for non-completion of the vaccination schedule, reasons for failing to receive measles immunization, attitudes towards measles, and sources of information. A full report of the findings is presented in a separate report (REACH trip report from Senior Technical Officer Mary Harvey, drafted March 1992).

The surveys provided valuable information that formed the basis of the assessment team's approach in developing a workplan for Kenya MI activities. Key findings are presented in Table 1.

The findings raise several notable points. First, it appears that access to services is high: in all three surveys, DPT1 coverage is at least 90%, indicating that services were initially used by the great majority of caretakers of infants. However, there is a pronounced drop out rate in the three surveys, demonstrating that caretakers do not make all the repeat visits needed to complete the vaccination series. As the final antigen in the vaccination schedule, measles coverage suffers the most: only about two thirds of those who start the vaccination schedule complete it. The drop out rate even between DPT3 and measles is substantial (13-23%). This may be because infants are immunized relatively early for DPT3 (median age 17-19 weeks), after which time there is a time lapse of several months before the infant is eligible to receive measles vaccine (median age 42-43 weeks).

With regard to quality of services, almost one fifth of measles vaccinations are given before the completion of nine months of age, the age stipulated by KEPI policy. However, of those who do receive measles vaccination after nine months, the great majority are given it before one year of age, indicating timely protection. In general, age distributions for vaccinations showed that most vaccines were given by 12 months of age.

Equally encouraging, missed opportunities for immunization were low, as indicated by the very few instances of children who did not receive all the vaccines for which they were eligible on a given day. (This analysis did not, however, consider those children who attended a clinic for curative purposes or other preventive services and could have, but did

not, receive vaccination(s).)
 Table 1. Vaccination coverage levels* and related information, according to card and history, and by date of survey in Siaya, rural Kisumu, and municipal Kisumu, February-March 1992.

| Coverage | <u>Siaya</u> | <u>Rural Kisumu</u> | <u>Municipal Kisumu</u> |
|---|--------------|---------------------|-------------------------|
| BCG | 94.7% | 95.4% | 96.2% |
| OPV-0 | 84.2% | 76.5% | 75.0% |
| DPT1/OPV1 | 90.0/91.9% | 92.2/92.2% | 96.2/95.8% |
| DPT2/OPV2 | 88.0/87.1% | 87.1/87.1% | 85.8/85.8% |
| DPT3/OPV3 | 78.0/76.1% | 77.9/77.8% | 77.8/78.3% |
| Measles | 60.3% | 62.2% | 67.9% |
| Fully immunized | 56.9% | 57.1% | 67.0% |
| Program performance | | | |
| Access/Utilization (DPT1) | 90.0% | 92.2% | 96.2% |
| DPT1-DPT3 drop out | 13.3% | 15.5% | 19.1% |
| DPT1-measles drop out | 33.0% | 32.5% | 29.4% |
| DPT3-measles drop out | 22.7% | 20.1% | 12.7% |
| Doses measles before 9 mo. | 22.9% | 20.6% | 18.2% |
| Valid doses** measles given before 1 year | 86.4% | 89.4% | 88.9% |
| Child health card available | 77% | 75% | 75% |
| Sources of Service | | | |
| Hospital | 21% | 15% | 36% |
| Health center | 59% | 56% | 36% |
| Dispensary | 11% | 20% | 17% |
| Outreach | 6% | 2% | 5% |
| Private | 3% | 7% | 6% |

* Crude data, based on documentation or recall. Consideration of only valid, documented data greatly reduces estimates. (See REACH trip report of M. Harvey, April 1992.)

** "Valid doses" of measles are documented doses given after 39 weeks of age.

Somewhat surprisingly, the coverage surveys revealed relatively few differences in program performance between urban and rural Kisumu. Access was only slightly higher in the urban versus the rural area and in both cases was over 90%. The only pronounced difference was seen in provider of service, where hospitals were a more important source of service to urban dwellers than were health centers.

In all three surveys, only about three quarters of the children had child health cards available. The cards are pivotal in providing the caretaker with essential health information and will be very important in any efforts to reduce drop out rates by tracking defaulters.

While the coverage figures presented in Table 1 permit comparison with other coverage surveys conducted in Kenya and elsewhere, they also overestimate the true effectiveness of immunization services in preventing disease. When only documented and valid doses of vaccine (i.e., given at correct ages and respecting proper intervals between doses) are considered, then the anticipated level of protection falls substantially. For example, in rural Kisumu, measles coverage falls from 62.2% to 39.2% when only documented doses given after 39 weeks of age are included. Although the more restrictive numbers may present a disappointing picture, they provide a point of departure for the DHMT to really refine EPI program management and work towards ensuring that immunization succeeds in its intent of protecting the child.

2. Knowledge, Attitudes, and Practices

Questions concerning knowledge, attitudes, and practices related to immunization also were included in the coverage survey. Principal findings include:

- a. Knowledge, attitudes, and practices concerning immunization patterns are generally similar in the three survey areas. There were few differences, even between rural and urban Kisumu.
- b. Principal reasons for not vaccinating children include:
 - i. Belief on the part of both the mother and the health worker that sick children should not be immunized. This was identified in both the mothers who had not completed the full vaccination series and those who had not taken their child specifically for the measles immunization. Almost one-fourth of the mothers in all three districts reported they did not take their child to be immunized for all vaccinations because they were ill. Those mothers who had obtained the DPT series, but had not taken their child for the measles immunization were also asked why they did not take the child. 17.5% in urban Kisumu, 19.6% in rural Kisumu and 16.9% in Siaya said they did not take their child for the immunization because he was ill. Over 50% of the mothers in all three districts said that "it was not easy to immunize a child when he has diarrhea". In the Siaya district, 20.5% said they brought the child to the health center, but he was not vaccinated because he was ill.
 - ii. "Lack of motivation" was the other most frequently listed reason for not completing the immunization series. 21.5% of urban Kisumu, 25.6% of rural Kisumu and 14.1% of Siaya mothers reported this reason for not completing the vaccination schedule. Likewise, 21.6% of urban Kisumu, 23.7% of urban Kisumu and 13% of Siaya mothers said they had not taken their child for a measles immunization for this reason. Pre-planning formative research should further probe the cultural beliefs and practices which contribute to the this "lack of motivation".
 - iii. "Clinic staff were rude", "the clinic is hard to reach", and "the wait was too long", were mentioned by less than 4% of the mothers in all three surveys as reasons for not completing the immunization schedule. When asked directly if it was "easy to

travel to the health facility, 89% of urban Kisumu, 67.5% of rural Kisumu, and 76% of Siaya mothers answered in the affirmative. Likewise, when asked directly if the health staff treated them well, 71.3% of the urban Kisumu, 79% of the rural Kisumu and 77.5% of the Siaya mothers said yes. This differs from an evaluation of the Child to Child program (a health project in the same area) and anecdotal feedback and will be further probed in pre-planning formative research.

- c. Knowledge that measles can be prevented is high in the three surveys: 88.7% in Kisumu Urban, 92% in Kisumu Rural, and 87.24% in Siaya. Likewise, knowledge is also high that measles can be prevented by having the child immunized (88.2% in Kisumu Urban, 91% in Kisumu Rural and 82.15% in Siaya). However, only 62% in Kisumu Urban, 61.7% in Kisumu Rural and 50% in Siaya said that measles is a serious disease. This belief should be further probed in pre-program formative research.
- d. Almost 40% of mothers did not know that children should be immunized for measles when they are nine months old. 67.6% in urban Kisumu, 62% in rural Kisumu and 59% in Siaya said the child should be immunized at this age.
- e. There are differences in radio listening patterns between the three survey areas:
 - i. Although the majority of mothers in all three surveys reported they listened to radio (65% in urban Kisumu, 76% in rural Kisumu and 56.7% in Siaya), mothers in Siaya listen less frequently than mothers in both the rural and urban areas of Kisumu. Only 20% of mothers in Siaya reported that they listened to radio every day, while 50% in urban Kisumu and 56% in rural Kisumu reported this listening pattern.
 - ii. 24.5% of mothers in urban Kisumu reported listening to the radio between 8 a.m. and 12 p.m. (noon) while only 9.3% of rural Kisumu and 17% of Siaya mothers reported listening at this time. Radio listenership in the evening was higher in Siaya and rural Kisumu than in urban Kisumu. 39% of mothers in urban Kisumu reported listening to the radio after 6 p.m. in comparison to 58% in rural Kisumu and 47% in Siaya.
 - iii. The three groups appear to differ in the types of programs that they listened to. 56.7% of mothers in Siaya reported that their favorite program was family planning in comparison to only 26% in urban Kisumu and 16% in rural Kisumu. Health programs were mentioned by 26% of urban Kisumu and 33% of rural Kisumu, while they were not mentioned at all by mothers in Siaya. News programs were rarely mentioned, although this is considered "prime time" on the Kenya Broadcasting Company. The fact that the interviewers identified themselves as being from the Ministry of Health may have skewed the answers to this question.
 - iv. Results from the three groups were similar in terms of the language they preferred to listen to on the radio. 64% of urban Kisumu, 60.6% of rural Kisumu and 53.4% of Siaya preferred to listen to the radio in Luo. Swahili was the second choice with 31% in urban Kisumu, 28.4% in rural Kisumu and 41% in Siaya mentioning that they preferred to listen to programs in this language.
- f. The nurse was the most frequent source of information on immunizations (56.4% in urban Kisumu, 69% in rural Kisumu and 63.6% in Siaya), followed by the community health worker (18.02% in urban Kisumu, 15% in rural Kisumu and 10.16% in Siaya). Radio was infrequently mentioned which is not surprising since KEPI spots have not yet been broadcast. Interestingly, only .05% of mothers in urban Kisumu and no mothers in either rural Kisumu or Siaya mentioned that they had learned about immunizations from posters.

In general, the results of the coverage surveys in Kisumu and Siaya support the findings of a coverage survey that UNICEF conducted in February 1992 in neighboring South Nyanza. The results of that survey indicated access and initial utilization of EPI services of close to 90% in all four zones surveyed; measles coverage ranged from 43% to 58% in the four zones; and DPT1-measles drop-out rates ranged from 34% to 54%. Further analysis showed that distance to the health facility was not a major determinant of vaccination status (corroborating findings from a 1987 nationwide coverage survey). Responses to KAP questions in the South Nyanza survey identified failure to vaccinate a sick child or to bring a sick child for vaccination at all as important deterrents; taken together, they comprised the single largest obstacle to completing the vaccination series.

D. Program Context

1. Measles in Kenya

At the time of the MI team's visit, KEPI was just completing an in-depth data collection exercise in preparation for the national measles workshop in April 1992. Data were collected from all districts of the country on (1) the clinical presentation of measles, (2) reported inpatient and outpatient measles morbidity and mortality data for the past three years, and (3) the DPHN's perspective of EPI in each district with respect to measles control.

Reported data on measles in Kisumu and Siaya reflected some interesting points. The following figures for outpatient and inpatient cases were reported for the years 1989-1991.

| | <u>Kisumu</u> | <u>Siaya</u> |
|---|---------------|--------------|
| Total no. inpatient and outpatient cases reported | | |
| 1989 | 3,762 | 2,716 |
| 1990 | 6,234 | 2,566 |
| 1991 | 2,597 | 2,949 |

| | <u>Kisumu</u> | <u>Siaya</u> |
|---|---------------|---------------|
| % of pediatric ward admissions due to measles | | |
| 1989 | 16.2% | not available |
| 1990 | 13.1% | 3.1% |
| 1991 | 6.1%* | 1.7%* |

* data incomplete

The numbers available from Siaya were too small to permit identification of trends; this was mostly due to incomplete reporting. The numbers from Kisumu indicated that measles accounted for between 6% and 16% of pediatric admissions at the provincial and district hospitals during 1989-91. In 1991, a case fatality rate for measles of 8.1% was measured at the District Hospital in Kisumu. No real seasonality was detectable over the three year period, probably indicating that measles is endemic in this densely populated area. With only three years of data collected, it was impossible to note any interepidemic period, as is generally seen with measles outbreaks.

An important finding was that between 23% and 27% of inpatient measles cases were seen in infants 0-9 months old. KEPI follows WHO/EPI policy in recommending measles vaccination when the child is nine months old; specifically, WHO/EPI means upon the completion of nine months of life. In Kisumu, the age distribution of measles cases indicates that even with 100% measles vaccine coverage given at the earliest permissible age, some 25% of cases would still occur. This finding carries two implications that the MI will need to deal with: first, the current immunization schedule will not prevent all cases, and second, as a consequence, credibility in measles immunization may be compromised.

(It is possible that the lack of a widely distributed standard case definition for measles contributes to over- or misdiagnosis. However, more research would be required to determine if there is a bias toward overreporting of cases at less than 10 months of age. Because the data on age distribution were gleaned from inpatient records only, they are more likely to be accurate than if they included outpatient records as well.)

This issue was discussed at length at the national measles workshop in April 1992. The plenary decided that, pending necessary approvals, a two dose schedule could be studied through operational research under controlled circumstances in some selected service delivery points in an urban area--possibly Kisumu. Such research could be conducted in conjunction with the MI.

The findings regarding age distribution should not, however, divert attention from the program activities that can be implemented under existing KEPI policies. Documented measles coverage at the target age (9-12 months) is still less than 50% and KEPI, with input from the MI, should proceed with efforts to ameliorate the situation without awaiting discussion of the vaccination schedule.

2. KEPI

KEPI was launched in 1980 as a demonstration project in one district before being phased in to all districts plus Nairobi in 1986. During KEPI's second phase (1986-1990), emphasis was placed on stabilization, sustainability, and acceleration, with the intention of the Government of Kenya taking on increasing financial responsibility for program operation. Reliance on donor support remains high, however, with DANIDA, UNICEF, and USAID as principal providers of funding.

Donors are responsible for the procurement of vaccine, including measles vaccine. USAID/Nairobi has supplied measles vaccine since 1989 and will continue to provide a supply estimated to last through January 1993. After that time, it is not yet clear who will supply measles vaccine or any other EPI vaccines. The exception is hepatitis B vaccine, the purchase of which is assured through 1994 for a pilot project in Kiambu district.

Results from the most recent nationwide vaccination coverage survey, conducted in 1990, reported documented coverage rates by 12 months of age of 80% for BCG, 73.5% for DPT3, 70.5% for OPV3, and 58.6% for measles in infants immunized over 7 months of age.

Over the past several months, KEPI has been in the process of developing a comprehensive five year plan of operation that incorporates the government's development goals as well as key findings from a recent DANIDA-sponsored "pre-appraisal" of KEPI, conducted in October 1991. Some of the main issues raised in the latter document include:

- o the need for improving district-level management of primary health care
- o the need to improve the quality of services as a means of sustaining demand
- o recognition of the substantial role in service delivery played by NGOs
- o suspension of the expansion of KEPI service delivery points until criteria are established to justify their creation.

During meetings with the MI assessment team, the KEPI Manager stressed that the decision by the MOH to support the MI was based on the premise that the MI would be focused in two districts and would serve as a means of strengthening district level management of KEPI. In this respect, the KEPI manager felt that interventions most appropriate to the MI would be those that could have application to KEPI in a broad sense, while not overlooking the particular aspects of controlling measles.

In light of the civil disturbances encountered by the assessment team while trying to do field work in the target districts, the team stressed to KEPI the need to select one to two other districts as project sites as a contingency plan. The team also noted that implementation of MI activities on a limited basis in those other districts could provide a basis for comparing and contrasting the suitability of approaches to measles control under varying circumstances.

The KEPI Manager agreed to this point, but emphasized his strong preference to keep activities as focused as possible in Kisumu and Siaya, rather than diverting human and financial resources from them during this 1-1/2 year project. Kilifi and Meru were mentioned as possible districts where some baseline assessment activities, chiefly a coverage survey with KAP questions, could take place and limited activities be implemented. Given time limitations during the visit, the KEPI Manager arranged for one MI team member to briefly visit those two districts to investigate program possibilities.

Another concept raised in discussions with KEPI and USAID/Nairobi was that of drawing on the experience of a high performing district to exchange ideas on how obstacles in the MI districts have been overcome in other parts of Kenya. Nyeri was proposed as a "model district". Reports from the Computerized EPI Information System (CEIS) will be reviewed to compare the performance of Nyeri with Kisumu and Siaya and its appropriateness as a district for comparison.

In discussions with both KEPI and USAID/Nairobi, the subject was raised of implementing a few key interventions for measles control in a cluster of districts. The KEPI Manager was adamant that MI resources not go into the implementation of activities on a nationwide basis in all 42 districts of the country. On the one hand, the MI team was in agreement with KEPI for two important reasons. First, given the very short duration of the MI, it would be impossible to introduce any single activity in 42 districts without taking resources away from the target districts. Also, any demand creation activities would have to be preceded by actions to ensure that services were fully in place and ready to respond to increased demand. A rapid review of data from the district level collected in preparation for the measles workshop suggests that this cannot be assumed to be the case.

On the other hand, it was felt that the MI should be prepared to provide continuity with and be able to respond to the national policies and strategies for measles control developed during the national measles workshop in April—especially if the workshop indicated a few points that could be acted upon at a broad, policy level and which might have impact beyond the MI target districts. The REACH Project will take responsibility for providing a link between the findings of the measles workshop and their application through the MI or other channels.

3. Donors' perspectives

The assessment team met with representatives of the major donors to KEPI, including DANIDA, UNICEF, Swedish International Development Authority (SIDA), and, of course, USAID/Nairobi. A consistent concern raised by the donors was that a focused technical assistance initiative of such large magnitude and short duration should not divert attention from ongoing program efforts. In this respect, there was apprehension that the project (a) not overburden KEPI Management Unit (MU) staff, and (b) not concentrate all of its resources in only two districts. The team was made aware of strong desire by KEPI donors

to make sure that the benefit of the MI be felt beyond Kisumu and Siaya and have as broad an impact as possible. The REACH-sponsored measles workshop, following closely on the MI assessment, provided an ideal forum for both discussing some of the findings of the assessment and to consider how some key elements of the nationwide measles control strategy developed at the workshop can be addressed through the MI.

Several meetings were held with the DANIDA Management Advisor to KEPI during this visit. The Advisor stressed the need to use the MI to strengthen district level management of KEPI. In addition, he expressed the concern that any MI activities scheduled for 1992-93 be incorporated into the KEPI five-year plan of operations, which DANIDA is assisting KEPI to prepare.

The assessment team also met with representatives of UNICEF. Kisumu is a target district for UNICEF activities, especially Bamako Initiative and EPI activities. This overlap provides both an opportunity for some synergy between UNICEF and MI efforts and a more pronounced need for close coordination among donors. Since 1986, with UNICEF support, Community Health Workers (CHWs) have been trained in Kisumu, as have been the health facility staff who supervise them. (CHWs in Kisumu are given a monthly "stipend" of KSh 50 by the community as an incentive to stay in the program.)

At present, UNICEF is planning to intensify EPI activities in Kisumu. The primary approaches will include the expansion of service delivery points (SDPs) for EPI and the training of CHWs and public health technicians to promote immunization. This planned expansion of CHW and PHT training is an area where the MI and UNICEF will want to coordinate actively so that MI activities can be introduced systematically. Additional meetings will be needed between the MI and UNICEF to coordinate detailed planning. In preliminary discussions, the UNICEF project officer for EPI expressed interest in the MI and REACH providing technical assistance in the training curricula. This will be discussed in more detail in upcoming consultancies by MI staff.

SIDA also supports a broad range of primary health care activities in Kisumu and Siaya, although more in terms of financing than in the development of training curricula or program implementation.

4. District Level Findings

a. Target districts - Kisumu and Siaya

During the visit to Kisumu and Siaya, the MI assessment team initiated discussions with members of the District Health Management Team in Kisumu, but had the opportunity for only a preliminary talk with the DPHN from Siaya. The national measles workshop in April provided an opportunity to continue discussions with the Kisumu and Siaya DPHNs and with the Kisumu DMOH.

A number of points arose in discussions with the Kisumu DMOH and DPHN. First, the administration of health services in Kisumu is divided between the district and municipal governments, with municipal services under the direction of a separate DMOH. Although the same immunization objectives, targets, training, and reporting requirements apply to each, they have different sources of funding, with the municipal funding reportedly more limited. It was not possible during this consultancy to visit the municipal facilities (as planned) or investigate any differences in service delivery or organization.

Nongovernmental organizations (NGOs) provide a substantial share of EPI services and operate approximately one quarter of immunization SDPs. Some major NGOs in Kisumu include Aga Khan Health Services and a number of groups with religious

affiliations (Catholic, CPK). The DPHN described the NGO services as completely integrated with the government in terms of service delivery, reporting, training, and sharing district targets. She mentioned that there may be instances when NGOs are not as tied into the circuit of communications with regard to, e.g., new policy directives. The MI will need to make sure that NGOs receive full information on any new measles control activities.

Discussions with the Kisumu DMOH and DPHN indicated general support for focusing MI efforts on the reduction of drop-out rates through a variety of means. The DMOH noted the need for qualitative research to understand some of the root resistance to measles immunization so as to develop truly effective messages and approaches. The DMOH and DPHN also thought it would be reasonable to develop methods to identify and trace defaulters and to identify where and when measles cases occur. They felt that CHWs could play a valuable role in this type of activity, given their close knowledge of the community, their current duties in vital events registration, and their formal connection with the health system.

The Kisumu DHMT is currently working with UNICEF to develop plans for intensification of EPI in the district. The proposed approaches for this include: increasing access and utilization of services by increasing both the number of outreach sessions and the number of SDPs offering immunization; training additional health workers in EPI to staff these SDPs; and training CHWs, public health technicians, and nutrition technicians to promote EPI in the community. New vehicles to support the EPI intensification will also be purchased. The MI will need to coordinate closely with the DHMT as these proposed activities develop further.

The Siaya DPHN agreed that high drop out rates are a major problem. He said that registers are already in use to identify and trace defaulters, but that the major obstacle to completing the vaccination schedule is limited access to EPI. For this reason, he advocates increasing the number of SDPs offering EPI services by five. (It should be noted, however, that the Government of Kenya has recently adopted a policy of not opening any more SDPs.) He said that not all SDPs provide immunization services, forcing some segments of the population to travel long distances to reach the nearest facility. In some instances, this may be a mission hospital which charges a fee. The DPHN's observation is not squarely corroborated by the Siaya coverage survey results, which indicate that DPT1 coverage was 90%, and 76% of respondents responded in the affirmative when asked if it was easy to reach the place of vaccination. Only 2.4% cited difficulty of going to the health facility as a reason for not receiving measles vaccination.

Nevertheless, the DPHN's conviction on this point deserves further attention. Existing SDPs should be examined to see if they are, in fact, offering services at all scheduled times, and to estimate the proportion of the population that must travel more than a given amount of time, e.g., two hours, to obtain vaccination. In this respect, it may be useful to consider that DPT1 coverage is really an indicator of ever-use rather than access per se; the need for repeated trips to complete the vaccination schedule may diminish the perceived accessibility of services.

During the national measles workshop, discussions were held with the DPHNs from Kisumu and Siaya and the Kisumu DMOH regarding the piloting of a two-dose schedule for measles vaccination through the MI. Initial enthusiasm waned upon thinking through the consequences and the risk if infants came for one measles vaccination at six months but did not return for a second at nine months. The DPHNs recognized that the current low coverage for measles vaccine is due to high drop out rates and reluctance to immunize sick children. They believed that the impact of these two obstacles could be exacerbated through the use of a two dose schedule. It was tentatively decided that any testing of a two dose schedule should be limited in scale--probably just a small number of SDPs in Kisumu town--and carefully controlled.

In preparation for the measles workshop, both DPHNs participated in a data collection exercise in which they were asked to describe some of the accomplishments and problems of EPI in their districts. Some key points are as follows:

- o **Number of EPI Service Delivery Points**
Kisumu: 49
Siaya: 35

- o **Cold chain problems in the past six months?**
Kisumu: Nothing major; one case of inaccurate temperature regulators
Siaya: three refrigerators out of service at the SDP level

- o **Inadequate supplies of:**
Kisumu: cold boxes, vaccine carriers, ice packs, thermometers, sterilizers, child health cards
Siaya: vaccine carriers, ice packs, thermometers, syringes, needles, sterilizers, child health cards, summary tally sheets

- o **Postulated reasons for missed opportunities for immunization**
Kisumu: Vaccines not given to sick children; when there are stock-outs of drugs, health workers neglect to give vaccines (despite their availability); vaccinators do not give measles vaccine if the mother says her child has already had measles
Siaya: Health workers believe in false contraindications, won't vaccinate a sick child

- o **Postulated reasons for drop outs**
Kisumu: long waiting times; mothers do not recognize the need for completing immunization
Siaya: lack of importance assigned to completing the schedule

- o **Postulated reasons for not coming at all**
Kisumu: Belief that immunization is not necessary; health facility is too distant
Siaya: Negative attitudes of health workers deters clients; poor distribution of health facilities with some areas lacking them

- o **Social mobilization activities**
Kisumu: CHWs teach the public on EPI during primary health care program; school health program began November 1991
Siaya: Barazas and women's groups teach community about EPI; school-children promote EPI

- o **Ranking of problems in the district (based on a list of eight areas)**

Kisumu

1. Training
2. Supervision
3. Transportation
4. Social mobilization
5. Reporting
6. Cold Chain
7. Supplies and equipment
8. Vaccine procurement

Siaya

1. Training
2. Cold Chain
3. Reporting
4. Transportation
5. Supplies and equipment
6. Social mobilization
7. Supervision
8. Vaccine Procurement

b. "Contingency" Districts - Meru and Kilifi

A one day visit was made to Meru to consider it as a possible "contingency" district where MI activities could be undertaken in the event of interruptions in Kisumu and Siaya. Meru is a large district, soon to be subdivided into two districts, and currently has 120 SDPs for immunization. During the visit, the DPHN described some of the special strategies that had been employed to control a recurrent measles outbreaks in a few parts of the district. The main approach has been to target the problem areas, note age distribution of cases, and intensify all immunization efforts (not just measles vaccination) just before the measles season occurs (right before the start of the rainy season). Meru has recently obtained from UNICEF a supply of vitamin A which it provides to malnourished children, regardless of their measles status.

The Meru DPHN noted that a major problem that EPI suffers is decreased demand when essential drugs are unavailable. Mothers come to health facilities for immunization in far fewer numbers if they know that they will not be able to obtain drugs there. This same issue was described in Kisumu and Kilifi and also by the KEPI MU. MI activities and social mobilization messages to reduce drop out rates should take this into account.

Another observation from the health facilities visited in Meru pertains to collection and use of register information at the facilities. While detailed data was maintained in clinic registers on who attended and from what location, this information was not standardized nor necessarily used at all to trace defaulters.

A half day visit was made to Kilifi, during which meetings were held with the DMOH and the Acting DPHN. Kilifi has one of the highest rates of infant mortality in Kenya, estimated at 97 per 1000 in 1988, and malnutrition and pneumonia are important causes of mortality. There are 44 government SDPs offering immunization in Kilifi, plus another few operated by NGOs. Most of these are concentrated in one division along the south coast, where the population is concentrated.

KEPI performance in Kilifi has been considered high over the past several years. Currently it is estimated that 60% of children are fully immunized. However, the DMOH and the Acting DPHN noted that Kilifi is falling far short of its monthly targets for fully immunized children, e.g., only 49 out of 200 in January 1992. They believe that this is due both to missed opportunities, especially failure to vaccinate sick children, and the mobility of the population. There are no real seasonal disruptions in provision of services, but utilization falls during planting and harvesting seasons.

The DMOH and Acting DPHN expressed interest and openness in participating in the MI and were receptive to the idea of having a coverage survey conducted in Kilifi. They realized that this would be either a first step toward further MI activities or as an isolated event should MI activities continue as planned in Kisumu and Siaya.

The Kenya Medical Research Institute (KEMRI) maintains a research facility in Kilifi which has concentrated on malaria epidemiology but which also maintains a detailed database on inpatient admissions. While KEMRI is not conducting any activities specifically pertaining to measles, the information contained in that database could perhaps provide useful information for MI purposes.

5. Social Marketing

Systematic public health communications/social marketing which use mass media and print materials, in coordination with improved face-to-face communications, have been demonstrated to increase coverage and reduce drop-out rates in immunization programs. The pre-planning health facilities assessment and formative research will assess what communication strategies, channels, and messages can be appropriately and effectively utilized to support the MI and overall KEPI goals.

KEPI has a full-time health educator, as well as the full-time REACH communications and social mobilization advisor. KEPI will be developing a five-year plan for information, education, and communications during May 1992. KEPI has already produced several communications materials including a logo, health facility posters, and a booklet, "Communication Reminders for Health Workers." The program is presently producing three radio spots in eight languages which will begin broadcast in April 1992. However, these have not necessarily been designed based on formative research or pre-tested with target audiences. KEPI is currently undertaking formative research, similar to that proposed in the MI plan, in South Nyanza district which will lead to a communications strategy for that district.

The child to child school immunization project was a more systematic communication activity and utilized a variety of print materials, including a flyer, a handbook, and promotional posters to involve schoolchildren in reducing drop-out rates. The evaluations of that project indicated that managerially and logistically, it did not reach its objectives. However, it did demonstrate that children can be a credible source of information on health messages.

The development and production of most KEPI communication materials have been funded by UNICEF.

a. Mass Media

All radio transmissions are under the control of the Kenya Broadcasting Corporation (KBC), a parastatal company that is fully owned by the Government of Kenya. The KBC National Service channel broadcasts in Kiswahili, while the General Service channel broadcasts in English. The cost of radio time on these two channels is among the most expensive in the developing world. A 30-second spot costs KSh 3,600 to be broadcast (U.S.\$ 120 at the current rate of approximately KSh 30 per U.S. dollar). There are three regional services - Central, Eastern, and Western - which broadcast in local languages. Radio time on these channels is significantly less expensive than on the national channels; 1990 prices for the broadcast of a 30-second spot were KSh 670 (U.S. \$22.34). Radio ownership is reportedly high: the 1992 State of the World's Children Report from UNICEF reports 91% ownership, although the 1990 Kenyan Advertisers Guide reports 69%. As mentioned earlier, the coverage surveys in Siaya and Kisumu indicate that an average of 66% of mothers listen to radio at least weekly. This indicates that radio could be an appropriate channel for the MI project.

There are two television channels - the long-established KBC and KTN 62 (Kenyan Television Network) launched in 1990 by the Kenya Times Media Trust, Ltd., which broadcasts in English. However, television ownership in Kenya is reportedly relatively low (6% in the 1992 "State of the World's Children") and primarily in urban areas. Interestingly, there is little difference in the cost of air time on television and radio, perhaps because of the higher coverage radio can provide.

There are five daily newspapers, two weekly newspapers, one weekly magazine, and

approximately 65 monthly or periodical magazines published in Kenya. However, a review of the Steadman and Associates "Advertisers Guide" for 1990 indicates that these are read primarily by specific urban, literate audiences, and probably will not be appropriate channels for this project.

b. Print materials

Literacy rates in Kenya amongst women are 59% and 80% amongst men, according to State of the World's Children. There is a wide variety of print material design and production capacity within Kenya. Cost is relatively high, however, and any print materials produced for the project should be carefully selected to ensure that they are playing a key role in the communication strategy.

c. Marketing, publicity, and marketing research

There is also a wide variety of marketing and marketing research firms in Kenya which could be used by the project to design materials. The Health Education Unit in the Ministry of Health reportedly has limited design capacity; however, recent KEPI print materials have been designed by a UNICEF artist.

A complete description of Kenyan marketing, marketing research, print, and mass media was too long to include in this report, but is available from the HEALTHCOM project.

6. Training.

KEPI supports in-service training courses in the different provinces. KEPI allocates financial resources to the rural health training centers which organize and provide the training. The number of courses given per year in a province is determined by the demonstrated need for training in that area.

There are four levels of in-service training courses:

- a. Management and planning training. This is organized and provided by WHO for members of the KEPI Management Unit and others acting in a management capacity.
- b. Mid-level training is arranged by KEPI and uses WHO materials. This course is designed to address the managerial and administrative needs of trainers and supervisors at the district and provincial levels. Participants usually include supervisors and members of the District Health Management Teams. The duration of the course is two weeks.
- c. Operational-level training. This course is targeted towards health workers who actually provide vaccination at the rural health facilities and MCH divisions within hospitals. Participants in this five-day course include clinical officers, family health field educators, nutrition and family planning technicians, and statistical clerks. The course uses the KEPI manual.
- d. Cold chain maintenance course. The course has two levels: a one week course for supervisors and trainers and a three-day course for health workers in rural facilities. The course trains how to maintain a cold chain and how to repair refrigerators and freezers.

Training of CHWs is organized and provided at the district level and is not part of the KEPI in-service training curriculum. Findings from the rapid training assessment survey indicated that there is a need to improve the selection process of trainees and revise the current content and methods of training within KEPI. Evaluation procedures for trainee performance were also identified as needed in the KEPI training.

Other donor organizations and NGOs provide training courses in the various districts. UNICEF sponsors a series of district level courses to health workers and community health workers using WHO materials. A plan to train 30 health workers in KEPI operations and cold chain management, training of trainers, and training in management is scheduled for 1992-93.

Other key donors such as the SIDA sponsor continuing education programs of health staff in various districts.

VI. CONCLUSIONS

Based on the findings of this visit, the assessment team developed a general workplan for MI to cover the time period from April 1992 to September 1993 (Appendix E).

A. GUIDING PRINCIPLES

Several general philosophies guided the development of the workplan. Although there were questions about administration and funding, the team found similarities in the approaches and processes that REACH, HealthCom, and the QA Project contribute to the Measles Initiative. These similarities facilitate the planning process and should contribute to the success of the initiative:

1. A commitment to incorporating the most current technical knowledge on measles control into the Kenyan Measles Initiative project.
2. Programmatic decisions should be made based on research conducted throughout the project.
3. A focus on improving health worker performance and mothers' behaviors, as well as changing knowledge.
4. A commitment to conducting on-going monitoring, which feeds into continuous improvement of project activities, as well as evaluation.
5. A phased implementation process which tests strategies, concepts and materials before expanding them to larger populations.
6. A commitment that Measles Initiative project activities should be conducted in such a way as to lay the groundwork for long-term impact and should be integrated as much as possible into on-going KEPI activities.

B. CONSTRAINTS

The MI team also recognized that several conditions exist which may impede the progress of the MI and constrain its impact. The team felt that these should be identified at the outset of project design so that they can be taken into account in planning. They include the following.

1. Measles Initiative project activities may duplicate or overlap with other activities and donors.
2. The short time-span of the project limits the impact the project may have on immunization coverage and disease incidence.
3. National elections are expected to be called in early 1993; these may disrupt or delay project activities.

4. KEPI financing is presently being reviewed. If it is reduced, it is likely that vaccine will be purchased instead of other commodities, such as the child health card, petrol and gasoline for the cold chain, and supervision. Supervision is already suffering. In 1990, there was no supervision conducted from the central to the district levels.
5. There are competing demands for other priority programs within primary health care. This is particularly true of malaria in the Siaya and Kisumu districts.
6. Control of MI activities must be considered within their context. There will be some factors affecting measles coverage that the MI has no control over, such as shortages of essential drugs and the large scale economic problems causing those shortages.
7. KEPI staff, especially at the central level, have serious time constraints with regard to working specifically on the Measles Initiative.
8. Measles Initiative project staff and consultants will not have the authority to direct or implement Ministry of Health activities and personnel. For example, it may be difficult to change the training curriculum, techniques, and materials.

C. General Considerations

Given the results of the coverage surveys and the findings from other sources, the overall focus of the planned MI activities will be on the reduction of drop--out rates and the completion of the vaccination schedule. These are areas that are relevant both to the control of measles in particular and to the strengthening of EPI in general. The reasons for failure to complete the vaccination series will be explored in each district through qualitative research involving mothers, health workers, and other key populations. Messages and materials will be developed based on this research to stimulate demand for measles vaccination and full protection of the child.

Inadequacies within the health system itself will be investigated and small-scale operational studies to trace defaulters, identify high risk areas, and utilize every opportunity to immunize the child against measles will be undertaken. A contingency district will be selected for MI activities, given the possibility of disruptions in the two target districts. A likely candidate district is Kilifi, which, despite previous good performance in KEPI, continues to suffer high rates of infant mortality and could benefit from improvements in services. Experience will also be taken into account from those districts in Kenya that have managed to overcome some of the same obstacles faced by the DHMTs in Kisumu and Siaya.

Given the short duration of the project, the MI will focus on developing, testing, refining, and implementing a few key interventions that are replicable in other non-focus districts rather than taking on a broad range of highly specialized activities. In addition, some small scale operations research will be carried out on such measles-specific activities as piloting the use of a two dose schedule and introducing the use of vitamin A for measles cases.

A concern voiced by the KEPI Manager was that local Kenyan counterpart staff to the MI be engaged as fully as possible in carrying out MI activities. This is both to facilitate an immediate transfer of technical skills to local staff and to try to integrate MI interventions into existing KEPI activities in as sustainable a way as possible, avoiding continued dependence on outside expertise. He pointed out that the Measles Task Force, which served as the organizing committee for the national measles workshop, plans to continue its existence beyond the workshop and its members could be involved in MI implementation.

VII. FOLLOW UP ACTIONS

1. The MI team will present the draft workplan for comments to the Kenyan MOH, USAID/Nairobi, A.I.D./Washington, and REACH, HealthCom, and the QA Project.
2. The MI projects will finalize the workplan and secure approvals from necessary parties.
3. REACH will work with KEPI to incorporate MI planned activities for Kenya into the KEPI five-year plan of operations, currently under development.
4. The MI projects will work with KEPI to confirm a third "contingency" district for MI activities and a "model district".
5. REACH will hire a Measles Technical Officer (MTO) and arrange for the MTO to visit Washington, D.C. for orientation with REACH/Washington, A.I.D./Office of Health, HealthCom, and the QA Project.
6. REACH will hire a Technical Coordinator whose duties will include assistance in the Nairobi-based management of the MI in Kenya.
7. REACH will purchase a vehicle for Measles Technical Officer (MTO) and make other other necessary arrangements for installing the MTO in Kisumu.
8. MI projects will maintain contact with USAID/Nairobi and REACH/Nairobi in arranging immediate follow up visits to this assessment visit.
9. REACH will provide continuity from the national measles workshop in April 1992 to the MI, ensuring that key elements of national policy and strategy for measles control are addressed in MI activities.

Appendix A

Persons Contacted

Ministry of Health and KEPI Management Unit, Nairobi

Dr. F. Muu, Manager, KEPI
Mr. S. Kamau, Logistics Officer, KEPI
Mrs. Mwangi, Training Officer, KEPI
Ms. Jane Wanza, Data Management Officer, KEPI
Mr. Harold Kodo, Health Education Officer, KEPI
Ms. Emmah Kariuki, Data Entry Clerk, KEPI and HIS
Dr. D. Mutie, Director, Division of Family Health

KEPI/District

Dr. F. Owino, District Medical Officer of Health, Kisumu District
Ms. G. Olang, District Public Health Nurse, Kisumu District
Mrs. Lidambitsa, Public Health Nurse, Kisumu District
Ms. Christine Otieno, HIS Division, Kisumu District
Mr. Odera, District Public Health Nurse, Siaya District
Mr. Audi, District Health Education Officer, Siaya District
Mr. John Okoth
Mr. Patrick Okoth | surveyors in health
Mr. Charles Oduor | facility assessment, Kisumu
Ms. Priscilla Ogila

Ms. Millicent Achieng
Ms. Margaret Ogunda
Mr. Maurice Achapa-Opiya
Mr. Peter Okello | trainees from Siaya for
health facility assessment

Mr. J. Tolo, Clinic Officer, Chulaimbo Rural Health Training Center, Kisumu
Mr. Mmembe, Public Health Nurse, Chulaimbo Rural Health Training Center
Dr. Munyeri, District Medical Officer of Health, Meru
Mrs. Muriithi, District Public Health Nurse, Meru
Dr. Kahindi, District Medical Officer of Health, Kilifi
Mrs. Vinya, Acting District Public Health Nurse, Kilifi

REACH/Nairobi

Ms. Grace Kagonda, REACH/KEPI Communications Advisor
Ms. Ruth Agin, Administrative Assistant
Mr. George Kibe, Office Assistant

USAID/Nairobi

Ms. Connie Johnson, Health Officer, OHPN
Mr. David Oot, Chief Health, Population, Nutrition Officer, OHPN
Ms. Kate Colson, International Development Intern, OHPN

UNICEF/Nairobi

Mr. Vincent O'Reilly, Country Representative
Mr. David Alnwick, Senior Project Officer for Health and Nutrition
Dr. Josephine Ojiambo, Project Officer, EPI

DANIDA

Mr. Per Milde, Senior Management Advisor to KEPI
Mr. Henning Frotlund, Country Representative

SIDA

Ms. Maria Nordenfelt, Senior Program Officer

Development Solutions for Africa

Dr. Ronald Schwarz, Director
Ms. Debbie Gachuhi, Chief Program Officer, Education and Training

Program for Appropriate Technology in Health

Ms. Kathleen Sebastian, Country Representative
Ms. Lynne Cogswell, Program Officer for Communications
Ms. Lorna Ng'ang'a, Program Associate
Mr. George Kahuthia, Research Associate

AMREF

Ms. Joyce Naisho, Deputy Director, Family Health Unit

PRITECH

Ms. Karen Blyth, Country Representative
Mr. Seth On'guti, Communications Advisor (AED)
Dr. Larry Cassaza, Medical Advisor, PRITECH/Washington

JSI/Nairobi

Dr. Melinda Wilson, Family Planning Private Sector Project
Mr. John Wilson, Family Planning Logistics Management Project
Ms. Mary Ibutu, Family Planning Private Sector Project

Others

Mr. Nicholas Dondi, Consultant in communications research
Mr. John Wahlund, Technical Specialist, Rotary International Foundation
Sr. Leonella, Nurse in Charge, Consolata Hospital Nkubu, Meru
Dr. Peshu, Kenya Medical Research Institute, Kilifi

APPENDIX B
FACILITY ASSESSMENT INSTRUMENTS

**IMMUNIZATION FACILITY ASSESSMENT: KENYA 1992
OBSERVATION CHECKLIST**

TAKE HISTORY/DO EXAMINATION:

- | | | |
|---|---|---|
| 1. Is this the child's first visit? | Y | N |
| 2. How was age screening done? | | |
| 1. child immunization card checked | | |
| 2. ask mother about age of child | | |
| 3. Did HW check mother's immunization status? | Y | N |
| 4. Does mother have a card for child? | Y | N |
| 5. Did HW refuse child immunization because mother has no card? | Y | N |
| 6. How did HW respond to mother with no card is: | | |
| 1. asked her to bring card next time | | |
| 2. verbally criticized mother | | |
| 3. no response | | |
| 4. HW gave mother another card | | |
| 5. other | | |
| 7. Did HW refuse child immunization because: | | |
| 1. child ill | | |
| 2. vaccine not available | | |
| 3. sterile needles/syringes not available | | |
| 4. other _____ | | |

TECHNIQUE:

- | | | |
|---|---|---|
| 8. Does health worker: | | |
| 8.1 Use different needle for each injection? | Y | N |
| 8.2 Use different syringe for each injection? | Y | N |
| 8.3 Was "health facility" immunization record completed with each immunization? | Y | N |

COUNSELING:

- 9. Did
 - 9.1 purpose of immunization
 - 9.2 possibility of side effects?
 - 9.3 need for subsequent visits?
 - 9.4 when to come back for next doses?
 - 9.5 safe keeping of immunization cards?

| | HW gives Information | Mother Repeats In |
|--|----------------------|-------------------|
| 9.1 | Y | N |
| 9.2 | Y | N |
| 9.3 | Y | N |
| 9.4 | Y | N |
| 9.5 | Y | N |
| 10. Did HW smile at the mother/baby? | Y | N |
| 11. Did HW say something positive to the mother? | Y | N |
| 12. Did HW use polite phrases/behavior in talking to mother? | Y | N |

Health Center: _____

Region:

- _____ Siaya
- _____ Kisumu

Observer: _____

Date: ___ day/ ___ month/ 1992

IMMUNIZATION FACILITY ASSESSMENT: KENYA 1992
EXIT INTERVIEW

-
1. Where do you live? _____
 2. How long did it take you to come here today? _____
 3. What disease will the child's immunization today protect against?
 _____ May I see your record? _____
 1. knows
 2. does not know

4. Is date of birth recorded on card? Y N

5. Did child receive today all vaccination for which he/she is eligible?

(Check the card and the attached form before answering this question)

6. Did the HW tell you when to return for the next immunization? Y N

7. When will you bring back your child for immunization? (check record)

1. mother knows correct time
2. mother does not know correct time
3. not applicable (in case of last vaccine)

8. Is immunization card filled correctly? (birth date, date of immunization, vaccine given) Y N

9. Are you satisfied with:

- | | | |
|--|---|---|
| 9.1 the waiting time to see the health worker | Y | N |
| 9.2 the distance you have to travel to get to clinic | Y | N |
| 9.3 attitude of the HW | Y | N |
| 9.4 treatment that your child got | Y | N |
| 9.5 the information that HW has given you | Y | N |

Is there anything else you were not satisfied with today?

Health Center: _____ Region: Siaya /Kisumu

Interviewer: _____

**Identify Missed Opportunities
Child's Questionnaire**

1. What is your child's age or date of birth?

date of birth:

If the child is less than 2 years old, go to question 2.

If the child is more than 2 years old, go to the women's questionnaire.

____ day ____ month ____ year

4B. Which immunizations has your child received? (Tick each dose mother says child received, and record approximate date below.)

| Vaccine | If card available, record: | | | If card not available, record each reported dose and approximate date | Doses missed today |
|----------|----------------------------|-------|------|---|--------------------|
| | Day | Month | Year | | |
| BCG | | | | | |
| OPV Zero | | | | | |
| OPV 1 | | | | | |
| OPV 2 | | | | | |
| OPV 3 | | | | | |
| DPT 1 | | | | | |
| DPT 2 | | | | | |
| DPT 3 | | | | | |
| Measles | | | | | |

5. Decide: Did the child receive all the immunizations for which he or she was eligible today? _____ YES _____ NO

If YES, go to question 7, and mark NO missed opportunity. If NO, go to question 6.

6. Your child was eligible to receive an immunization today. Do you know any reason why your child did not receive the immunization?

Listen to the mother's reply. If her answer is listed in the first column, mark it. If she reports any other reason, write it down in the second column.

| Column 1 | Column 2 |
|---|--|
| <input type="checkbox"/> Child has clinical AIDS <input type="checkbox"/> Child had severe reaction to previous dose of DPT <input type="checkbox"/> Child is being admitted to hospital <input type="checkbox"/> Mother declined immunization which was offered because: _____ | OTHER REASONS: _____ _____ _____ |
| <i>If any answers are marked in this column, go to question 7. Mark NO missed opportunity.</i> | <i>If any answers are marked in this column, go to question 7. Mark YES. There was a missed opportunity.</i> |

7. Was there a missed opportunity? YES _____ NO

If YES, ask the mother to go back to the health worker to receive the immunization

If NO, go to women's questionnaire, if any women have accompanied this child

ANSWER ANY QUESTIONS THE RESPONDENTS MAY HAVE ABOUT IMMUNIZATION. THANK THEM FOR THEIR COOPERATION.

IMMUNIZATION TARGETS AND STRATEGIES:KENYA 1992
RECORD REVIEW

1. Is a vaccine inventory log kept?

1. no
2. yes, up-to-date
3. yes, not up-to-date

Surveillance:

- | | | |
|---|---|---|
| 2. Is one person responsible for disease reporting and recording? | Y | N |
| 3. Are forms available for reporting diseases? | Y | N |
| 4. Are there standard written definitions for EPI diseases? | Y | N |

Review disease reporting form

- | | | |
|--|---|---|
| 5. Do you get feedback from district level about how to use surveillance data? | Y | N |
| 6. Are age and vaccination status reported along with cases of disease? | Y | N |

Immunization Coverage:

- | | | |
|--|---|---|
| 7. Do health center records show the number of immunizations performed by first, second, and third dose? | Y | N |
| 8. Has the health center staff calculated coverage figure by target group and dose? | Y | N |

DPT3 - # measles
_____ * 100 =
#DPT3

#BCG - # measles
_____ * 100 =
#BCG

Health Center: _____

Region:

___ Fixed
___ Outreach

___ Siyaya
___ Kisoumu

Observer/Interviewer: _____

Date: ___ day/___ month/ 1992

IMMUNIZATION SCHEDULE, TARGETS AND STRATEGIES
PROVIDER INTERVIEW

Schedule:

1. Ask Medical Officer about immunization schedule
2. When do you immunize for: (ask different health workers, if available)

| | |
|------|---|
| HW1: | BCG (soon after birth) |
| HW2: | DPT and OPV (3 doses, 4 weeks, apart start at age of 6 weeks) |
| HW3: | Measles (soon after age of 9 mon.) |
| HW4: | TT (2 doses, 4 weeks apart) |

3. Do staff's understanding of target/age and number of doses correspond to policy? Y N
If so, what are they? _____

Targets/Coverage:

4. Does center have immunization targets for the year? Y N
5. Are numbers of immunizations performed routinely compared with the number of newborns? Y N
(Review Against Policy) _____

6. Is there a system for following up on dropouts? Y N
Describe _____

7. Is there a plan to learn of new children in the area who should enter the immunization program? (vital registry, community health volunteers) Y N
Describe _____

8. Is it the national policy to use:

1. reusable needles and syringes
2. disposables needles and syringes

9. What do you do with needles/syringes at end of each session?
Please describe process?

10. Is the process considered sterilized?

1. proper sterilization
2. improper sterilization

11. What are the problems you face in this process?

12. Are there enough syringes for the immunization session?

Y

N

13. Are there enough needles for the immunization session?

Y

N

14. Are there a line listing of individual children?
How is it used? _____

Management/Supervision:

15. Has the program stopped for lack of vaccines,
or other supplies in the last 12 months?

Y

N

16. How many supervisory visits have there been in the last
three months to this health center? _____

17. When supervisor is in clinic, does he/she:

1. observe you perform immunization?
2. listen to EPI counseling?
3. listen to EPI education session?

18. Did you plan any EPI activities in the last 12 months
Which you have not been able to carry out?

Y

N

If not, why? _____

Community Participation:

- | | | |
|---|---|---|
| 19. Are community outreach sessions scheduled in consultation with community leaders? If yes, describe _____ _____ _____ | Y | N |
| 20. Are volunteers assisting with health center activities? If yes, specify _____ _____ _____ | Y | N |
| 21. Does community help in identifying children and women who are eligible for immunization? | Y | N |
| 22. Does the community support the health center with cash or labor? | Y | N |
| 23. Describe supervision of community HW (by whom, frequency, use of checklists, problem encounter) _____ | Y | N |

Health Center: _____

Region:

Fixed
 Outreach

Siyaya
 Kisoumu

Observer/Interviewer: _____

Date: ___ day/___ month/ 1992

REGION/DISTRICT _____

- | | YES | NO |
|---|-------|-----|
| 7.4 Are the refridgerators and freezers in working order? | () | () |
| 7.5 Is there a thermometer in the refridgerator? | () | () |
| 7.6 What is the temperature on the day of the visit? | _____ | C |
| 7.7 Has DPT or TT vaccine been frozen? | () | () |
| 7.8 Is any of the vaccine in stock expired? | () | () |
| 7.9 Are vaccine stock registers maintained? | () | () |
| 7.10 Are vaccines over- or understocked? | () | () |
| 7.11 Are there frozen icepacks in the refridgerator? | () | () |
| 7.12 Are other supplies over- or understocked? | | |
| syringes? | () | () |
| needles? | () | () |
| immunization cards? | () | () |
| fuel? | () | () |
| refridgerator spare parts? | () | () |
| 7.13 Are the following in good working order? | | |
| sterilizer? | () | () |
| cold boxes? | () | () |
| vaccine carriers? | () | () |
| cold packs? | () | () |
| thermometers? | () | () |
| 7.14 Has the programme stopped for lack of vaccine or diluent in the last 12 months? | () | () |
| 7.15 Was the vaccine supply received in the HC transported satisfactorily? (if observed) | () | () |
| 7.16 Was the vaccine supplied to outreach centres transported satisfactorily? (if observed) | () | () |
| 7.17 Are cold chain monitors in use? | () | () |
| 7.18 Are they correctly filled in for last shipment? | () | () |

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APPENDIX C

LIST OF DOCUMENTS/REPORTS REVIEWED

1. A Rapid Assessment of the Impact of KEPI Training, Development Solutions for Africa, Ltd.; September 1991.
2. Kenya, Demographic and Health Survey, 1989, Demographic and Health Surveys, Institute for Resource Development/Macro Systems, Inc.
3. Joint Appraisal/Pre-Appraisal of Kenya Expanded Programme on Immunization (Draft), Ministry of Foreign Affairs - DANIDA, January 1992.
4. Kenya Expanded Programme on Immunization (KEPI), Report on the Organization and Management Study Including the Cold Chain, Department of International Development and Cooperation - DANIDA, January 1991.
5. KEPI Manual, draft from 1991.
6. A Guide for Managing MCH/FP Activities at District Level, Ministry of Health, Kenya-Devison of Family Health/GTZ.
7. EPI Plans, Kisumu District, 1992. UNICEF. (DRAFT)
8. KEPI Operational Level Training for Health Workers in Kenya, Ministry of Health, Kenya, 1982, reprinted August 1988.
9. "Immunization Coverage in Kenya, 1987", East African Medical Journal, 1988, P. Bjerregaard and D.M. Mutie.
10. "Child to Child Schools Immunization Project - Report of the Evaluation Workshop", Kenya Expanded Programme on Immunization/REACH, September 1991.
11. "Child to Child Schools Immunization Promotion Project, Evaluation Report of the Pilot Project in Siaya District, Kenya", Grace Kagondou, KEPI/REACH, KEPI in coordination with UNICEF and REACH.
12. "Immunization Project in Siaya District, Kenya", Harold M. Kodo, 1991, KEPI.
13. CDD/Nutrition Communication Intervention to Improve Home Management of Diarrhoea", Academy for Educational Development, 1991, Nairobi and Mombasa, Kenya.
14. "The Advertisers Guide", Steadman and Associates, 1990.
15. Draft Guidelines for EPI Programme Managers to Reach the 1995 Measles Control Targets", World Health Organization/Expanded Programme on Immunization, 1991.
16. "Assessment of Immunization Services and Coverage in Nairobi, Preliminary Summary Report", Dr. V.A. Orinda and G. Kimani, Nairobi City Commission/KEPI/UNICEF, 1989.
17. "Measles Initiative: Initial Planning Visit, Kenya (Draft)", Robert Clay, Stewart Blumenfeld, Robert Steinglass, Caby Verzosa, January 14-18, 1992.

18. "Technical Support for the Measles Initiative and for the REACH Buy-in to Kenya", Robert Steinglass, REACH, 27-31 January 1992.
19. "Maternal and child health in an ethnomedical perspective: traditional and modern medicine in coastal Kenya", J. Ties Boerma and Mohammed Salim Baya, Health Policy and Planning, 1990.
20. "Community Financing of Primary Health Care in Kisumu District - A Case Study of the Bamako Initiative in Kenya", UNICEF/Nairobi, June 1991.
21. "Kenya Expanded Programme on Immunization Programme Review, 1989", DANIDA, August 1989.
22. "Organization and Supervision of Immunization Coverage Surveys in Kisumu and Siaya Districts (draft)", Mary Harvey, REACH, February 19-March 11, 1992.
23. "Technical Assistance to KEPI's Management Information System", David Boyd, REACH, January 20-24, 1992.
24. Coverage survey in South Nyanza, February 1992, preliminary report, UNICEF/Nairobi.

APPENDIX D
ADVERTISEMENT FOR MEASLES TECHNICAL OFFICER

37

Diploma or degree holder in Textile Chemistry with at least ten years experience of dyeing of following fibres:

Wool, Acrylic, Polyester, Viscose.

OFFICER - Finishing Department

Diploma or degree holder in Textile Chemistry with at least ten years experience in finishing or Polyester/Viscose and Polyester/Wool Suiting Fabrics.

OFFICER - Sulzer Weaving Department

Diploma or degree holder in Textile Technology with at least ten years experience in maintenance of Sulzer Looms.

OFFICER - Spinning Department

Diploma or degree holder in Textile Technology with at least ten years experience in Short Staple Spinning Department.

All positions offer attractive, competitive terms and conditions commensurate with qualifications and experience. All positions also offer excellent growth opportunities for the right candidates.

Applicants should write enclosing detailed CV including age, experience, present position, current remuneration and day and evening telephone numbers to:

DN.A/2472,
P.O. Box 49010,
NAIROBI.

Closing date: April 6, 1992.



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Referring to the respective divisional managers, the successful candidates will be expected to generate new business and service existing clients.

The ideal candidates will be at least 27 years old, suitably qualified in engineering, have a driving licence and at least two years experience in a similar capacity. These are challenging and demanding positions and will attract energetic and self-motivated engineers with a proven track record in sales of electronic capital goods.

An attractive remuneration package linked to performance will be negotiated with the successful candidates.

Applications including a C.V, copies of relevant certificates and a day time telephone contact are to be addressed to:

The General Manager,
Wilken Telecommunications Limited,
Wilson Airport,
P.O. Box 49428,
NAIROBI,

reach him not later than 20.3.1992.

Written applications accompanied by copies of certificates and testimonials with curriculum vitae, giving details of current employment and remuneration package with day time telephone contact should be addressed in confidence to:

The Principal,
Kenya Utalii College,
P.O. Box 31052,
NAIROBI,

so as to reach him not later than 31st March, 1992.
NOTE: Only applications meeting the minimum requirements will be acknowledged.

MEASLES TECHNICAL OFFICER

The agency for International Development (A.I.D.), in co-operation with the Ministry of Health and the Kenya Expanded Programme on Immunisation (KEPI), is launching a new initiative to increase measles control efforts in Kenya. This new Measles Initiative (MI) will be supported collaboratively by three A.I.D.-funded projects specialising in immunisation, communications and quality assurance of health services. Of these, the Resources for Child Health (REACH) project, specialising in immunisation, will be the lead agency responsible for project implementation and overall technical management.

The position of Measles Technical Officer is a full-time, newly-increased post to support and implement the MI. The post will be situated in Kisumu and will carry responsibility for measles control efforts in Kisumu and Siaya districts. The Measles Technical Officer will be considered a member of both the District Health Management Teams in the two districts and also of the KEPI management unit in Nairobi. The position begins immediately and will continue through September 30, 1993. Candidates should possess the following qualifications:

- o Kenyan nationality;
- o Training at university level (and preferably at Masters level) in relevant disciplines, such as public health or preventive medicine;
- o Five years of continuous recent experience in immunisation services, including at least three years at district level in Kenya will be considered;
- o Willingness to be based in Kisumu with frequent field travel to Siaya District and occasional travel to Nairobi or elsewhere;
- o Proven written and communications skills will be a prerequisite.

The successful applicant will be an energetic mid-career man or woman eager for the kind of challenge and national or international exposure that such a job can bring. He/she will possess the personal authority required to deal on policy and technical issues. He/she will be self-motivated, innovative, a team player able to instil team spirit, and able to interact with the donor community.

The position is open to any Kenyan without regard for race, sex, and religion. Salary is commensurate with experience. Competitive package of benefits offered. Interested individuals should send C. V. and cover letter to arrive by 20th March to:

DN.A/2466,
P.O. Box 49010,
NAIROBI.

Interviews will be held in Nairobi the week of 23rd March.

APPENDIX E
MEASLES INITIATIVE WORKPLAN (DRAFT)

**MEASLES INITIATIVE
DRAFT WORKPLAN
FOR KENYA**

APRIL, 1992

**Prepared in cooperation with the
Kenya Expanded Programme on Immunization (KEPI)**

by

**Rebecca Fields, M.P.H.
Senior Technical Officer**

**Elizabeth Booth, M.A.
Consultant**

**Nadwa Rafeh, Ph.D.
Scientist**

**Resources for Child Health (REACH) Project
A.I.D. Contract No. DPE-**

**Communication for Child Survival (HealthCom)
A.I.D. Contract No.**

**Quality Assurance (QA) Project
A.I.D. Contract No.**

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I. INTRODUCTION AND BACKGROUND TO MEASLES INITIATIVE

In 1990, the U.S. Agency for International Development (A.I.D.) affirmed its commitment to reducing the morbidity and mortality due to measles of African children. The following year this commitment was realized through a decision by the Office of Health, Bureau for Research and Development, to allocate funds for measles control in three countries in sub-Saharan Africa.

The Measles Initiative (MI) was structured to provide for collaborative technical assistance from three centrally-funded projects: the Resources for Child Health (REACH) Project, the Quality Assurance Project (QAP), and HealthCom. In each country selected for MI activity, one of the three projects was to be designated as a lead project and assume primary responsibility for project management within the country, including hiring of local technical staff to implement MI activities. The MI is currently funded to operate from late 1991 through September 30, 1993.

In January 1992, representatives from the Office of Health and the three projects met with officials from USAID/Nairobi and the Kenyan Ministry of Health (MOH) and the Kenya Expanded Programme on Immunization (KEPI) to explore interest on the part of the Government of Kenya (GOK) in the MI and to conduct preliminary discussions of the elements and terms of the MI. During the visit, it was determined that Kenya would become one of the countries selected for MI activities, along with Niger and Burkina Faso. A memorandum of understanding was drafted that proposed the responsibilities of the MI team, the MOH, and A.I.D. and a general timeframe for activity was discussed. It was also decided that REACH would be the lead project and that MI activities would be focused in one or two districts of the country.

The districts selected were Kisumu and Siaya in Nyanza Province. Criteria for selection of the two districts included relatively low rates of measles vaccination coverage, high drop out rates, high population density, good access to services, and good district management of health services.

This document adds to the draft memorandum of understanding by incorporating findings from documents and discussions conducted during an MI assessment visit in March 1992 and proposes a workplan for MI activities through September 1993.

II. STRATEGIES FOR MEASLES CONTROL

Globally, measles accounts for more childhood morbidity and mortality than all other EPI target diseases combined. The Expanded Programme on Immunization of the World Health Organization (WHO/EPI) has estimated that there were 29 million cases of measles in the developing world in 1990, and estimates of measles deaths for the same year range from 880,000 to 1.2 million. Approximately 2-4% of those infected in developing countries will die either of measles or its complications, particularly pneumonia and diarrheal dehydration. The ultimate toll of measles on child survival is far greater, however, as a history of measles infection increases a child's risk of dying from a variety of other causes over the course of several months following the measles episode. The younger the age of measles infection, the more pronounced is the effect of delayed mortality.

Virtually all children who survive to the age of measles infection contract the disease unless immunized against it. The World Bank recently rated measles immunization as the single most cost-effective primary health care intervention in environments of high child mortality.

In September 1990, the United States government joined dozens of other governments in signing the World Declaration on the Survival, Protection, and Development of Children and Plan of Action for Implementing the World Declaration. This document affirms earlier World Health Assembly

Goals of achieving "a 95% reduction in measles deaths and a 90% reduction in measles cases compared to pre-immunization levels by 1995, as a major step to the global eradication of measles in the longer run."

On a global level, these goals are to be realized through the attainment of the following major objectives by 1995:

- achievement of vaccination coverage levels of at least 90% by one year of age at the national, regional, and district levels;
- development of disease surveillance systems to provide timely reporting of measles from all districts; and
- reduction of case fatality rates to less than 1% in all countries.

For the most part, progress toward these goals and targets will require the overall strengthening of national immunization programs in general, rather than highly specialized activities that pertain to measles alone. To succeed in preventing measles, efforts to immunize will have to reduce drop out rates by offering high quality services that maintain demand, overcome cultural beliefs that may inhibit acceptance of measles vaccination, use every opportunity to vaccinate, provide immunization at the earliest eligible age, intensify efforts to vaccinate high risk groups, and ensure that only safe and effective vaccines are used.

The development and use of simple disease surveillance techniques will be essential to identify not only where and when cases happen, but also whether existing strategies are working as expected. If a high proportion of cases occur among those who have already been vaccinated, then the causes of vaccination failures need to be examined and program strategies revised accordingly.

Because immunization with currently used vaccines and schedules will not result in 100% protection against measles, the achievement of the measles mortality reduction goal will require that those cases that do occur do not progress to fatality. While no treatment per se exists for measles, WHO and UNICEF have jointly recommended that vitamin A be administered for severe measles cases as it has been demonstrated to mitigate the severity of the disease and reduce the risk of complications.

III. NATIONAL AND LOCAL CONTEXT FOR MEASLES CONTROL IN KENYA

A. Measles in Kenya

The Kenya Expanded Programme on Immunization (KEPI) was launched in 1980 and has been operational in all districts of the country since 1986. The program has succeeded in vaccinating almost three quarters of the population against all EPI diseases except measles, which lags behind. A nationwide coverage survey conducted in 1990 showed the following results.

| | <u>Documented vaccination coverage before one year</u> |
|----------|--|
| BCG | 80% |
| DPT3 | 73.5% |
| OPV3 | 70.5% |
| measles* | 58.6% |

* immunized over 7 months of age

A breakdown of measles immunization coverage by province indicates a range of 49.0% to 65.0%.

In early 1992, KEPI undertook a comprehensive exercise to define the magnitude and nature of measles in Kenya. Records from outpatient facilities and hospital admissions (district and some provincial hospitals only) in 38 districts, excluding Nairobi, indicated the following numbers of cases.

| | <u>Outpatient cases</u> | <u>Inpatient cases</u> |
|------|-------------------------|------------------------|
| 1989 | 88,247 | 7,767 |
| 1990 | 94,283 | 9,823 |
| 1991 | 83,160 | 5,953 |

Due to the difficulty of conclusively diagnosing a rash-like illness as measles and the fact that many consultations attributed to pneumonia or diarrheal diseases may have measles as an underlying cause, these figures underestimate measles incidence. If it is considered that all unimmunized children are at risk of contracting measles, then with nationwide measles coverage of roughly 58% in 1990, up to 475,000 infants under one year of age were at high risk of contracting the disease during that year.

WHO/EPI reported in 1991 that the case fatality rate for measles in Kenya was recently revised upward from 3% to 4%. Given the reported numbers of outpatient cases alone, this would indicate that well over 3000 Kenyan children have died during each of the past three years directly as a result of measles.

B. MOH Immunization Policies and Guidelines

According to the Government of Kenya's Development Plan for 1989-1993, immunization is the major preventive health activity for which the MOH takes direct responsibility. KEPI is situated within the Division of Family Health to promote integration with other primary health care programs, including Diarrheal Disease Control, Family Planning, and Nutrition. Immunization services are provided at almost 1300 fixed service delivery points throughout the country on a full time basis (8:00 a.m. to 5:00 p.m.) five days per week.

As of early 1992, KEPI is in the midst of preparing a five year plan of operation which will cover the years 1993-1997. The plan includes a district level focus on KEPI management, in line with the Government of Kenya's overall development policy. Some specific objectives cited in the draft dated October 1991 that pertain to measles control include:

- * "To increase and sustain the national immunization coverage as indicated from properly completed child health cards for children under one year of age for each antigen from the present level to at least 80% in all districts"; and
- * "To increase and sustain the national coverage as indicated from properly completed child health cards for children below the age of five for measles. In doing so, reduce the current measles cases by 90% and the current death rate from measles by 95%."

At present, there is no functioning technical advisory committee responsible for setting policy for the Division of Family Health. KEPI does not maintain a written set of policies pertaining to immunization in general or measles in particular. The de facto policies with regard to measles control are found in KEPI training materials. According to these materials, measles vaccination is

to be administered at nine months of age (revised from the previously recommended age of eight months). Health workers are instructed that measles vaccine should be withheld only for those critically ill children due for hospitalization; no other contraindications exist. Training materials specify that "it is important to give a measles immunization even if a child has a minor illness". The KEPI Operational Level Training Manual cites as important points to remember:

- o to give measles vaccine to children from 9 months onward, whether sick or well;
- o to immunize all children over 9 months who are admitted to the childrens' ward; and
- o that measles vaccine can be given at the same time with other vaccines.

Outside of KEPI, measles immunization is also cited as one of five strategies for preventing diarrheal disease, according to the Control of Diarrhoeal Disease (CDD) program Plan of Action of 1989/90 and 1990/91. In addition, measles immunization is described as a strategy for preventing acute lower respiratory infections in the national Acute Respiratory Infections (ARI) control program.

As of early 1992, no nationwide policy on vitamin A supplementation was in place and no directives had been issued regarding the provision of vitamin A for severe measles cases.

C. Measles Initiative in the National and District Context

The Measles Initiative is intended to support the national and district level management of KEPI by providing inputs to upgrade technical knowledge and help improve managerial skills. While the focus will be on measles control, the benefits of the MI should extend to EPI as a whole.

At the central level, it is anticipated that the MI will require input in terms of some technical advising and coordination from members of the KEPI Management Unit (MU). This will be to ensure that the MI takes into account the priorities and experience of the KEPI MU and works to augment, rather than compete with, national level immunization strategies. Specifically, the KEPI MU will provide inputs in terms of advising on matters of national policy, strategy, financing, and provision and distribution of supplies and equipment. The staff of the MI projects will coordinate with and solicit the input of appropriate members of the KEPI MU regarding the development of district-level interventions in such areas as training, data management, social mobilization, and logistics.

Actual implementation of the MI will directly involve the districts to a greater extent than the KEPI MU. The emphasis of most MI activities will be on improving measles coverage as a means by which to strengthen EPI management overall. The introduction of methods to reduce drop out rates, improve the quality of services, reduce missed opportunities, overcome resistance to immunization, and identify high risk pockets are especially important for measles, as the final antigen in the vaccination schedule, but clearly can provide benefits to EPI as an entire program.

The choice of Kisumu and Siaya as target districts for the MI emphasizes this approach. These districts were selected because they represent areas of high risk, based on their large populations and high population densities; high access to health facilities (based on DPT1 coverage); substantial drop out rate; large proportion of children not vaccinated against measles; and relatively low rate of measles immunization. In addition, their fairly high rates of routine reporting (over twice the national average) was taken as an indication of good management and an interest by the DHMT to actively support KEPI activities. As a first step toward a situation analysis in these two districts, three coverage surveys were conducted in Siaya, rural Kisumu, and urban Kisumu in February-March 1992. Some of the main results are presented in Table 1.

Because the MI is geared to respond to identified, district level needs, and because it seeks to actively involve the DHMTs in any program planning, this workplan is illustrative in nature pending an initial phase of problem identification and collection of background data to develop appropriate solutions.

Table 1. Vaccinations coverage levels* and related information, according to card and history, and by date of survey in Siaya, rural Kisumu, and municipal Kisumu, February-March 1992.

| Coverage | <u>Siaya</u> | <u>Rural Kisumu</u> | <u>Urban Kisumu</u> |
|---|--------------|---------------------|---------------------|
| BCG | 94.7% | 95.4% | 96.2% |
| OPV-0 | 84.2% | 76.5% | 75.0% |
| DPT1/OPV1 | 90.0/91.9% | 92.2/92.2% | 96.2/95.8% |
| DPT2/OPV2 | 88.0/87.1% | 87.1/87.1% | 85.8/85.8% |
| DPT3/OPV3 | 78.0/76.1% | 77.9/77.8% | 77.8/78.3% |
| Measles | 60.3% | 62.2% | 67.9% |
| Fully immunized | 56.9% | 57.1% | 67.0% |
| Program performance | | | |
| Access/Utilization (DPTC1) | 90.0% | 92.2% | 96.2% |
| DPT1-DPT3 drop out | 13.3% | 15.5% | 19.1% |
| DPT1-measles drop out | 33.0% | 32.5% | 29.4% |
| DPT3-measles drop out | 22.7% | 20.1% | 12.7% |
| Doses measles before 9 mo. | 22.9% | 20.6% | 18.2% |
| Valid doses** measles given before 1 year | 86.4% | 89.4% | 88.9% |
| Child health cards available | 77% | 75% | 75% |
| Sources of Service | | | |
| Hospital | 21% | 15% | 36% |
| Health center | 59% | 56% | 36% |
| Dispensary | 11% | 20% | 17% |
| Outreach | 6% | 2% | 5% |
| Private | 3% | 7% | 6% |

* Crude data, based on documentation or recall. Consideration of only valid, documented data greatly reduces estimates. (See REACH trip report of M. Harvey.)

** Valid doses are those given after 39 weeks (9 months) of age.

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IV. OBJECTIVES AND STRATEGIES

In light of both the generalized strategies described above for controlling measles (section II) and the specific findings from the coverage surveys in Kisumu and Siaya, the following general objectives and potential interventions have been identified for MI focus in Kenya.

A. Objective 1: Increase effective immunization coverage of measles

The control of measles will require that safe, effective vaccination is provided to Kenyan children in as timely a way as possible and in a manner such that services are acceptable to clients. To achieve this, a variety of strategies will be needed.

1. Key strategies
 - a. Decrease drop out rates among children.
 - b. Reduce missed opportunities for immunization.
 - c. Improve the quality of immunization service delivery.
 - d. Work towards assuring the safety and efficacy of measles vaccination.

Specific interventions for achieving the objectives will be designed based on the findings of the assessment surveys to be conducted in phase one of the project. These include: facility and community assessment, cold chain assessment, and existing coverage survey results. Interventions will be focused on those areas where improvements in the process can be expected and sustained. Lessons learned from these interventions should be available for expansion on a larger scale by KEPI.

2. Potential interventions
 - a. Decrease of drop-out rates.
 - i. Design activities to stimulate demand for measles vaccination based on research to gain an understanding as to reasons for both the acceptance of and obstacles to measles vaccination. Identify target populations and develop appropriate messages aimed toward each. Identify suitable communication channels, e.g., inter-personal communication, group meetings (barazas), mass media.
 - ii. Develop and/or improve process for identifying defaulters at the clinic level through the generation of systems to note those children who are eligible for measles vaccination but do not return to the health facility to receive it.
 - iii. Develop processes for tracing and retrieving defaulters. This may include promoting coordination between health facilities and representatives of the community such as community health workers, community leaders, public health technicians, field family health educators, midwives, schoolchildren, etc. Appropriate training of any such group will need to be provided in a coordinated fashion to take into account other priorities and responsibilities that such groups may already have. Systems will also need to be introduced to monitor the efficacy of using such groups.

- iv. Improve interpersonal communication between health workers and mothers. This may require the provision of in-service training in counseling skills. The purpose of such training will be to foster trust between the health worker and the mother and improve continuity of vaccination.
 - v. Improve specific aspects of the service delivery such as technical skills of health workers performance, logistics or supervision, using continuous quality improvement type solutions.
 - vi. Introduce job aids to help staff at the service delivery point understand the reasons for routine data collection so that they can identify trends and recognize when they are falling short of targets.
- b. Reduce missed opportunities for immunization.
- i. Develop strategies that will reduce false contraindications at the health facility level. This may include conducting research into reasons for health workers' failure to provide measles vaccination to children with minor illness as well as the revision of training materials and placement of emphasis on this issue during supervision visits. For example, exercises or role plays may be added to training materials to highlight the fact that vaccinators will not be penalized for giving measles vaccine to a child with minor illness.
 - ii. Improve the referral system for unvaccinated children to ensure that those children already at a health facility for a non-immunization service can still take advantage of EPI services. Health system obstacles to this approach should be minor since, according to MOH policy, EPI services are to be provided five full days per week.
 - iii. Operationalize existing policies for immunizing children upon admission to pediatric wards.
 - iv. Develop appropriate counseling and health education programs directed toward health workers to minimize missed opportunities.
- c. Improve safety and efficacy of vaccinations.
- i. Improve management and monitoring of the cold chain. In the event of a measles outbreak in a district targeted for MI activity, this may include conducting a rapid study of vaccine efficacy.
 - ii. Advise and assist as needed in minimizing obstacles within the logistics system to help assure that essential equipment is available at the right time and place and in sufficient quantity to support immunization services.
 - iii. Provide technical assistance as needed to promote proper sterilization and conduct of sterile technique during vaccination.
- d. Pilot test the use of a two dose schedule for measles vaccination.

A recent review of the age distribution of measles cases in Kenya showed that as many as 30% of measles cases may be occurring in the first nine months of life, i.e., before the age of measles vaccination. A two dose vaccination schedule, in which measles vaccine is provided at both 6 and 9 months of

age, is one strategy proposed by WHO/EPI as a means to reduce measles cases and high case fatality rates for measles. While the clinical efficacy of the two dose schedule has been demonstrated elsewhere, the operational issues have not been fully investigated recently.

A high level of interest in the two dose schedule was evident at the national measles workshop in April 1992. Workshop participants recommended that this schedule be pilot tested on a limited scale in an urban area such as Kisumu, where there is high risk of measles transmission at an early age. Appendix 1 contains further information on this topic and suggests an approach to a pilot study.

B. Objective 2. Improve disease surveillance

1. Strategies

- a. Identify cases of measles, including identification of high risk areas, populations, and seasonality of disease incidence.
- b. Classify cases of measles as to whether they are preventable or nonpreventable, given current policies and strategies.

2. Potential interventions

- a. Improve the reporting of cases and the use of data. This may include identification of a few key indicators to follow with respect to measles cases (e.g., age and vaccination status) and revision of reporting forms, and/or the designation of a few strategically important health facilities (e.g., district hospitals) from which more detailed information could be gathered.
- b. Develop, test, and implement methods for improving surveillance in the community. For example, if community health workers are trained to trace drop outs and urge caretakers to bring their children to health facilities for measles immunization, the CHWs could also be trained to identify and report any measles cases they encounter in the community to the closest health facility. This would aid in gaining a better understanding of when and where measles cases are occurring. While CHWs may be appropriate for this type of activity in some districts, other cadres (e.g., boy scouts and girl guides) may be more suitable in districts where a strong system of CHWs is not in place.

C. Objective 3. Improve case management of measles cases

1. Strategies

- a. decrease severity of disease and prevent onset of complications that may be fatal, e.g., pneumonia and diarrheal dehydration.

2. Potential Intervention

- a. Administration of vitamin A to children presenting with measles. While vitamin A does not cure measles, it has been demonstrated to lessen the severity of the disease and reduce the risk of dangerous complications. The MI could assist in introducing the administration of vitamin A to measles cases and evaluate some of the operational problems that may be attendant

to its introduction. Conversely, the possibility could be explored of using the provision of vitamin A as a means for promoting caretakers to bring infected children for treatment, thereby increasing the reporting of cases.

- b. Provide a prophylactic dose of vitamin A at the time of measles immunization. Vitamin A appears to have limited benefit before the age of six months; therefore, WHO/EPI does not recommend its administration at the time of BCG, DPT, or OPV vaccination. However, the contact with the health system at nine months of age for measles immunization provides an opportunity to give a prophylactic dose of vitamin A which helps the child withstand a variety of childhood infections, including measles. If the MOH were supportive of this use of vitamin A, the MI could examine some of the operation aspects of its introduction.

V. PROJECT DESCRIPTION

MI activities in Kenya will be carried out in a phased fashion to ensure that the justification for their implementation is based upon research, experience, and sound epidemiologic principles. Three major phases are envisioned during the one and one half years of the MI.

While most activities will be concentrated in Kisumu and Siaya, some activity will be undertaken in other districts as well. A third district will be selected as a contingency for the MI in the event that activities are interrupted in Kisumu and Siaya. Also, a "model district" with a record of high performance with regard to EPI management and measles control will be examined to see how that district has overcome obstacles and how its approaches might be replicated in other districts. The results of the national measles workshop in April 1992 may indicate some key policies or interventions for which the MI could provide assistance in implementation on a broad basis. This will depend on their nature, the resources required to implement them, and the priority that KEPI assigns to them. For example, large scale demand creation activities would not be appropriate if health facilities do not have the equipment and staff available to respond to that increased demand.

The first phase (Phase I) of the MI will be essentially diagnostic in nature. It will entail activities to define problems, propose specific solutions, and prepare local staff and facilities for interventions.

A list of activities and the anticipated timeframe is presented in Section VI below. Some of the major activities will include hiring a Measles Technical Officer (MTO), to be based in Kisumu; orientation of the MTO to the three MI (REACH, QA, HealthCom) projects in Washington, D.C.; conducting a coverage survey with KAP questions in a third district; performing a quick assessment of the cold chain and logistics supply system to identify any gaps in Kisumu and Siaya; reviewing data from a "model district"; conducting a health facilities assessment in Kisumu and Siaya; conducting qualitative research into community perceptions of EPI and measles and practices; and collecting detailed background information for developing systems to improve surveillance and tracing of defaulters.

The formative research, both quantitative and qualitative, will be used to generate MI plans that respond to local needs and work toward addressing gaps in district level management. During Phase I, an evaluation and review of existing materials and approaches to measles control should be conducted.

During this phase, attention will also be paid to ways of introducing interventions that can be implemented on a broad basis. This would most likely include dissemination of policies (based on the national measles workshop) or making revisions in training materials, either pre-service or inservice.

At the conclusion of Phase I activities, an intensive, five-day workshop will be held with selected district level staff and some representatives from the KEPI Management Unit and from major

donors. The purpose of the workshop will be to translate formative research findings into specific interventions. The workshop will result in the creation of specific workplans, definition of responsibilities of various parties, protocols for proceeding with operations research, plans for development of communications materials, and development of timelines. All three projects providing technical assistance to the MI will participate in this workshop.

The second phase of activity (Phase II), beginning in August 1992, will concentrate on the introduction and pilot level implementation in the target districts of some of the potential interventions described above (Section IV). After these interventions have been in effect for a few months, a formative evaluation will take place to determine whether they are achieving their intended effects.

In Phase III interventions will emphasize refinement and expansion. Interventions will be modified as needed and findings disseminated either through special workshops or by piggybacking seminars onto other workshops or training sessions already planned by KEPI. The focus of such workshops will be on applicability and replicability of the interventions and identification of key factors required for their successful implementation. Late in Phase III, repeat coverage surveys (including KAP questions) will be conducted to assess changes since the beginning of the MI. A closing workshop summarizing results and outlining ways to continue the most important interventions of the MI will be held in September 1993.

VI. TIMELINE

TIMELINE FOR MEASLES INITIATIVE

| ACTIVITY | MONTHS | | | | | | | | | | | | | | | | | |
|---|--------|----|---|-------------|---------|------|-----|----|------|--------|---|---|-------------|--|---|---|---|-------------|
| | 4 | 5 | 6 | <u>1992</u> | | 9 | 10 | 11 | 12 | 1 | 2 | 3 | <u>1993</u> | | 6 | 7 | 8 | 9 |
| PHASE I | | | | | | | | | | | | | | | | | | |
| Technical Officer hired | | x | | | | | | | | | | | | | | | | |
| Technical Officer to Washington, D.C. | | | | | x | | | | | | | | | | | | | |
| Measles Workshop | | x | | | | | | | | | | | | | | | | |
| Measles Workshop Follow-up | | | | | xxxxxxx | | | | | | | | | | | | | |
| Coverage Survey 3rd District | | | | | | xxxx | | | | | | | | | | | | |
| Review of UNICEF, DANIDA, KEPI Plans | | | | | | | xxx | | | | | | | | | | | |
| Cold chain Assessment | | | | | | | | x | | | | | | | | | | |
| District Meetings | | xx | | | | | | | | | | | | | | | | |
| Selection of "Model District" | | | | | | | | x | | | | | | | | | | |
| Assessment of "Model District" | | | | | | | | | xxxx | | | | | | | | | |
| Health Facilities Assessment | | | | | | | | | | xxxxxx | | | | | | | | |
| Community Assessment | | | | | | | | | | | | | xxxxxxx | | | | | |
| Development of Preliminary Plans for Surveillance | | | | | | | | | | | | | | | | | | xxxxxxxxxxx |

ACTIVITY

MONTHS

4 5 6 1992 7 8 9 10 11 12 1 2 1993 3 4 5 6 7 8 9

Development of detailed implementation plan with district personnel, KEPI and donors

xx

**PHASE II
DISTRICT-LEVEL
IMPLEMENTATION**

Interventions, strategies, training and materials testing and implementation

XX

Formative Evaluation

xx

Planning for Refinement and Expansion

xx

**PHASE III: REFINEMENT
AND EXPANSION**

Refinement of selected interventions, strategies, training and materials in Phase I and II district(s)

XXXXXXXXXXXXXXXXXXXX

Expansion of selected interventions, strategies, training and materials into other districts

XXXXXXXXXXXXXXXXXXXX

KEPI Measles Workshops to disseminate results of district implementation

x x

Follow-up of KEPI Measles Workshops recommendations

XXXXXXXXXXXX

Repeat coverage surveys
Closing workshop

xx
x

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VII. MANAGEMENT STRUCTURE

The Measles Initiative will be directed and managed to support the overall goals and objectives of the KEPI program. As such, it will work in close coordination with the KEPI manager in order to assure that the project activities will support overall goals, be coordinated with other donors and will not disrupt other KEPI activities.

REACH is the lead project for the Measles Initiative in Kenya and, as such, will be responsible for the overall management and coordination of the project. A full-time Measles Technical Officer will be hired by REACH to provide this management and coordination. The Measles Technical Officer will be a member of the District Health Management Teams in Kisumu and Siaya and will also be a member of the KEPI Management Unit. REACH will also retain the part-time services of a Technical Coordinator based in Nairobi to assist with administration and management of the project. REACH's KEPI Communication Officer will also be assigned part-time to the project activities.

During Phase I, the Quality Assurance Project will be responsible for conducting and analyzing the health facility assessment, while HEALTHCOM will be responsible for conducting and analyzing the community assessment. Further responsibilities will be determined during the detailed implementation planning in July or August 1992.

ANNEX 1

Pilot Study of the Introduction
of a Two-Dose Schedule for
Measles Vaccination in Kenya

Introduction and background

In preparation for a national measles workshop held in Mombasa in April 1992, KEPI undertook a data collection exercise which included the gathering on inpatient and outpatient data on morbidity and mortality due to measles. Information on cases and deaths was actively collected from 38 districts (all but Garissa, Turkana, Tana River, and Nairobi) for the three year period of 1989, 1990, and 1991.

One of the most interesting findings of the data analysis was the age distribution of inpatient cases. (These data were not available for outpatient cases.) Nationwide, it appears that roughly 30% of measles cases occurred at 0-9 months of age. Approximately 10% of cases occurred at six months or younger. There may well be limitations to the accuracy of the data (e.g., lack of standard case definition, bias toward reporting of cases in young infants), but it appears that a substantial share of cases may be occurring before or by the recommended age of vaccination at nine months. Therefore, even with 100% measles vaccination coverage, one quarter of measles cases might still occur.

One proposed method for dealing with this issue is to vaccinate each infant twice, at, for example, six months and nine months of age. The first vaccination protects those infants who lose maternal antibodies by six months, while the second protects those who cannot respond to vaccine until a few months later. A two-dose schedule has been adopted in around 40 countries worldwide, including one in sub-Saharan Africa, Lesotho. It has been argued that given current high wastage rates for measles vaccine, a two-dose schedule would be a cost-effective way to improve protection against measles, as it simply entails the use of vaccine that is otherwise discarded.

It has also been argued, however, that a two-dose schedule should only be implemented under circumstances where existing measles vaccination coverage is high, e.g., 75%. One key rationale is that such high measles coverage implies a relatively low drop out rate. For a two-dose schedule to succeed in improving protection against measles, it is imperative that the target population receives both vaccinations. If coverage were high for a first dose but subsequently fell, the net level of protection in the community could actually decrease.

Approaches to a pilot study in Kenya

At the national measles workshop in April 1992, it was recommended that a pilot study of a two-dose schedule be carried out over a period of roughly one year in a limited area. As measles is an epidemic disease, it would not be possible to measure changes in disease incidence in such a short

period of time. Therefore, the objective of the study would be to ascertain the operational aspects of implementing a two-dose schedule.

It was proposed that the pilot study be carried out in conjunction with the A.I.D.-funded Measles Initiative, which has project sites in Kisumu and Siaya. A selection of service delivery points in the municipality of Kisumu would provide an appropriate setting for the study, because densely populated urban areas are associated with early transmission of measles.

Two contrasting approaches could be employed in carrying out this pilot study. One approach would be to provide some limited training and planning and then implement the two-dose schedule with a minimum of special attention. This strategy would provide information on the overall effect and true impact on the immunization system of the two-dose schedule (in that it would not alter the study environment). Results would indicate those areas requiring special attention for broader introduction. Such an approach assumes that the two-dose schedule carries no additional risk to study participants over the current schedule of one dose of measles vaccine at nine months.

An alternative approach is to develop a comprehensive strategy to try to ensure that the two-dose schedule is, in fact, implemented correctly. Special planning would be needed in such areas as training, social mobilization and communications, monitoring, supervision, cold chain, and logistics.

The latter approach is more appropriate for conducting a pilot study of the two-dose schedule in Kenya for at least two related reasons. First, drop out rates are known to be high in Kenya. According to 1992 coverage survey data based on both documentation and recall, measles coverage is roughly 68% in urban Kisumu, compared with over 96% for DPT1. Already, mothers are not returning enough times to complete the vaccination schedule.

With a two-dose schedule, mothers may be inclined to obtain the first dose of measles vaccine at six months of age but there is a real risk that they will not bring their children back for a second dose at nine months. The coverage surveys from Kisumu and Siaya showed that only about 5% of those surveyed had had an EPI contact at six months of age. For these districts, a dose of measles vaccine at six months would thus represent a new contact with the health system for immunization purposes. It could be argued that existing curative care contacts with the health system could be exploited as opportunities to provide the first dose of measles vaccine. However, the reluctance of both parents and health workers to immunize sick children has already been identified through KAP studies as a major obstacle to attaining high measles coverage rates.

It has also been postulated that the drop out rate from DPT3 to measles could be reduced by interrupting the long interval between immunizations with another immunization contact at six months. Data from the Kisumu and Siaya coverage surveys do not support this hypothesis, though, as they show a pronounced drop out rate of approximately 15% between DPT1 and DPT3, despite the short intervals between doses.

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Thus, the introduction of the two-dose schedule could provide additional risk above the current vaccination schedule if the target population receives the first dose at six months, but not the second dose. To actively plan to avoid this problem, the following scenario for planning and implementation of a pilot study is proposed. It is assumed that standard titer Schwarz vaccine would be used.

Proposed Steps in Planning and Implementation

1. Determine overall objectives of pilot study. This will help decide the study areas, the number of participating facilities, the study duration, and the types of data to collect.
2. Select sites, based on appropriate criteria such as catchment area, population density, interest and willingness of staff to participate, quality and adequacy of services currently offered.
3. Develop full study protocol, based on the above. Protocol should include all elements of planning, monitoring, and evaluation.
4. Elements of planning should include and address the following:

Logistics: Estimate impact on the cold chain and logistics system. One way to do this is through the use of EPIimpact software. Based on results of analysis, procure additional supplies as needed and distribute as needed.

Training: Hold a one or two day seminar with health officials and health workers. As much as possible, this should include only those staff who will be involved directly in implementation. Special job aids may need to be developed and introduced. A circular may need to be distributed to health officials at both participating and non-participating health facilities in the vicinity, as mothers may use more than one health facility.

Social mobilization: This should be geared toward stressing the new need to receive two doses of measles vaccine and to decrease or minimize drop out rates. Special innovations may have to be used to remind and persuade caretakers to return for a second dose and to convey the idea that a single dose at six months is not enough to protect the child. Examples might include "tickets" for measles vaccinations, or stamping a two-part "seal of safety" on the child health card, the second part of which is affixed only upon receipt of the second dose.

Both the training and the social mobilization activities should be preceded by qualitative research with mothers and health workers. It is essential that drop out between the first and second doses of measles be avoided. In addition, quantitative research, such as a facility missed opportunity study, should be undertaken to find out if the administration of measles at six months of age represents a new, additional contact with the health system.

Social mobilization efforts should be specifically geared toward the catchment area populations of health facilities participating in the study. Face to face contact through community meetings or barazas may be appropriate. Mass media should not be used.

Monitoring: Both the child health card and the facility records should be examined to determine how best to note the additional measles dose. A method should be introduced to mark the child health card to bring attention to the fact that the dose at six months must be followed by a second at nine months. This notation should be evident to both the caretaker and the health worker--including those vaccinators at non-participating facilities who may encounter clients who received a first dose at six months elsewhere. Tickler files should be refined and put into active use at the health facility level to permit health workers to easily identify and trace infants eligible for either dose.

Health workers will need to receive clear instructions on completion of the vaccination tally sheet and registers so that a child who is given a single dose of measles (after receiving DPT1-3, OPVO-3, and BCG) is not marked as fully immunized.

Supervision: The danger of drop out after the first dose must be given special attention. Supervisory tools can be developed to detect if and when drop out between first and second doses occurs, its causes (i.e., is it the facility or the caretaker that is responsible?) and to suggest the appropriate response. Changes in patterns of use of services and supplies, including measles vaccine stockouts, should also be noted. It should be assured that supervisory visits actually are conducted regularly and that they extend beyond the simple delivery of supplies.

5. A few intensified activities and special studies may need to be carried out in conjunction with the pilot study. These could include the following:
 - o Special intensified channeling and tracing/retrieval of defaulters. This type of activity, which will be carried out under the auspices of the Measles Initiative in any event, could be introduced at the service delivery points participating in the pilot study.
 - o A community survey to determine the extent to which the target population is receiving two doses. (This would give more immediate feedback than a standard coverage survey, which measures coverage 12-23 months before the date the survey is conducted.) A 75-household survey or lot quality assurance sampling might be used.
 - o A simple cost analysis comparing the two-dose and one-dose schedule.
 - o Research on attitudes of health workers (e.g., vaccinators and supervisors) toward the two-dose schedule.

6. Implementation. This should be done according to a plan that incorporates the elements mentioned above and sets forth a timeline and assignment of responsibilities.
7. Evaluation. Evaluation will be conducted to measure indicators stipulated in the objectives described in the protocol. These would include coverage for one and two doses of measles vaccines and other antigens, percent of fully immunized children, and drop out rates for measles 1 to measles 2 and DPT 3 to measles 1. In addition, the impact on areas such as cold chain/logistics, monitoring, supervision, use of staff time, and other related areas would be assessed.

Cost Considerations

The cost implications of using a two-dose schedule have been considered only in a cursory fashion to date, in that there has not yet been the field experience to permit their study in depth. It has been suggested that costs could be quite low, as the two-dose schedule would simply make use of measles vaccine that would otherwise be discarded. If reusable syringes and needles were used, then it is thought that no considerable expenses would be incurred. But EPI costing studies have also shown that one of the most drastic ways of increasing the cost per fully immunized child is by adding a new contact with the immunization system.

An operational study of the two-dose schedule should therefore be seen as an opportunity to investigate that schedule's cost implications.

Serologic Study

WHO/EPI has existing data to support the contention that a two-dose schedule, implemented under near-ideal circumstances, would succeed in increasing protection of children against measles cases and deaths. According to a WHO/EPI report from May 1992, however, "there have been no field trials evaluating the immunogenicity of measles two-dose schedules in developing countries." Two such studies are expected to begin in the near future, one in Southeastern Africa, and the other in the Western Pacific region. This being the case, it may not be necessary to conduct a serologic study in Kenya. A study of this type would differ substantially in overall design, objectives, orientation, and resource requirements from the operational study discussed above. A timeframe of at least 9-12 months, appointment of dedicated staff, and a budget of at least \$35,000 would be needed for its implementation.