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VITAL

VITAMIN A FIELD SUPPORT PROJECT

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**IEF/MALAWI VITAMIN A PROJECT
MANAGEMENT INFORMATION SYSTEM**

by

The International Eye Foundation
with technical assistance from
Community Systems Foundation

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I. INTRODUCTION

The International Eye Foundation's Vitamin A Project is a two-year \$0.7 million project designed to distribute vitamin A capsules to children and postpartum mothers, to improve infant and child feeding practices, and to identify and treat eye diseases in the Lower Shire Valley of Malawi. The four interventions and strategies for their delivery are summarized in Attachment 1.

With technical assistance provided by the International Science and Technology Institute, Inc. (ISTI) and the Community Systems Foundation (CSF) through the Vitamin A Field Support (VITAL) Project, IEF is working to develop a management information system (MIS) for its vitamin A activities in Malawi. This MIS will subsequently be used as a model for IEF's projects in Guatemala and Honduras, and may be adapted for use by vitamin A projects implemented by other agencies. Since the MIS is designed to be expandable to track other child survival (CS) interventions, it may also be used as a model for information management for CS projects in Malawi and other developing countries.

II. DESIGN OF THE MANAGEMENT INFORMATION SYSTEM

The IEF/Malawi MIS includes both continuous monitoring of health information at the village level and periodic assessments using qualitative studies and surveys. Project inputs and outputs are continuously monitored, and monthly summary reports provide estimates of progress in achieving the coverage objectives. A baseline survey completed October 1989, aided in establishing targets for each of the objectives (see Attachment 1) and the end of project survey will be conducted to measure progress toward the targets for each of the objectives.

The system is designed to be fully functional with manual operation. Basic tabulation and initial analysis of monitoring data take place at the level at which the data are collected, during supervisory sessions with the first level health worker. The MIS has been automated to assist at the central level with data entry, analysis and display. However, users are taught to perform manual quality checks and analysis before they are instructed in the use of the custom-designed software which automates these functions. The detailed task list for MIS development and time schedule for implementation are provided as Attachments 2 and 3.

The design of the system is unique in its emphasis on the importance of immediate use of the information for supervision and for motivation of both health workers and their communities. To achieve this prompt use of the information, the MIS uses a strategy based on aggregation and interpretation of the primary data during monthly supervisory sessions held by the Health Surveillance Assistants (HSAs, or first level supervisors) with the Village Health Promoters (VHPs, or volunteer health workers) whom they supervise. This on-site interpretation of the data also provides a mechanism for early detection of errors and improving data quality, as well as a basis for immediately praising health workers and their communities for their successes.

The objectives of the MIS are as follows:

- To assist project management by tracking progress toward project objectives;
- To structure supervisory encounters through defined performance indicators for consideration during supervision sessions;
- To document improvement in performance indicators over time, including reduction of error frequency;
- To identify training needs and assess training effectiveness by defining gaps in knowledge and performance;

- To facilitate quarterly reporting to IEF headquarters by organizing data collected into an appropriate framework to serve as the core of a report;
- To provide the groundwork for mid-term and final evaluations, presenting project achievements in tabular and graphic formats for review by evaluators; and
- To prepare selected project data in a useful format for presentation to the Ministry of Health (MOH), other private volunteer organizations (PVOs), health workers and community members.

III. DATA MANAGEMENT

The data needs to assess project effectiveness for the four interventions are defined in the "indicators" column of table in Attachment 1. As outlined in that table, the data sources for these indicators include both the HSA's monthly reports and the surveys conducted at the beginning and end of the project. Progress toward the vitamin A supplementation and ocular disease detection and treatment objectives (project objectives 1, 2 and 4) will be monitored continuously and also measured by the surveys at the beginning and end of the project. Progress toward the improved feeding practice objective will be assessed during the baseline and end-of-project surveys and a mid-term "convenience" sample survey at the village rallies. In addition to these quantitative assessments of project effectiveness, there are periodic assessments of the quality of project activities (correct dosing, correct target groups, appropriateness of educational messages, etc.), and qualitative or formative research to refine project strategies.

III.A Data Inputs

Although the data inputs for the qualitative studies are expected to evolve in response to the findings during the formative research, the data inputs for continuous monitoring and for the beginning and end-of-project surveys were defined at the outset of the project.

Continuous Monitoring

The project's primary interface with its beneficiaries is provided through the VHPs, who conduct home visits to provide services and to motivate mothers to bring their children under six to the quarterly village rallies. The VHPs are selected by their communities and are responsible for about fifty families with pregnant women or children under 6. Using a simple roster (Attachment 4), the VHP identifies postpartum women and children who fail to receive vitamin A at rally sessions. These homes are promptly targeted for visits to provide necessary doses of vitamin A and targeted health education.

Beneficiary-specific data are kept only in the VHP's roster. Using an instrument which provides a framework for monthly supervisory encounters (Attachment 5), the HSA abstracts key data from the VHP's roster for the monthly report. The data elements submitted to project managers in the HSA's monthly reports (and entered for automated data processing) for each VHP's service area include:

1. HSA name (coded)
2. Month of report
3. Year of report
4. VHP name (coded)
5. Date of supervisory visit

6. Number of target households (with either children under 6 or pregnant women)
7. Number of children under 6
8. Number of these children (under 6) who attended the most recent rally session
9. Number of non-attenders (among children under 6) who receive services (health education or vitamin A as scheduled) during follow-up household visits
10. Number of infant less than two months of age
11. Number of mothers (with infants less than 2 mos of age) who received vitamin A from the VHP
12. Number of mothers (with infants less than 2 mos of age) who received vitamin A from another (non-project) source
13. Number of vitamin A capsules given to supply the VHP

Because this input data for the MIS is aggregated by the nine HSAs (each of whom supervises four to eight VHPs), there is one file of 13 variables for each of the approximately 70 VHPs. Input of previously aggregated data has been selected as a data management strategy to improve the quality of supervision through immediate feedback on data quality, and prompt analysis and use of the results at the level at which the data are collected. Guidelines for quality control for the data are outlined in Section III.C below. The strategy of aggregating data at the first level supervisory level also limits the data entry and analysis burden. Input of monthly updates of beneficiary-specific data would require processing approximately 18,000 files, and would be particularly impractical in view of the frequency of in- and out-migration of Mozambican refugees.

Although the MIS depends almost exclusively on the HSA's monthly reports for routine data input, the three Ophthalmic Medical Assistants (OMAs) in the project area provide information regarding the ophthalmic screening and services which they provide at every quarterly rally. The form used by the OMAs to record clinical findings and services delivered during the rally sessions is provided as Attachment 6.

Periodic Evaluations

The project has evaluations scheduled for the middle and end of the project. In view of the brief duration of the project, the cluster surveys to measure project effectiveness will be conducted only at the beginning and end of the project. Therefore, the assessment of project effectiveness for the mid-term evaluation will depend largely on the system for continuous monitoring and monthly reports. Effectiveness data will be available from the monthly reports only for Objectives 1, 2 and 4.

A small "convenience sample" survey of infant and child feeding practices will be conducted during the rally sessions prior to the mid-term evaluation to assess early progress in improving knowledge and feeding practices (Objective 3). This "mini-survey" will also be used to assess the quality of the health education being provided by the project. The instrument to be used in this survey includes many of the same questions as for the baseline and end-of-project surveys and is provided as Attachment 7.

The end of project survey, like the baseline survey, will be conducted using the classical EPI cluster methodology. The survey instrument used for the baseline survey is provided as Attachment 8, and the summary of the results as Attachment 9. Additional questions may be added to this instrument at the end of project to provide appropriate baseline data required for any follow-on project activities.

Qualitative Research

Project staff have anticipated that the most difficult of the objectives will be that regarding improved infant and child feeding practices. Qualitative research has been conducted by project staff primarily to identify barriers to achieving the improved feeding practice objective and, therefore, refine educational and training strategies as needed. Focus groups conducted to date have documented current feeding practices and beliefs which are potential barriers and must be addressed in designing educational messages. Reports of these findings are available in project files.

III.B Created Variables

Using the data entered from the monthly reports, coverage estimates for vitamin A distribution and ophthalmic screening will be generated as follows:

Vitamin A coverage among children 6 to 71 months will be estimated by adding the number of children under 6 at the last rally session (#8) plus the number of capsules given to children under 6 at the follow-up visits (#9), and dividing by the total number of children under 6 (#7). Every child 6 to 71 months old who attends the vitamin A distribution rally session will receive an appropriate dose (unless they have received a dose from another source in the past 3 months). Although the coverage may be overestimated if the rosters are not complete, the inclusion of children under 6 months of age, who receive no vitamin A, will likely produce a slight underestimate of actual coverage in the target age group.

Vitamin A coverage among women delivered in the past 2 months will be estimated by dividing the number of mothers with infants under 2 months who received vitamin A (#11 plus #12) by the total number of mothers of infants less than 2 months of age (#10). The accuracy of mothers' reports of receipt of vitamin A from other sources is likely to be quite good, in view of the unique

appearance of the capsules. Although infant mortality may reduce the denominator and result in an overestimate of coverage, it is also less likely that mothers of neonates who have died will receive vitamin A, although this practice is encouraged.

Coverage with eye examinations and treatment of ocular disease among children 0 to 71 months will be estimated by dividing the number of children under 6 at the last rally session (#8) by the total number of children under 6 (#7). Every child at the village rally sessions is to receive a screening examination and treatment or referral for any eye disease.

III.C Quality Checks

The MIS is designed to provide multiple quality checks, including logic and range checks of the input data and performance quality checks as an aid to supervision.

Logic and Range Checks for Data Inputs

Data entered from the HSA monthly reports will be screened at the time of entry and the operator alerted of any outlying values, nonsense data, or internal inconsistencies. Any detected data quality problems will be summarized by HSA and by VHP and discussed at the next supervisory encounter. Values entered will be flagged for query or confirmation unless they are non-negative and unless:

- The date of the report (#2 and #3) corresponds to the date of the supervisory visit (#5) in month and year.
- The codes entered for the HSA (#1) and VHP (#4) correspond to codes for existing health workers.
- The month numbers (#2 and #5) do not exceed 12 and the year greater than 88 and less than 99.
- The number of children who attend the rally sessions (#8) plus those who receive vitamin A during follow-up home visits (#9) does not exceed the total number of children under 6 (#7).
- The number of mothers with infants less than 2 months who receive vitamin A (#11 plus #12) does not exceed the number of infants less than 2 months old of age (#10).
- The number of capsules given to each VHP (#13) does not exceed 30 (the "cap" on the stock kept by each VHP).

A final "quality check" on the accuracy of these calculated coverage estimates will be obtained during the end of project survey. Actual coverage with each of these interventions will be measured using a cluster survey technique as outlined in Section III.A above.

Performance Quality Checks

Data quality checks outlined above provide an important source of information on performance quality for the VHPs and HSAs. Additional important performance quality checks are performed during the rally sessions, by reviewing the VHP's roster, the quality of the HSA's reports abstracting the data on that roster, and the quality of rally operations as follows:

- The HSA will perform routine quality checks as part of the review of the VHPs roster during the supervisory visit, discussing ways to improve data quality prior to abstraction for the monthly report. The guidelines for these quality checks are provided as Attachment 10.
- The VHP's roster will be reviewed by the OMA and/or PCV to assess the accuracy of the data reported in the roster and the HSA's previous monthly report(s). Feedback regarding data quality will be provided to the HSA prior to the village rally.

Rally operations will be monitored by the OMA and/or PCV to assess three areas of performance quality:

- All children 0-71 months old who attend the rally must receive visual screening and their presence must be recorded on the VHP rosters.
- Distribution of vitamin A will be monitored to assure that all children 12 to 71 months old receive 200,000 IU, infants 6 to 11 months old receive 100,000 IU, and that younger infants (0-5 months old) receive no vitamin A.
- The quality and effectiveness of health education will be assessed based on the attendance at the rally sessions and the change in nutritional practices documented by the baseline and end-of-project surveys. In addition, a mid-term assessment of the quality and effectiveness of health education will be performed using a small survey (Attachment 7) of mothers attending the rally sessions, as outlined in section III.A Periodic Evaluations above.

IV. PREPARATION OF REPORTS AND USE OF INFORMATION

The automated MIS prepares reports for use in both internal review for management and for external reporting. As outlined above, the MIS is designed to provide immediate reports on data quality and worker performance at the time of data entry. Planning for the village rally sessions is aided through production of planning reports. The MIS also generates personnel reports which summarize each worker's training history and examination scores. Accounting reports include both budget management and commodities management reports.

Reports to be used for external review include reports on progress toward progress objectives for presentation to the community and project status reports for presentation to IEF headquarters, project evaluators, USAID, the Ministry of Health and other agencies.

IV.A Internal Review

Four kinds of reports will be produced by the MIS for internal use by project staff:

Planning Reports

To aid in planning the schedule and logistics for project activities, the MIS may be used to generate planning reports. The planning report provides a list of meetings to be scheduled and assists in planning for village rally sessions. The rally session planning function aids by detailing supplies needed, tasks to be completed prior to the date of the session, and provides suggestions regarding other logistics such as vehicles to be used (based on season and remoteness of the village), other agencies to be consulted or notified prior to finalizing the schedule, and special constraints to be addressed at each site (e.g., special problems in each village).

Calendars of tasks are developed based on the following constraints:

- The monthly reports will be due in the project office on the 3rd day of the following month.
- Every three months, at the end of the month, all project staff (including the Project Director, Coordinator, Bookkeeper, PCVs and OMAs) will meet to discuss project status, schedules, and feedback to HSAs. If possible, the collated results of the monthly reports will be reviewed at that time and feedback prepared for circulation to the HSAs.

- On alternate Mondays (every Monday for Ngabu staff), all project staff will meet to discuss project management and administration. Data from the project MIS will be reviewed at this meeting prior to report to the HSAs.
- The first Wednesday after the 15th of every month, the Project Coordinator, PCVs and OMAs and HSAs will meet to discuss project status, schedules, and to provide feedback to HSAs.
- Rally sessions will be scheduled for the remaining days within the following constraints:

Public holidays and district and area level official meetings will be blocked out so that no rallies can be scheduled on these days.

Other commitments, including the leave schedule for OMAs, HSAs, and PCVs will be blocked out to assure that no rallies are scheduled for these areas while health workers are away.

Schedules of other health activities (under five clinics or other agencies' health activities which require attendance of the same beneficiaries or health personnel) will be consulted to assure that there will be no conflicts.

Travel time (including seasonal during rainy season) will be taken into consideration in planning the schedule, including for selection of morning or afternoon start time (generally afternoon sessions during the rainy season, December to March) and clustering of remote villages during two or three day excursions (Gaga area only). To date, rallies have been scheduled in Ngabu, then northern Chikwawa, then Nsanje. Generally there is one rally per day and the 2 vehicles are each sent out approximately 3 times per week.

- Preparation for rally sessions will be planned, including development of task lists.

Letters announcing the proposed dates for rallies are sent to the Regional Health Officer (RHO), District Health Officer (DHO), and the HSAs 2 to 3 months in advance to assure that the dates are acceptable. These notification letters are generated with the assistance of the planning software.

The proposed date for the rally session for each village are then presented in letters (which may also be computer generated) to the village leaders (chief and/or Malawi Congress Party leader) 1 to 2 months in advance to

confirm the acceptability of that date. HSAs, who usually take responsibility for notification, notify their supervisor at the health center, the party leader, village health committee chairman, and the VHP of the proposed date. HSAs then remind the village of the rally one week in advance, when other community leaders are requested to help ensure notification of community members, although the VHP takes primary responsibility for house to house notification.

One day prior to the accepted date, the VHP reminds community leaders and mothers of the rally plans (unless she has been notified of a schedule change), and reminds mothers to bring their cards.

On the day prior to each session, supplies for that rally session are assembled by the PCVs, including:

- Vitamin A capsules (2 bottles if for Gaga)
- Tetracycline (depending on availability)
- Other medications (chloroquine, paracetamol, oral rehydration salts, and penicillin V)
- Road to Health Cards
- Paper and pens
- Copy of the HSA's most recent monthly report to review and compare to the VHP's roster
- Summaries of coverage data from the performance reports for the village and VHPs visited

- A task list for each rally session will be developed for each key person. Tasks which do not vary from session to session have been detailed in the project's detailed implementation plan. VHC members will be incorporated into these activities and will be delegated specific tasks as feasible.
- Verification of the roster and comparison with the HSAs last monthly report will be performed prior to the rally by the PCV.
- At the beginning of each rally, village leaders and community members will be presented with data from the previous month(s) summarizing coverage achieved.
- After the rally is completed, the roster will be reviewed again by the VHP, HSA and PCV to assure that all children who have attended have been checked off and the no-shows have been checked for follow-up visits.

- The HSA or OMA will review the under fives cards to assure that there is a single card (consolidating data onto one card as necessary), and that data are correct as entered. Mothers who fail to bring cards will be sent to retrieve them or be issued a new card as necessary.
- Task lists will include special notes (such as regarding village-specific constraints, or problems with low turnouts for past rallies) and reminders, including transportation needs (e.g., whether a four-wheel drive vehicle may be required).

Personnel Reports

Personnel records will be maintained by the project MIS, tracking data for each individual health worker. Files will include name, age, educational level, and training history. Periodic refresher course attendance and achievement on pre- and post-tests will also be entered as obtained.

These data will be presented in tabular format to assist in identifying training needs or needs for special attention to workers with poor examination performance. Data from the monthly reports may be merged with personnel records to permit correlation of performance indicators with training history and examination scores.

Performance Reports

Performance reports will be produced to review the input data, created coverage variables and quality checks. These reports may be produced as a summary report (to review project performance), by geographic area (to report to communities) or by health worker (to provide feedback on performance at the OMA, HSA or VHP level). Reports to each worker will summarize the achievements in that workers catchment area and will also provide details for each worker supervised. These reports will also be used to provide incentives to health workers or communities and to identify those whose achievements merit special recognition or awards.

Performance reports are displayed in tabular and/or graphic display as appropriate. Although these data may easily be computed manually, the project MIS software provides summary outputs such as those provided as Attachment 9. Prior to meeting with the HSAs, project staff will prepare performance reports for the HSA summarizing project performance, performance in the HSA's catchment area, and performance indicators for each VHP supervised by the HSA. The HSA will subsequently use this information during his monthly supervisory visits.

Accounting Reports

Accounting reports include financial management and commodities management reports. Records of receipt and disbursement of financial and commodity resources will be tracked by the project accountant in ledgers according to IEF procedure. The project bookkeeper and IEF headquarters will consider using spreadsheet software to automate these recording and reporting activities.

In anticipation of expanding activities after the end of this project period, the commodities tracking system will be developed with the capability to include other commodities (in addition to vitamin A and tetracycline ointment). The system will also be adjusted to track expenditures by intervention to facilitate cost-effectiveness calculations as additional interventions are added to IEF activities.

IV.B External Reporting

The MIS also prepares project data in formats designed for external reporting:

Reports to the Community

Information regarding village or district level performance indicators is prepared for presentation to community leaders. Key information for reporting to communities will include the coverage indicators ("created variables" as detailed in Section III.B above) and the nutritional practice indicators (assessed in the baseline and end-of-project surveys and in the mid-term survey of mothers at rally sessions). This information will assist in motivating communities to improve attendance at rally sessions and promoting participation of community leaders in project activities, including supervision of the VHP.

A small operational research study will be conducted by project staff to assess the effectiveness of alternative methods of communication of the concepts of proportion as an aid to feedback of project performance indicators. Coverage or health practice indicators will be presented using alternative methods and comprehension assessed to compare the success of each communication strategy. The method of presentation which is selected as most effective will be used routinely by the project in providing feedback to communities.

Project Status Reports

Project status reports will be produced quarterly according to IEF headquarters guidelines for reporting from the field. These reports, which will include summary data on project performance indicators, may also be used to brief the MOH, USAID, or other

agencies regarding project status. Project accounting data may be incorporated into reports to USAID and IEF headquarters. Tabular or graphic display may be selected for these data as appropriate.

Child Survival Program Reports

The project MIS is designed to prepare the data in a format for reporting to USAID/Washington in accordance with Child Survival Reporting requirements for nutrition and vitamin A projects. Updated target population data, accounting (including financial and commodities) data, and coverage estimates may be abstracted for CS reporting from the most recent quarterly status report.

Evaluations

The MIS will assist project staff in preparing for project evaluations. Although only preliminary output will be available at the time of the mid-term evaluation, data quality should be adequate to assure three to four "rounds" of village rallies with reliable coverage data by the time of the end-of-project evaluation. Tabular and graphic reports of project performance will be prepared to brief evaluators, who will also review previous quarterly Project Status Reports.

V. MALAWI TRIP REPORT (August 3-5, 1990)

V.A Introduction

The background for the VITAL project is described above. A prototype MIS had been developed at Community Systems Foundation by a team headed by Dr. Sally Stansfield and Dr. Frank Zinn prior to the trip. The purpose of this trip was to introduce the MIS to the IEF/MALAWI Vitamin A project. This introduction included a review of the MIS software by future users with the goal of developing a strategy for integrating the MIS into local project activities, and fine-tuning the software to best meet local needs.

Stansfield and Zinn made the visit to Lilongwe and Blantyre from August 3-6 1990.

V.B Description of the MIS

The system was designed and implemented in FoxPro 1.02 (copyright Fox Software, Inc.). The reports were developed and tested prior to the trip using data provided by IEF/Malawi. The system was designed in a way that it would meet the management needs of the IEF/IEF project, provide standard vitamin A project evaluation measures to project data for reporting purposes, as well as be flexible enough that it could be easily adapted to other vitamin A interventions.

The MIS is designed in a Lotus-type menu structure. There are seven main menu options, and choices underneath each. The six menu options are: INFO, FORMS, DATA, QUALITY, REPORTS, OTHER, EXIT. Each of these options will be described in limited detail. (The descriptions here refer to the MIS version finalized after the revisions made during and after this trip).

Info. The INFO option provides information on the project and the MIS, as well as descriptions of each of the menu options.

Forms. The FORMS option enables the user to see the structure of data collection forms, and the structure of data storage. There are six forms that are used to collect data: 1) background and training information on OMAs, 2) background and training information on HSAs, 3) background and training information on VHPs, 4) the HSA monthly report form, 5) background information on the village, and 6) a rally planning form. The options in the forms menu are used to display each of the forms, the data structure of each form, and the data quality checks performed within and among forms.

Data. The DATA option enables the user to enter data into a specified form, delete records from specified files and print out individual forms that have been entered into the system.

Quality. The QUALITY option enables the user to execute data quality checks. These checks are identified earlier in this report.

Reports. This option enables the user to generate five standard reports. Most of these reports can be generated for a specified subset of the data. The standard reports are:

Performance. A summary report that shows program coverage by HSA.

Supervision. A report that shows coverage and follow-up for each VHP. This report is meant to be useful in the supervisory meetings between VHPs and HSAs.

Performance Graph. A pie chart presentation of coverage.

Personnel. A report on background and training of project personnel.

Rally Planning. A report that generates time lines and check lists for planned rally sessions.

Other. An option that performs set-up, verification, back-up and restore operations.

Exit. To exit the MIS or run a DOS shell..

V.C Trip Activities

- August 3 Meeting with USAID to discuss purpose of trip and VITAL project.
- August 4 Meeting with John Barrows, representative of IEF-Bethesda
Working session with Barrows and IEF/MALAWI project director,
Paul Courtwright to review project and MIS implementation
strategy.
- August 5 Working session with Barrows to revise roster forms collection form,
and to revise MIS to reflect input made during Aug. 4 meeting.
- August 6 Meeting of Stansfield and Barrows (Zinn gone) with IEF field staff
to review changes to forms and reports.

V.D Findings and Conclusion

In the meetings that addressed the integration of the MIS into the project, IEF identified a number of important issues. However, a few general comments should be made at the start. First, the MIS is being introduced at an opportune time, in some respects, as the project director is new and has not had a chance to establish his operating procedures. This should allow an easy adoption of the MIS. At the same time, the input the project director could provide on the design and implementation of the MIS was limited as he had not yet had much experience managing the project. Furthermore, the use of the MIS will be delayed as the project director had scheduled a leave of absence (from August 4 until early October), thus delaying his involvement in the project.

Following are issues identified as important to the MIS and management of the project:

Forms. The team brought some recommendations regarding changes to the reporting forms which would simplify analysis, result in more accurate tracking of pregnant women, as well as tracking of the source of vitamin A capsules provided to children. As a result of these recommendations, changes were made to the forms.

Data Collection. A number of data collection errors were identified through the IEF/MALAWI project data sent to Ann Arbor. It is clear that the VHPs need to be better trained in the collection of data, and the HSAs must be better trained so they understanding the meaning of the numbers entered into the reporting form, and can identify certain errors at that time (see Attachment 10).

Reports. Local project personnel were generally happy with the MIS and its reporting outputs. A few reports were removed from the MIS based on comments from IEF. For example, the MIS development team had proposed mapping as a possible reporting option. IEF didn't see much practical benefit from mapping output, as the project area is so small. Other reports were revised to reflect data provided by the new field forms. Finally, project staff were interested in reports that would aid them in management of the project (as opposed to simply meeting reporting requirements). As a result, a rally post planning report was developed that would provide assistance in scheduling rallies and provide checklists useful in insuring that necessary tasks are performed prior to the sessions.

V.E Recommendations

It was decided that the best approach to implementing the MIS was for the changes to be made to the forms immediately. This was carried out during the trip. The data collected during August would then be sent to Ann Arbor where it would be used to make further debugging checks of the MIS. In addition, the output changes to the

MIS will be implemented before early October, and the MIS revision and reporting output will be sent to Malawi at that time. The reporting output could also be used for the project evaluation scheduled for early October.

We also recommend that the MIS be evaluated regularly and systematically. The system is designed in such a way that it can be easily modified to include additional data collection and reporting capabilities. The MIS should change to accommodate the needs of the project. These project needs are likely to change over time.

ATTACHMENTS

ATTACHMENT 1

IEF/MALAWI VITAMIN A PROJECT
MANAGEMENT INFORMATION SYSTEM
STRATEGIES FOR TRACKING DELIVERY OF PROJECT INTERVENTIONS

INTERVENTIONS	MECHANISMS OF DELIVERY	INDICATORS	TARGETS	DATA SOURCES
1) Semi-annual Vitamin A supplementation to children 6 months to 6 yrs of age	Mass distribution at village rallies followed by home distribution by VHPs for defaulters	% of children 12 months to 6 yrs of age who have received vitamin A in the past 6 months	80%	HSA monthly reports (abstracted from VHP rosters) Beginning & end of project surveys
2) Vitamin A supplementation of mothers within 2 months of delivery	Home distribution by VHPs	% of women delivered in past 12 months who received vitamin A after delivery	80%	HSA monthly reports (abstracted from VHP rosters) Beginning & end of project surveys
3) Promotion of appropriate infant and child (<6) feeding practices	Health education provided at village rallies and during home visits by VHPs targeted to promote 4 key behaviors:			
	1) exclusive breast feeding through 3 months of age;	% of infants who are appropriately fed (exclusively breastfed through 3 months, breastfed throughout infancy and receiving complementary foods after 6 months of age)	90%	Beginning and end of project surveys
	2) feeding of children under 6 at least 4 times per day	% of children 12-71 months who are fed 4 or more times per day	50%	Beginning and end of project surveys
	3) addition of energy-dense foods to every meal for children under 6 and;	% of children 12-71 months who receive energy dense foods (oil, fat sugar nuts) 4 or more times per day.	30%	Beginning and end of project surveys
	4) addition of vitamin A-rich foods daily for children under 6	Mean number of days in past week that at least one Vitamin A-rich food is consumed by children 6-71 months.	4	Beginning and end of project surveys
4) Eye examinations and treatment or referral for children under 6	Screening examinations and treatment by OMAs at village rallies	% of children 6-71 months who have been screened in past 6 months	75%	HSA monthly reports (abstracted from VHP rosters) Beginning & end of project surveys

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Attachment 2

IEF/MALAWI VITAMIN A PROJECT DETAILED TASK LIST FOR MIS DEVELOPMENT (VITAL/CSF/IEF)

Phase I

1. Specify Monitoring and Evaluation Needs

During an initial working session in Ann Arbor, the project team will review information needs for the IEF vitamin A project team in Malawi. Taking data needs into consideration (including reporting, and for project management) and data sources (including service delivery setting, project offices and project personnel), a paradigm for information flow will be developed and specific data inputs and outputs will be selected.

2. Detailed Review and Adjustments

The draft plan for the MIS will be submitted for review by IEF and VITAL staff. Appropriate changes will be made in the MIS based on recommendations from IEF and VITAL. These reviews and comments will be communicated by mail, phone and/or FAX.

3. Define Manual and Computerized Systems

Patterns of flow for data inputs and outputs for the MIS will be defined in greater detail during meetings with all project team members. Instruments for data collection and information will define the role of each member of field staff in collecting and using each data element.

4. Specify Systems and Develop Framework of Computerized Version

CSF will prepare specifications for computerized data management, including sample menus and outputs for review.

5. Review Prototype

Prototype MIS with menus and outputs will be reviewed by IEF staff and VITAL during a Washington meeting.

6. Prepare Manual Protocol and Complete Computer Program Development

Based on the review, and recommended adjustments, menus and outputs will be finalized and programming completed for each component of the MIS.

7. Digitize Maps

To assist with graphic display of data by geographic areas, maps of the IEF project area will be digitized in preparation for overlay with region or village-specific data.

8. Prepare Documentation

Manuals to be used for reference and training in the use of MIS will be prepared prior to their introduction into the field.

Phase II

1. Provide for Computer Training of In-Country Users

IEF field staff will provide a short course and/or menu-driven training software for selected project staff to assure that they are minimally "computer literate" prior to introduction of the computerized version of the MIS.

2. Conduct Field Test

The first introduction of the MIS in the field will begin with training provided for Village Health Promoters, Health Surveillance Assistants (Supervisors) and Ophthalmic Medical systems. Problem identification and resolution of any "bugs" will occur during the initial two (2) weeks of operation at the village levels. Feedback mechanisms to village and Village Health Promoter levels will also be field-tested and adjustments made as indicated.

Phase III

1. Reformulate and Prepare Final Version

Based on field experience, any required changes will be made in the MIS instruments, manuals and software. Each of these elements will be finalized and duplicated for project use.

2. Prepare Report

A summary of accomplishments and lessons learned will be prepared for presentation to VITAL, USAID and other potential users of similar technical assistance.

DRAFT - IMPLEMENTATION SCHEDULE FOR VITAMIN A IN MALAWI/GUATEMALA/HONDURAS

ATTACHMENT 3

TASKS	Estimated Person Days for Malawi			TIME SCHEDULE IN WEEKS																		Estimated Person Days for Guatemala/Honduras					
				1990									1991									SS	WD	KO FZ CM			
	SS	WG	KO FZ CM	1 Apr	2 May	3 Jun	4 Jul	5 Aug	6 Sep	7 Oct	8 Nov	9 Dec	10 Jan	11 Feb	12 Mar	13 Apr	14 May	15 Jun	16 Jul	17 Aug	18 Sep						
1. Specify M & E Needs (initial meeting, working session based on IEF report requirements)	7	8	10	<u>M</u>									<u>G&H</u>									5	5	5			
2. Detailed Review and Adjustments based on IEF Feedback	2	2	2	<u>M</u>									<u>G&H</u>									3	3	3			
3. Define M & E PMS System (manual & computerized)	5	5	5	<u>M</u>									<u>G&H</u>									5	5	6			
4. Specify Systems & Develop Framework of Computerized Version	1	5	20	<u>M</u>									<u>G&H</u>									1	5	25			
5. Review Prototype with IEF, Other Team Members & VITAL	2	2	2	<u>M</u>									<u>G&H</u>									2	2	2			
6. Prepare Manual Protocol & Program Computer Version (gets)	5	10	30	<u>M</u>									<u>G&H</u>									5	5	20			
7. Digitize Maps of Relevant Regions	-	2	10	<u>M</u>									<u>G&H</u>									-	2	15			
8. Prepare Documentation for Both Manual & Computerized Versions	4	2	10	<u>M</u>									<u>G&H</u>									6	3	30			
9. Provide for Computer Training of In-country Users	-	-	-	<u>M</u>									<u>G&H</u>									-	-	-			
10. Conduct Field Test of Relevant Prototype (including training for manual at VHP, HSA & OMA levels and computerized at country level)	20	20	-	<u>M</u>									<u>G & H</u>									20	20	20			
11. Reformulate & Prepare Version 2 of Manual & Computerized Systems	8	2	20	<u>M</u>									<u>G & H</u>									8	2	25			
12. Prepare Report on Relevant Systems	5	5	5	<u>M</u>									<u>G&H</u>									5	5	5			
13. Prepare Report on Lessons Learned from All Three Systems	-	-	-																			<u>ALL</u>			10	8	2
Professional Staff:	62	80	114																			70	65	147			
Support Staff:																											
Word Processing/Desktop Publishing (manual & computerized)	15																										
Digitizing Assistance	15																										
Manual Writing Assistance	15																										

M = Malawi G = Guatemala H = Honduras

ATTACHMENT 3

Attachment 4

ROSTER OF FAMILIES WITH PREGNANT WOMEN AND CHILDREN UNDER 6

Name of Mother		Birthdate	Past 6th Birthday	Mother Rec'd Vit A from VHP/rally		Mother Rec'd Vit A from Other Source		Session Attendance (with cards) and Services During Follow-up Home Visit											
				Yes	No	Yes	No	1st Quarter			2nd Quarter			3rd Quarter			4th Quarter		
Names of Children								Yes	No	FU	Yes	No	FU	Yes	No	FU	Yes	No	FU
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Name of Mother		Birthdate	Past 6th Birthday	Mother Rec'd Vit A from VHP/rally		Mother Rec'd Vit A from Other Source		Session Attendance (with cards) and Services During Follow-up Home Visit											
				Yes	No	Yes	No	1st Quarter			2nd Quarter			3rd Quarter			4th Quarter		
Names of Children								Yes	No	FU	Yes	No	FU	Yes	No	FU	Yes	No	FU
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Name of Mother		Birthdate	Past 6th Birthday	Mother Rec'd Vit A from VHP/rally		Mother Rec'd Vit A from Other Source		Session Attendance (with cards) and Services During Follow-up Home Visit											
				Yes	No	Yes	No	1st Quarter			2nd Quarter			3rd Quarter			4th Quarter		
Names of Children								Yes	No	FU	Yes	No	FU	Yes	No	FU	Yes	No	FU
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CHIWERENGERO CHA MAKOMO OMWE ALI NDI AMAI APAKATI KOMANSO ANA OCHEPERA ZAKA 6.

		TSIKU LOBADWA MWANA	TSIKU LOMWE WAKWANA ZAKA 6	MAI ANAL- ANDIRA VIT. A KWA VHP KAPENA PA KAMPEINI		MAI ANALAN- DIRA VIT. A KWINA		ANA OSWERA KU KAMPEINI OMWE ALI NDI MAKADI NDI KUYENDERA ANA OMWE SANABWERE											
				INDE AYI		INDE AYI		KAMPEINI YOYAMBA			KAMPEINI YACHIWIRI			KAMPEINI YACHITATU			KAMPEINI YACHINAI		
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RALLY EYE EXAMINATION FORM

	0 - 6	7 - 15	16 - +	Total
Conjunctivitis				
Trachoma:				
I				
II				
Xerthalmia:				
I				
II				
III				
Cataract:				
Corneal ulcer:				
Trichiasis:				
Other:				
Other:				
T.E.O Used				
T.E.O Returned				

Attachment 7

MID-TERM SURVEY

VILLAGE _____

DATE _____

FOR EVERY CHILD UNDER 6, COMPLETE THE QUESTIONS IN THE COLUMN FOR THE CHILD'S AGE (MORE THAN ONE CHILD MAY BE INCLUDED ON ONE FORM)

- | <u>AGE:</u> | <u>0-5 mos</u> | | <u>6-11 mos</u> | | <u>12-23 mos</u> | | <u>24-71 mos</u> | |
|---|-------------------|------------------|-------------------|------------------|-------------------|------------------|-------------------|------------------|
| 1) Road to Health card? | <u>Yes</u>
[] | <u>No</u>
[] | <u>Yes</u>
[] | <u>No</u>
[] | <u>Yes</u>
[] | No
[] | <u>Yes</u>
[] | <u>No</u>
[] |
| 2) Date of birth? | _____ | | | | | | | |
| 3) Did mother receive vit A after deliver at a health facility (non-project source)? | <u>Yes</u>
[] | <u>No</u>
[] | <u>Yes</u>
[] | <u>No</u>
[] | | | | |
| 4) Did mother receive vit A within 2 mos. of delivery from the VHP or at a village rally? | <u>Yes</u>
[] | <u>No</u>
[] | <u>Yes</u>
[] | <u>No</u>
[] | | | | |
| 5) Is child breast fed? | <u>Yes</u>
[] | <u>No</u>
[] | <u>Yes</u>
[] | <u>No</u>
[] | <u>Yes</u>
[] | <u>No</u>
[] | | |
| 6) Does child receive other foods? | <u>Yes</u>
[] | <u>No</u>
[] | <u>Yes</u>
[] | <u>No</u>
[] | <u>Yes</u>
[] | <u>No</u>
[] | | |
| 7) How many times a day is the child fed in <u>addition</u> to breastfeeding)? | <u>3-</u>
[] | <u>4+</u>
[] | <u>3-</u>
[] | <u>4+</u>
[] | <u>3-</u>
[] | <u>4+</u>
[] | | |
| 8) How many of the last 7 days has the child eaten green leaves (nkwani, bonongwe, cassava, gonani bwino, phundi, nsangowa, chitambe, dundwa, kholowa, khwanya, khombwe), carrots, dzungu, papaya, or mango? (circle all that any child has eaten)? | | | | | | | | |
| 9) How many times per day does this child eat some oil, fat, sugar, or groundnuts (circle all that any child eats)? | <u>3-</u>
[] | <u>4+</u>
[] | <u>3-</u>
[] | <u>4+</u>
[] | <u>3-</u>
[] | <u>4+</u>
[] | | |
| 10) Has this child's mother received any teaching from the VHP about feeding her children? | <u>Yes</u>
[] | <u>No</u>
[] |
| 11) If so, about what subjects has she received teaching from the VHP? | _____
_____ | | | | | | | |
| 12) In what foods is vitamin A found? | _____ | | | | | | | |

Attachment 8
BASE LINE SURVEY FORM

VILLAGE _____

DATE _____

FOR EVERY CHILD UNDER 6, COMPLETE THE QUESTIONS IN THE COLUMN FOR THE CHILD'S AGE (MORE THAN ONE CHILD MAY BE INCLUDED ON ONE FORM)

<u>AGE:</u>	<u>0-5 mos</u>	<u>6-11 mos</u>	<u>12-23 mos</u>	<u>24-71 mos</u>				
<u>BORN:</u>	13/Apr/89- 12/Oct/89	13/Oct/88- 12/Apr/89	13/Oct/87 12/Oct/88	13/Oct/83- 12/Oct/87				
1) Road to Health Card?	<u>Yes</u> []	<u>No</u> []	<u>Yes</u> []	<u>No</u> []	<u>Yes</u> []	<u>No</u> []	<u>Yes</u> []	<u>No</u> []
2) Date of birth?	_____	_____	_____	_____				
3) Had DTP3, polio 3, <u>and</u> measles before age 12mos? (measles date? _____)	<u>Yes</u> []	<u>No</u> []	<u>Yes</u> []	<u>No</u> []				
4) Did mother receive vitA within 2 mos. of delivery of this child (by history)?	<u>Yes</u> []	<u>No</u> []	<u>Yes</u> []	<u>No</u> []				
5) Is child Breast fed?	<u>Yes</u> []	<u>No</u> []	<u>Yes</u> []	<u>No</u> []	<u>Yes</u> []	<u>No</u> []		
6) Does child receive other foods?	<u>Yes</u> []	<u>No</u> []	<u>Yes</u> []	<u>No</u> []	<u>Yes</u> []	<u>No</u> []		
7) How many times a day is the child fed?	<u>3-</u> []	<u>4+</u> []	<u>3-</u> []	<u>4+</u> []	<u>3-</u> []	<u>4+</u> []	<u>3-</u> []	<u>4+</u> []
8) How many of the last 7 days has the child eaten green leaves (nkwani, bonongwe, cassava), carrots, dzungu, papaya, or mango? (circle all that any child has eaten)?	_____	_____	_____	_____				
9) How many times per day does this child eat some oil, fat, sugar, or groundnuts (circle all that any child eats)?	<u>3-</u> []	<u>4+</u> []	<u>3-</u> []	<u>4+</u> []	<u>3-</u> []	<u>4+</u> []		
10) Has child had his eyes examined by a health worker (by history) since 13/Apr?	<u>Yes</u> []	<u>No</u> []	<u>Yes</u> []	<u>No</u> []	<u>Yes</u> []	<u>No</u> []		
11) Has this child received a dose of vitamin A (documented) since 13/April?	<u>Yes</u> []	<u>No</u> []	<u>Yes</u> []	<u>No</u> []				
12) Any evidence of trachoma?	<u>Yes</u> []	<u>No</u> []	<u>Yes</u> []	<u>No</u> []				

Attachment 9
IEF MALAWI
VITAMIN A PROJECT
BASELINE SURVEY RESULTS
(October 1989)

Children Surveyed:

Infants (0-11 mos)	263
12-23 mos	191
24-71 mos	420
Total	874

Coverage Data:

Road to Health Cards (0-71 mos)	686/828	82.9%
Fully Immunized (12-23 mos)	106/185	57.3%
Vitamin A to mothers of infants (within 2 mos of delivery)	92/254	36.2%
Vitamin A to children (12-71 mos) (within past 6 mos)	94/596	15.8%
Eye exam of children 6-71 mos (within past 6 mos)	131/705	18.6%

Prevalence of Nutritional Practices:

Breastfeeding of infants (0-11m)	255/263	97.0%
Breastfeeding 12-23 mos	163/187	87.2%
Complementary foods 0-2 mos	38/81	46.9%
Complementary foods 3-5 mos	57/61	93.4%
Complementary foods 6-11 mos	113/117	96.6%
Appropriate* infant feeding	207/256	80.9%
Feeding 4 or more times per day (24-71 mos)	128/414	30.9%
Energy-dense foods at least 4x/day		
6-11 mos	7/109	6.4%
12-23 mos	22/179	12.3%
24-71 mos	52/420	12.4%

- * "Appropriate" infant feeding is defined as breastfed throughout infancy, never bottlefed, solely breastfed if less than 3 mos, and receiving complementary foods if 6 mos or older.

Attachment 9
(continued)

PERCENT OF HOUSEHOLDS REPORTING USE OF VITAMIN A-RICH
AND ENERGY-DENSE FOODS FOR FEEDING CHILDREN 6-71 MOS

Average Frequency of Consumption of Vitamin A Rich Foods:
(mean number of days in past week at least one food eaten)

6-11 mos	219/109	2.0
12-23 mos	451/172	2.6
24-72 mos	1161/414	2.8

Trachoma Prevalence:

12-71 mos	72/565	12.7%
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Vitamin A-Rich Foods:

Nkwani (pumpkin leaves)	446/536	83.2%
Bonongwe	196/530	37.0%
Cassava leaves	99/536	18.5%
Carrots	3/541	0.6%
Dzungu (pumpkin)	219/525	41.7%
Papaya	331/535	61.9%
Mango	212/531	39.9%

Energy-Dense Foods:

Oil	150/532	28.2%
Fat	291/532	54.7%
Sugar	419/532	78.8%
Groundnuts	368/534	68.9%

Attachment 10

HSA SUPERVISORY REPORT
QUALITY CHECKS

1. Ask the VHP if there are any new families, pregnancies (*), deliveries, children who have passed their sixth birthday (check the appropriate box), deaths (---), or out-migrations (X) which have not yet been recorded. Assure that both a birth date and a date of death are recorded for any infant who breathed or cried prior to death.
2. Check the counts of children under 6 and mothers of infants under 2 months of age by writing down today's date and:
 - a) subtracting 6 years, assuring that only children whose birthdate is after this date are included in the count (check the box on the roster for any child who passes his sixth birthday).
 - b) subtracting 2 months, assuring that only the mothers of infants whose birthdate is after this date are included in the count.
3. Be sure that the number of target households does not exceed the number of children under six plus the number of pregnant women.
4. Be sure that the number of children who received services (children under 6 with cards at the last session plus those who received services during home visits) does not exceed the total number of children under 6.
5. Be sure that the number of mothers who received vitamin A within 2 months of delivery (those who received from the VHP or rallies plus those who receive vitamin A from other sources) does not exceed the total number of mothers with infants less than 2 months of age (unless an infant has died since the mother received vitamin A).