ZAMBIA HEALTH MANAGEMENT INFORMATION SYSTEM (HMIS): TECHNICAL ASSISTANCE IN INFORMATION SYSTEMS

Zambia
14 July-September 1, 1997

Mary Church

BASICS Technical Directive: 019-ZA-01-033
USAID Contract Number: HRN-Q-19-93-00032-00

a

TABLE OF CONTENTS

ACKNOWLEDGMENTS

The HMIS development team has been supporting the design and implementation of a new national reporting system for the past year. The work described in this report should be considered the effort of a team composed of the following persons under the direction of Dr. Eddie Limbambala, Director of Monitoring and Evaluation, Central Board of Health, Zambia, and Mr. Charles Mundale, HMIS Coordinator: Jaap Koot, Tabo Mubonda, Anne Young, and the consultant. The DHMTs of Kaoma, Mongu, and Solwesi provided both personal and professional hospitality during this mission.

C

ACRONYMS

BASICS	Basic Support for Institutionalizing Child Survival
CBoH	Zambian Central Board of Health
CDC	Centers for Disease Control
DANIDA	Danish International Development Agency
DHIO	District Health Information Officers
DHMT	District Health Management Team
FAMS	Financial and Administrative Management System
HMIS	Health Management Information System
IMCI	Integrated Management of Childhood Illness
ITG	Integrated Technical Guidelines
USAID	United States Agency for International Development

EXECUTIVE SUMMARY

Purpose of the Trip

USAID/Zambia, in collaboration with BASICS and the Centers for Disease Control (CDC), for several years has provided both technical and logistic support to the development of a new Health Management Information System (HMIS) in Zambia. In October 1996, the Zambian Central Board of Health (CBoH) approved a design and implementation plan for the HMIS. The consultant is the information systems specialist in the HMIS development team, and this trip forms a part of ongoing technical support for nationwide implementation of the system.

Activities

Work done during the second and third quarters of 1997 has focused on pilot testing the system in 12 pretest districts and ongoing refinement in 2 development districts. Three major activities were undertaken during this trip were 1.) introduction of automated support for HMIS, 2.) review and support of facility-level use of instrumentation, and 3.) collaboration with other programs in preparation for national rollout.

Automated HMIS Support

The consultant developed automated support for data recording, analysis, and electronic reporting. The district health information officers (DHIOs) in the two development districts were trained in using the system; they installed the system and used it to analyze the second quarter's HMIS data. The system operation and management support capabilities were reviewed in meetings with key trainers and with the district health management teams (DHMTs), and the automated system was revised accordingly. The system was also installed at the national level, and a limited amount of data for 1992-1996 was entered. There was a positive response from those who were introduced to the system; it was found to be both useful and user friendly.

Review and Support of Facility-level Use of Instrumentation

Virtually all of the 270 health facilities in the pretest districts were visited during August. The consultant was team leader for Solwezi District and visited 20 health facilities. These visits form part of the HMIS training process. The visiting team supports the practical use of classroom training and corrects any misunderstandings. Both the HMIS development team and the training participants agree that this field follow up is essential for accurate and consistent recording of information.

This follow up of pretest districts also provided an opportunity to review the system, training process, and documentation, in preparation for nationwide training in the system scheduled for January 1998. After reports for all districts had been received, the HMIS development team

prepared a newsletter for distribution to all pretest facilities describing the lessons learned and any recommended changes in procedures.

At the end of August, an independent evaluation of the cascade training methodology and the training agenda and materials was undertaken. The results of this evaluation will provide the basis for revising training procedures and documentation.

Program Collaboration and Preparation for National Rollout

The HMIS training involves at least two persons from every health facility in the country, each for two weeks. It can be used as a vehicle to introduce other related procedures and materials. In the past, the Financial and Administrative Management System (FAMS) procedures and *Integrated Technical Guidelines for Front Line Health Workers* have been successfully introduced in association with the HMIS training.

Two additional opportunities for collaboration have emerged—with the quality improvement and supervisory checklist initiatives within the CBoH's Directorate of Monitoring and Evaluation, and with the CBoH's Human Resources department. Mutually agreeable plans for collaboration were reached with these groups.

The HMIS development team revised registers, reporting formats, training materials, and documentation of procedures based on the results of the August review and on other feedback received since they were introduced in May.

Conclusions and Next Steps

While professional health facility staff are able to use the instrumentation and to complete the registers, tally sheets, and reporting forms, there are serious shortcomings in understanding how to interpret the data, and indeed, in understanding of basic medical terminology, case definitions, and treatment. In other words, while data can be captured, there is a danger that the data will be inaccurate, poorly understood, and not used effectively to improve service. The second follow-up round in the HMIS training process, in October, focuses on using the data in the quarterly problem solving and action planning cycle and supports the training given in these areas.

Regular supportive supervision is an essential element in sustaining and continuing improvement in service. Besides simply reviewing the HMIS operations, the second round of follow-up visits provides an opportunity to integrate the problem solving and supervisory processes. A workshop has been planned for October, in collaboration with IMCI/BASICS, to introduce and refine a model for supportive supervision. This workshop will lead into the follow-up visits, where the model will be introduced and tested. This supervisory model will be modified based on the experience in October and included in the HMIS nationwide training scheduled for the first quarter of 1998.

The HMIS development and implementation process is a long-term effort. A series of steps for the remainder of 1997 and 1998 have been planned for some months. These include nationwide training and follow up, implementation at the regional and national levels, and automation. A detailed list of tasks and schedules is included in Appendix A.

PURPOSE OF THE TRIP

The tasks to be accomplished in this trip were defined by the HMIS implementation schedule, which was agreed to in October 1996. The trip had three main purposes:

- introduce automated support for the HMIS in the development districts (Kaoma and Mongu)
- support and review use of HMIS instrumentation in pretest districts
- prepare for nationwide HMIS training, and review ongoing integration with other CBoH initiatives

BACKGROUND

Zambia has been reforming its health service delivery system to support decentralized service management. The information system has been one of the first targets of reform, so that the information responds directly to local management needs and to document the progress and effects of reform. After a series of preparatory studies undertaken by a variety of organizations, the current HMIS design and implementation plan was approved in October 1996.

Two districts (Kaoma and Mongu) were selected as development districts. They have had experience in using data to plan and in using computers, as well as being early adopters of many of the reforms. In January 1996, new forms and procedures were introduced in these districts through cascade training: a district training-of-trainers (ToT) who then trained two persons from each health facility. Use of the instrumentation was reviewed one month after introduction, and the use of the information to analyze and plan was reviewed at the end of the first quarterly reporting cycle. In April, after this review, the instrumentation and procedures were revised, and a core group of trainers trained. In May these core trainers conducted ToTs for district trainers in 12 districts in the country. The district trainers trained the facility staff. By 1 July, the new HMIS was being used at every facility in the pretest districts.

In July the development districts completed the second quarterly cycle using the new HMIS and were ready to begin using automated support. In August the pretest districts, having used the system for a month, were ready for a first follow up and review of the instrumentation. It was also time to begin detailed planning for the nationwide training scheduled for the first quarter of 1998, and to review opportunities for integration with other reform initiatives.

TRIP ACTIVITIES

Automated HMIS Support

Automated support for the HMIS is made possible through DANIDA's procurement of information technology for each district. The HMIS development team and DANIDA information technology specialists coordinate their activities so that equipment is installed and basic computer training completed before the automated HMIS is introduced. Another condition for introduction of the automated HMIS is that the district have completed at least one quarterly reporting cycle using the new HMIS in its manual form.

The consultant prepared a data entry and analysis computer program before arriving in Zambia. The program operates in MicroSoft Access 7.0 (MS Office Professional 97), the environment of choice for the CBoH. The computer program expects data from the standard HMIS reporting forms (HIA.1 and HIA.2). It then prepares reports for several indicator sets used at the district for communicating with different groups: local health advisory board indicators, CBoH contract indicators, the self assessment form, and disease patterns. Tables and graphs can be prepared for all indicators for a specific location; to compare a specific indicator over time; or to compare a specific indicator for different locations. Appendix B includes examples of reports prepared using the HMISdb. A copy of the computer program is included with this report, along with installation instructions.

This program was installed and the DHIOs were trained in its use. Districts then entered data for the second quarter (April-June) which had just been received from facilities. At the end of the first week, all of the core and district trainers from Kaoma and Mongu met for a day to review the automated system and to discuss how the information available through it could be incorporated into the DHMT's procedures, including its collaboration with the local governing body, the District Health Board. Output from the day's workshop was a plan for presenting the automated HMIS to the DHMTs during meetings scheduled for the next week. Appendix C includes the minutes from this meeting.

During the next week the consultant made the changes to the computer program requested during the preceding training sessions and meetings, assisted the DHIOs in preparing for the DHMT meetings, and attended these meetings. Several important issues regarding the use of information arose.

- Catchment population sizes remain a vexing problem. It is very difficult to get accurate estimates. Reliability of the many public health indicators that are based on population size depends on accurate population estimates. In addition, the district population estimate used by the national level is different from the sum of all the population estimates of the facility catchment populations.

District use of one set of figures for internal management and another set for reporting is common. This will introduce serious inconsistencies into the HMIS. Since population size is related to budget, the guidelines for population estimates probably need to be resolved at the central policy level.

- DHMTs need to identify a source of technical advice on information technology that can advise on the use of the technology, as well as on the procurement of accessories.

- The Mongu District Health Board is more interested in morbidity and mortality as management indicators than public health indicators. This response to identifying health service needs is also often encountered when introducing preventive care into communities without access to health care facilities. It takes a bit of experience and education to understand the value of preventive care. In the forthcoming months the DHMTs will need to educate their boards in the issues involved in providing health services. Information can be a nonthreatening support for introducing change, and opportunities should be sought for using information from the HMIS to assist in educating the DHMTs.

Review and Support of Facility-level Use of HMIS Instrumentation

Follow up of the facilities' use of the HMIS registers, tallies, and forms is scheduled after the first month of using the system. Each health facility in each pretest district (some 270 facilities) was visited to obtain feedback on the new HMIS, the new Financial and Administrative Management System (FAMS) procedures, and the *Integrated Technical Guidelines for Front Line Health Workers* (ITG). (The instruments used to review the facilities' implementation of the HMIS training are included in Appendix D.) The consultant participated as the team leader in Solwezi District and briefed and debriefed the teams in Masaiti, Kapiri Mposhi, and Kabwe urban districts.

The consultant visited some 20 health facilities in Solwesi. (An itinerary for the Solwesi team is included in Appendix E.) In general, the *Integrated Technical Guidelines for Front Line Health Workers* was very well received, with minor corrections suggested in content and layout. The new procedures in stores management, introduced by FAMS, were also well understood. However, delay in implementation of the pull system, in which the health facilities order according to their needs, has made some of the stores' procedures inapplicable in the current situation, where facilities' supplies are effectively determined at the district or at the center. The facility staff in Solwesi District, with some exceptions, appeared to understand the use of the new HMIS instrumentation; however, the understanding of basic medical terminology, especially as it relates to maternal and child health, is less clear. Problems in understanding basic medical terminology were documented by the team's physician and submitted to the ITG group for review. The trip report for the Solwesi team, and for the HMIS support group as a whole, are included in Appendix F.

Each district review team submitted a trip report, which was discussed by the HMIS development team. Based on these discussions, an HMIS newsletter was prepared, with responses to questions that arose during the field visits. This newsletter is included as Appendix G.

Program Collaboration and Preparation for National Rollout

Nationwide training had been scheduled to begin in the fourth quarter of 1997. However, after setting the schedule for hiring district officers, as well as implementation of other reform measures, the CBoH has determined that the first quarter of 1998 would be a better time for training. The HMIS development team concurs in rescheduling the training.

During the last week of this visit the development team worked together to revise the forms, training materials, and procedures manuals in preparation for national rollout of the system. The team also met with human resources specialists to discuss how best to integrate this information system, and its training, with the HMIS. Meetings with quality assurance and supervision specialists also helped to prepare for the October meetings.

CONCLUSIONS AND NEXT STEPS

The follow-up activities have been described in the Executive Summary and are detailed in Appendix A.

ITINERARY

14 July:	depart Santa Fe
16 July:	arrive Lusaka; meet with Dr. Paul Zeitz, USAID/Zambia, and Dr. Jim Hiheby, QA CTO/USAID/DC to discuss coordination of HMIS with quality assurance and supervision initiatives
17-18 July:	meet with colleagues in CBoH to brief on development of automated system and to learn of plans for supervisory round of visits
19 July:	travel to Kaoma
20 - 22 July:	training Kaoma in automated system; Cornelius Njelessani (CboH information technology specialist) and Anne Young observe/ support from central level
23-24 July:	travel to Mongu (23rd); training Mongu in automated system
25 July:	meet with district and core trainers for feedback on automated HMIS
26-27 July:	modify computer program.
28 July:	work with Mongu team to prepare for meeting with DHMT
29 July:	meet with Mongu DHMT to introduce automated HMIS; meet with Leuwanika Hospital, and district and provincial officers to discuss use of HMIS in outpatient department
30 July:	complete work with Mongu; travel to Kaoma
31 July:	work with Kaoma team to prepare for meeting with DHMT
1 August:	meet with Kaoma DHMT
2 August:	travel to Lusaka
3 August:	meeting
4 August:	with HMIS team, complete arrangements for follow up visits
5 August:	travel to Ndola, meeting and briefing district teams from Kabwe urban, Kapiri Mposhi, and Masaiti
6 August:	travel to Solwezi, meet and brief district team; reorganize schedule to account for absence of one vehicle
7-19 August:	visit health facilities; detailed itinerary in Appendix E
16-17 August:	meet with Dr. Gilbert Burnham, QA and supervision specialist, to discuss potential for integrating national supervisory checklist with HMIS supervisory process
20 August:	travel to Ndola; meet and debrief Masaiti district team in Masaiti
21 August:	travel to Lusaka; meet and debrief Kabwe and Kapiri Mposhi district teams
22 August:	briefing from HMIS training evaluators; mutual debriefing on follow up visits
23-24 August:	work on automated system
25-27 August:	revise HMIS materials; meet with World Food Program representative to discuss WFP's information needs; meet with human resources specialists to discuss linkages and scheduling issues between Human Resources Information System and HMIS; meet with DANIDA and Carl Bro

	consultants regarding deployment of information technology to the districts
28 August:	debrief USAID, DANIDA, and CBoH officials on current status of HMIS
29 August:	complete plans for remainder of 1997 and into 1998
30 August:	meet with Liz Mason, WHO Harare, regarding notifiable diseases and case definitions; meet with Elizabeth Serlemitsos of Johns Hopkins communication project regarding linkages between automated HMIS and SCOPE, JHU's software to support planning
31 August:	depart Lusaka
1 September:	arrive Santa Fe

PERSONS MET

USAID/Lusaka:	Paul Hartenberger, Chief Health Officer
	Dr. Paul Zeitz, Assistant Health Officer
USAID/DC:	Dr. Jim Hiheby, CTO QA Project
QA Project:	Jolee Reinecke, Chief of Training
Johns Hopkins Communications	
Project:	Elizabeth Serlemitsos, Chief of Party
CBoH:	Dr. Eddie Limbambala, Director Monitoring and Evaluation
	Mr. Charles Mundale, HMIS Coordinator
	And all other members of the M&E directorate and FAMS specialists
	Jennifer Nyoni, Director Human Resources
DANIDA:	Erik Blas, Chief Health Advisor
	Dr. Knud Jensen, Medical Advisor
ODA (formerly):	Tim Martineau, Human Resources Specialist
World Food Program:	
	Sarah Gowers, Program Officer
WHO/Harare:	Dr. Liz Mason, Senior Medical Advisor
Kaoma:	BS Sitali, DHIO, principal contact; also met with rest of DHMT and with Dutch advisor
Mongu:	B Nsonga, DHIO, principal contact; also met with rest of DHMT, provincial HMIS collaborators and Dutch district and provincial advisory teams

Kabwe, Kapiri Mposhi, and Masaeiti: district HMIS follow up teams and selected members of the DHMT

Solwezi: district HMIS follow up teams, selected members of the DHMT, and health facility staff

APPENDIXES

APPENDIX A

HMIS Development Tasks Last Quarter 1997 and Year of 1998

HMIS Development
Tasks Last Quarter 1997 and Year of 1998

1. End of pre-test Phase

1.1. Supportive supervision (follow-up visits) October 1997

In October 1997 the same teams of HMIS/FAMS/ITG trainers will go out to all health institutions in the pre-test districts and meet with the DHMT to do the analysis of data and planning of action for improvement of the performance.
During the visits the teams will:

- assess the quality of the analytic tools and
- improve the capacity of district staff and health workers to integrate HMIS self-assessment in the supervision programme
- "hand-over" the HMIS/FAMS/ITG programme to the district teams to further follow-up

The supervision teams will make use of tools developed:

- supervision checklists
- Problem analysis QA techniques

In order to prepare the visits a two or three days meeting with core trainers and key district people will be organized in early October.

1.2. Review of all materials

In August the registers, tally sheets, etc. are being revised. After the visits in October analytic tools can be revised. By early November 1997 all materials (including inputs from sub-systems like FAMS and HRIS) must be ready for printing.

1.3. Review of the training strategy

The evaluation of the cascade training will provide recommendations for improvement of the training programme. The integrated training in FAMS/HMIS/ITG for DHMTs requires adjustments, as well as the training of district hospital staff. In October the training materials and manuals need to be revised.

2. Preparation for Roll-Out Phase

2.1. Briefing of the Directorates of CBoH, Regional Offices, Technical Managers and MOH

An extensive briefing of the directors is required, including a demonstration of the HMIS computer programme. The aim of the meeting is to get full CBoH commitment for the last part of the pre-test phase and for the roll-out phase.

The HMIS Development Team proposes this meeting to take place in the week 22-25 September.

14

2.2. Printing of stationery

All revised materials need to be printed in sufficient quantities for the roll-out phase. The CBoH has to set a policy on printing, distribution and funding of the stationery.

2.3. Communication on work plan 1998

The CBoH has to communicate the work plan for integrated training and for introduction of FAMS, HMIS and ITG to the districts, so that the districts can incorporate the plans in their 1998 work plans. In 1998 districts will have to allocate much staff time, transport and funds for the introduction of the new systems.

3. Roll-Out Phase

The HMIS development team is of the opinion that training should start (soon) after finalizing the delinkage process.

3.1. Update of Core trainers

The roll-out phase has to start with an update of the core trainers on changes in the programme, changes in the system and changes in the training programme. It may be necessary to substitute a number of core trainers who will not be able to continue the work. The best trainers in the pre-test districts can be used as resource base.

3.2. Training of Districts

As planned, training of the remaining districts will be in batches of about 20 districts. In each region about five core trainers will train about 20 trainers from five districts at one time (ToT training). The district trainers will inform and sensitize their colleagues in the DHMT and will train health workers in the districts (in two batches). All districts should be able to start the implementation of the new HMIS and FAMS systems by the beginning of the second quarter of 1998.

3.3. Follow-up visits

The FAMS/HMIS/ITG introduction programme consists of a training programme and two follow-up visits (one after six weeks and one after the end of the quarter) .

4. Annual Reporting Format

The HMIS development team is still in the process of developing an HMIS reporting format. A first draft has been submitted to the Directorate M&E.
In the first quarter of 1998 the format will be pre-tested in the 14 pre-test or development districts.

5. Hospital Management Information System

The HMIS development team does not intend to develop an information system hospital management, since others have initiated the development of hospital based systems. However, it is essential to link HMIS to the hospital information systems as

soon as possible. The hospital information systems must be capable to provide the necessary data to the HMIS for aggregation of diseases diagnosed, service delivered, etc. Hospitals should be able to calculate National indicators.

6. HMIS Development team support to the Regional Level

The Regional level has three roles in operating the HMIS:
- aggregation and analysis of the data coming from the districts
- forwarding data to the CBoH HQs (with advice) and processing feed-back from the CBoH.
- feed-back and supportive supervision to the districts.

The HMIS development team wants to work with the Regional Health Offices to develop protocols and standards with regard to these tasks. By involving the Regional Health Offices in the last stage of the pre-test phase the HMIS development team will provide a type of jump-start introduction to the new system.

7. HMIS Development Team support to the Central Board of Health

The Central Board of Health has four tasks with regard to HMIS
- Aggregation of data coming from the regions and analysis (per district).
- Dissemination of the information to other directorates, the ministry of health and other stakeholders.
- Interfacing with other units like performance audit, HSR, etc.
- "Maintenance" of the system, e.g. incorporation of new technical and administrative developments in the HMIS. (An external evaluation early 1999 will provide the necessary input for an update of the system.)
- Development of a training strategy for pre-service and in-service training to expose newly posted health workers to the HMIS and FAMS systems.

The HMIS Development Team will be working with newly appointed officers in the Directorate M&E to introduce them in the system and to provide advice, when requested.

8. Automation of HMIS

8.1. Preparation and coordination of the introduction of automation

It is necessary to plan for:
- procurement of hardware and software
- maintenance of the computers
- computer literacy training

The time schedule for deployment and training in information technology need to be determined before installation of the automated HMIS can be scheduled.
Furthermore it is required to test the compatibility of the systems and see whether exchange of data between the HMIS and FAMS software programme is possible. This test should be done before as soon as possible.

8.2. Automation of HMIS in the pre-test districts

Introduction of the automated HMIS system in the 12 pre-districts in conjunction with the FAMS is planned for end 1997 or early 1998.

At the same time the South-Western Regional Health Office should start with the automated system to try out the aggregation and data file transmission procedures (using data from 8 SW-region districts).

8.3. Automation of HMIS in Regional Health Offices and National CBoH

Once sufficient data are available for other regions and at the national level, aggregation and analysis using computerized systems should start. Initially this may entail entering many data manually, while districts do not yet have computers available.

8.4. Automation of HMIS in the Roll-out districts

According to plan automation of the HMIS should start one quarter after introduction of the manual system.

8.5. Automation of annual report

Using the results of the pre-test with regard to the annual report format, a computer programme will be developed to produce annual reports analyzing the indicators accepted by CBoH and producing information on support services and disease trends.

9. Community Based Health Management Information System

The CB-HMIS task force has developed an outline for a CB HMIS. This is being pre-tested in a number of districts in Western Province.
Many districts in the country recognize a need for having a good CB-HMIS.
It is necessary to revive the CB-HMIS policy development. In October 1996 a consultative meeting in Senanga agreed on a decentralized policy where CB-HMIS would be introduced in districts with an active community partnership policy. A basic CB-HMIS system would be proposed with the possibility of adjustment to local needs. Experiences in Western Province have to be shared with other interested districts, and dissemination of the materials should take place.

Gantt Chart HMIS/FAMS/ITG last quarter 1997 - year 1998 Work Plan HMIS Development Team

No	Task	Oct	Nov 97	Dec 97	Jan 98	Feb 98	Mar 98	Apr 98	May 98	Jun 98	Jul 98	Aug 98	Sep 98	Oct 98	Nov 98	Dec 98
1.1	Supportive supervision Pre-test Districts	XX														
1.2	Review Materials	XX	X													
1.3	Review Training programme	XX	X													
2.1	Briefing Directors	Sept														
2.2	Printing stationery		XX	X												
2.3	Communication to Roll-out Phase districts	XX	XX	X												
3.1	Update Core Trainers				XX											
3.2	Training Roll-out districts				XX	XX	XX									
3.3A	Follow Up visits to Roll-out districts (mid-quarter)						XX	XX	XX							
3.3B	Follow Up visits to Roll-out districts (end of quarter)										XX					
4.	Annual Reporting format						XX									
5.	Hospital Management Information				XX											
6.	Support to Regions	XX			XX			XX			XX					
7.	Support to CBoH	XX			XX			XX			XX					
8.1	Coordination and Introduction Automation	XX														
8.2	HMIS Automation Pre-test districts + SW RHO		XX		XX											
8.3	HMIS Automation other Regions and CBoH					XX										
8.4	HMIS Automation Roll-out Districts											XX	XX	XX		
8.5	Automation Annual Report							XX								
9.	CB-HMIS Policy							XX	XX	XX						

HMIS Development
Tasks Last Quarter 1997 and Year of 1998

1. End of pre-test Phase

1.1. Supportive supervision (follow-up visits) October 1997

In October 1997 the same teams of HMIS/FAMS/ITG trainers will go out to all health institutions in the pre-test districts and meet with the DHMT to do the analysis of data and planning of action for improvement of the performance.
During the visits the teams will:

- assess the quality of the analytic tools and
- improve the capacity of district staff and health workers to integrate HMIS self-assessment in the supervision programme
- "hand-over" the HMIS/FAMS/ITG programme to the district teams to further follow-up

The supervision teams will make use of tools developed:

- supervision checklists
- Problem analysis QA techniques

In order to prepare the visits a two or three days meeting with core trainers and key district people will be organized in early October.

1.2. Review of all materials

In August the registers, tally sheets, etc. are being revised. After the visits in October analytic tools can be revised. By early November 1997 all materials (including inputs from sub-systems like FAMS and HRIS) must be ready for printing.

1.3. Review of the training strategy

The evaluation of the cascade training will provide recommendations for improvement of the training programme. The integrated training in FAMS/HMIS/ITG for DHMTs requires adjustments, as well as the training of district hospital staff. In October the training materials and manuals need to be revised.

2. Preparation for Roll-Out Phase

2.1. Briefing of the Directorates of CBoH, Regional Offices, Technical Managers and MOH

An extensive briefing of the directors is required, including a demonstration of the HMIS computer programme. The aim of the meeting is to get full CBoH commitment for the last part of the pre-test phase and for the roll-out phase.

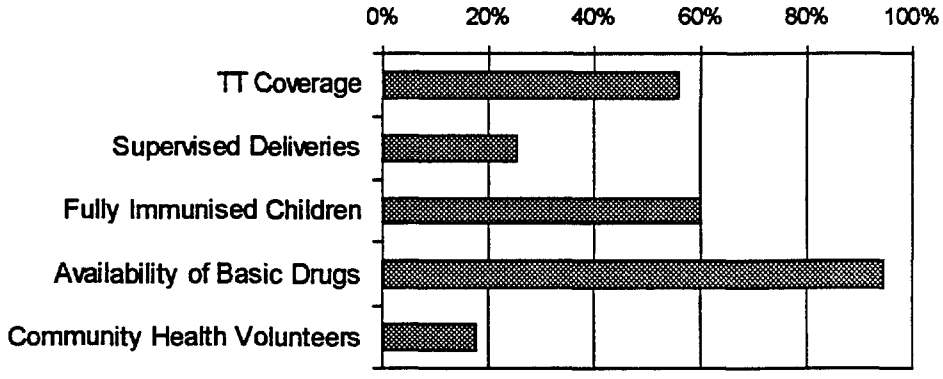
The HMIS Development Team proposes this meeting to take place in the week 22-25 September. - Need to include budget for roll out.

APPENDIX B

Examples of HMIS Reports

District Health Board
Mongu: 1997, Quarter 2

Indicator	Expected Demand	Service Delivered	% Coverage
TT Coverage	2,855	1,593	**56%**
Supervised Deliveries	2,750	693	**25%**
Fully Immunised Children	2,116	1,270	**60%**
Availability of Basic Drugs	336	318	**95%**
Community Health Volunteers	423	75	**18%**

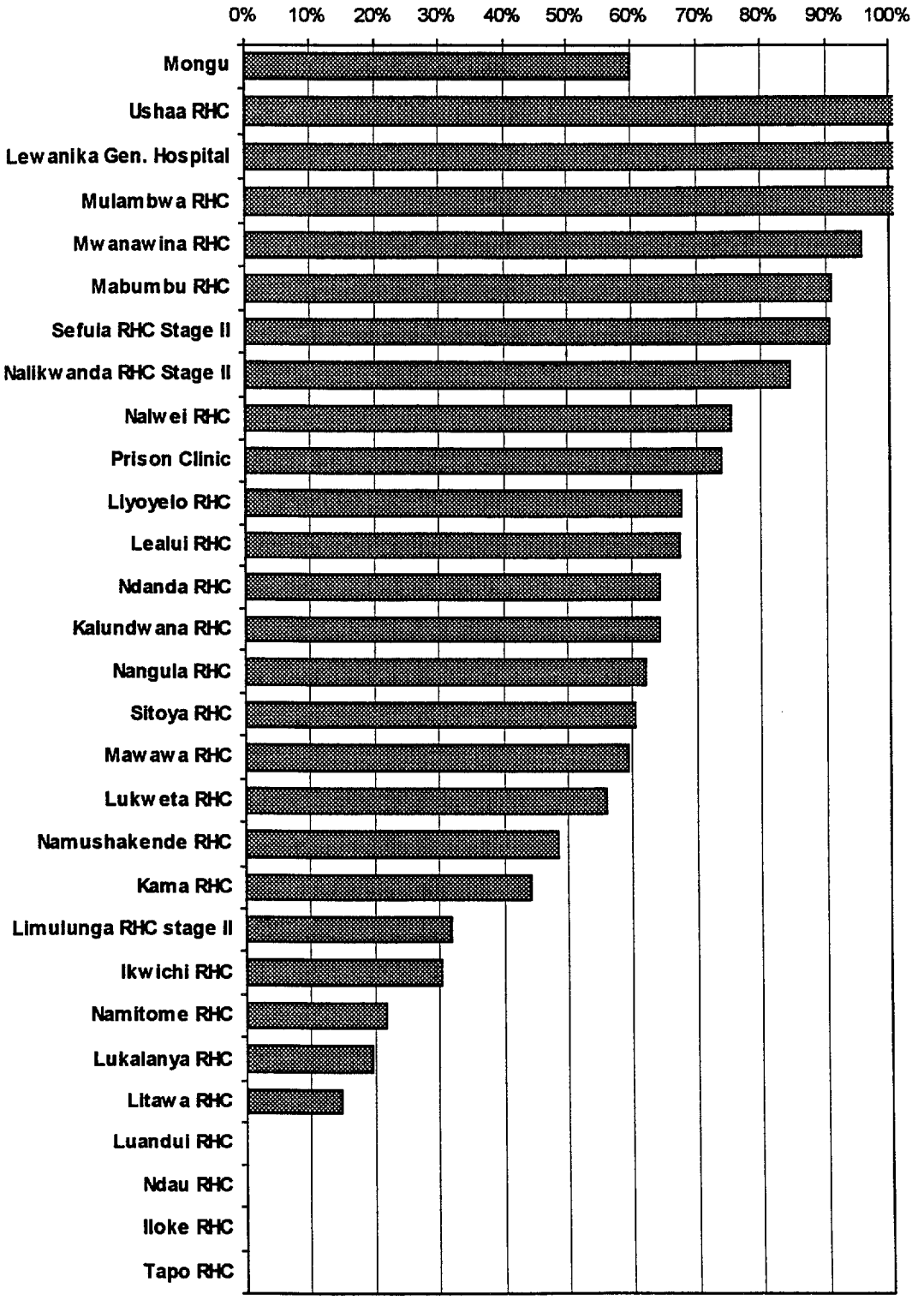


Underweight Ratio	15,719 under 5s weighed	4,330 underweight	**28%** % underweight
Staff Load: OPD and MCH	90,851 OPD and MCH attendance	89 staff	**15.01** attendance / staff day

Rundate = Wednesday, 01 October, 1997

21

District Health Board: Fully Immunised Children
Mongu: 1997, Quarter 2



Rundate = Wednesday, 01 October, 1997

22

District Health Board: Fully Immunised Children Mongu: 1997, Quarter 2

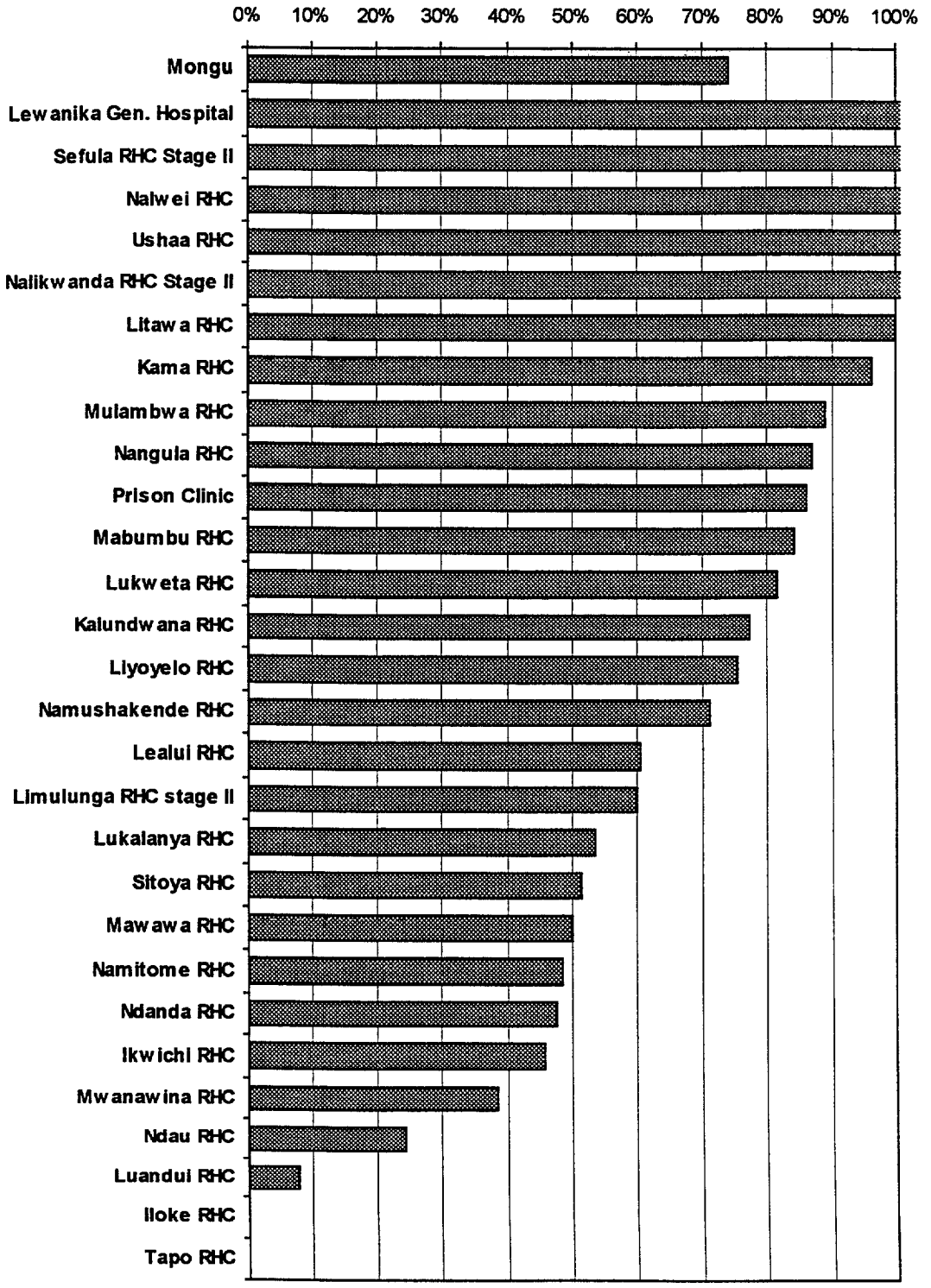
Area	Under 1	Fully Imm Under 1	% Coverage
Mongu	2,116	1,270	**60%**
Ushaa RHC	33	43	**131%**
Lewanika Gen. Hospital	86	98	**115%**
Mulambwa RHC	209	220	**105%**
Mwanawina RHC	71	68	**96%**
Mabumbu RHC	35	32	**91%**
Sefula RHC Stage II	92	83	**91%**
Nalikwanda RHC Stage I	53	45	**85%**
Nalwei RHC	66	50	**75%**
Prison Clinic	146	108	**74%**
Liyoyelo RHC	114	77	**68%**
Lealui RHC	64	43	**67%**
Ndanda RHC	28	18	**64%**
Kalundwana RHC	92	59	**64%**
Nangula RHC	103	64	**62%**
Sitoya RHC	45	27	**60%**
Mawawa RHC	76	45	**59%**
Lukweta RHC	50	28	**56%**
Namushakende RHC	84	41	**49%**
Kama RHC	50	22	**44%**
Limulunga RHC stage II	139	44	**32%**
Ikwichi RHC	70	21	**30%**
Namitome RHC	32	7	**22%**
Lukalanya RHC	103	20	**19%**
Litawa RHC	48	7	**15%**
Luandui RHC	105	0	**0%**
Ndau RHC	76	0	**0%**
Iloke RHC	47		
Tapo RHC			

Self Assessment
Mongu: 1997, Quarter 2

	Numerator	Denominator	Indicator	Target	Threshold	Problem?
Malaria Cases	23,184 (cases this prd)	(this prd, prev year)		<none>	85% - 115%	?
First Antenatal Attendance	2,112 (attend)	2,855 (est. preg)	**74%**	90%	80%	yes
TT Coverage	1,593 (preg with TT)	2,855 (est. preg)	**56%**	80%	70%	yes
Supervised Deliveries	693 (sup. del.)	2,750 (est. del.)	**25%**	50%	40%	yes
Family Planning New Acceptors	637 (this prd)	(prev prd)		0	0	?
STD Cases	1,223 (cases this prd)	(this prd, prev year)		<none>	85% - 115%	?
Under 5 Pneumonia Cases	892 (cases this prd)	(this prd, prev year)		<none>	85% - 115%	?
Under 5 Diarrhoea Cases	2,023 (cases this prd)	(this prd, prev year)		<none>	85% - 115%	?
Fully Immunised Children	1,270 (immun)	2,116 (under 1)	**60%**	80%	70%	yes
Underweight Ratio	4,330 (underweight)	15,719 (weighed)	**28%**	district>	?	?
Active Community Health Workers	64 active CHWs)	423 (expected)	**15%**	district>	?	?
Active trained TBAs	11 (active tTBAs)	212 (expected)	**5%**	<district>	?	?
Drug Kit Utilisation	74 (kits opened)	66,486 (OP attend)	**1.11** (kits / 1000 attend)	1	0.8 - 1.2	no
Drug Availability	318 (months avail)	336 (stock months)	**95%**	100%	100%	yes
Staff Load: OP and MCH	90,851 (attendances)	89 (staff)	**15.01** (daily staff load)	district>	?	?

Rundate = Wednesday, 01 October, 1997

Self Assessment: First Antenatal Attendance
Mongu: 1997, Quarter 2



Rundate = Wednesday, 01 October, 1997

25

Self Assessment: First Antenatal Attendance
Mongu: 1997, Quarter 2

Target: 90% **Threshold: 80%**

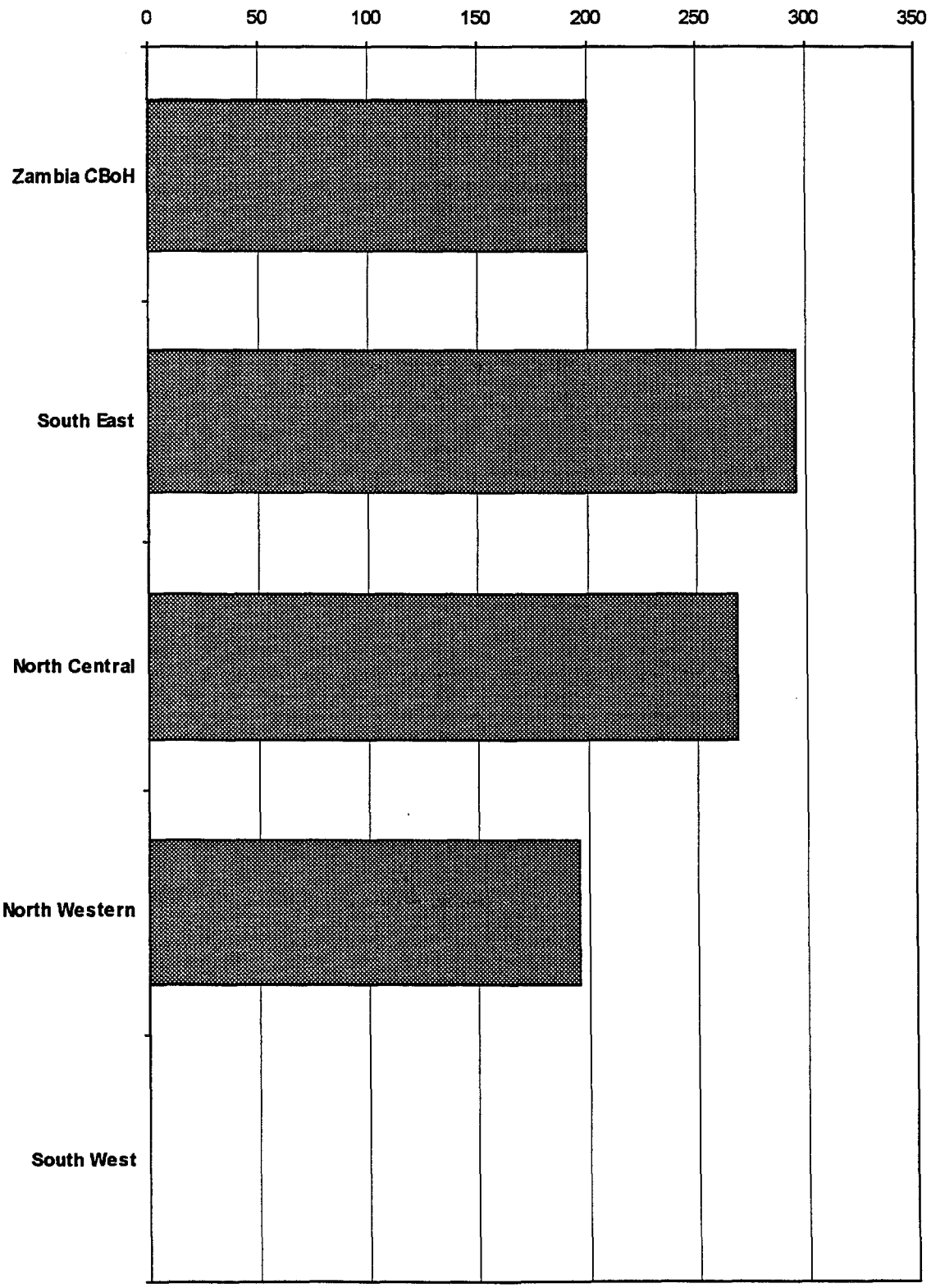
Area	First Attend	Est. Preg	% coverage	Problem?
Mongu	2,112	2,855	**74%**	yes
Lewanika Gen. Hospi	172	115	**149%**	no
Sefula RHC Stage II	166	123	**135%**	no
Nalwei RHC	112	90	**125%**	no
Ushaa RHC	53	44	**120%**	no
Nalikwanda RHC Sta	75	72	**104%**	no
Litawa RHC	64	64	**100%**	no
Kama RHC	65	68	**96%**	no
Mulambwa RHC	251	282	**89%**	no
Nangula RHC	121	139	**87%**	no
Prison Clinic	170	198	**86%**	no
Mabumbu RHC	40	48	**84%**	no
Lukweta RHC	55	68	**81%**	no
Kalundwana RHC	96	124	**77%**	yes
Liyoyelo RHC	116	154	**75%**	yes
Namushakende RHC	81	114	**71%**	yes
Lealui RHC	52	86	**60%**	yes
Limulunga RHC stag	112	187	**60%**	yes
Lukalanya RHC	74	138	**53%**	yes
Sitoya RHC	31	60	**51%**	yes
Mawawa RHC	51	102	**50%**	yes
Namitome RHC	21	44	**48%**	yes
Ndanda RHC	18	38	**48%**	yes
Ikwichi RHC	43	94	**46%**	yes
Mwanawina RHC	37	96	**39%**	yes
Ndau RHC	25	102	**24%**	yes
Luandui RHC	11	142	**8%**	yes
Iloke RHC		63		?
Tapo RHC				?

Rundate = Wednesday, 01 October, 1997

Contract Achievements
Zambia CBoH: 1995, All Quarters

% of OutPatients seen at Health Centres	8,835,503 (OP at HC)	0,615,003 (total OP)	**83%**
% of Deliveries at Health Centres	57,183 (del at HC)	57,183 (est. del)	**100%**
Per Capita OutPatient Attendance	0,615,003 (total attend)	9,071,422 (total pop)	**1.17** (per capita)
taff Load: Hospital Admissions	(hosp admits)	(hosp IP staff)	(per staff day)
taff Load: Outpatient and MCH Attendance	4,943,450 (OP MCH att)	(OP staff)	(per staff day)
Malaria Incidence	1,814,147 (total cases)	9,071,422 (total pop)	**200** (per 1000)
New Family Planning Acceptors	72,990 (new)	1,995,711 (est. WCA)	**37** (per 1000)
First Antenatal Attendance	251,617 (first attend)	489,860 (est. preg)	**51%**
IDS/STDs: Syphilis in Pregnancy	Data not available		
Fully Immunised Children	247,981 (total immun)	362,854 (est. under 1)	**68%**
Tuberculosis Defaulter Rate	Data not available		
Access to Safe Water	Data not available		

Contract Achievements: Malaria Cases / 1000
Zambia CBoH: 1995, All Quarters



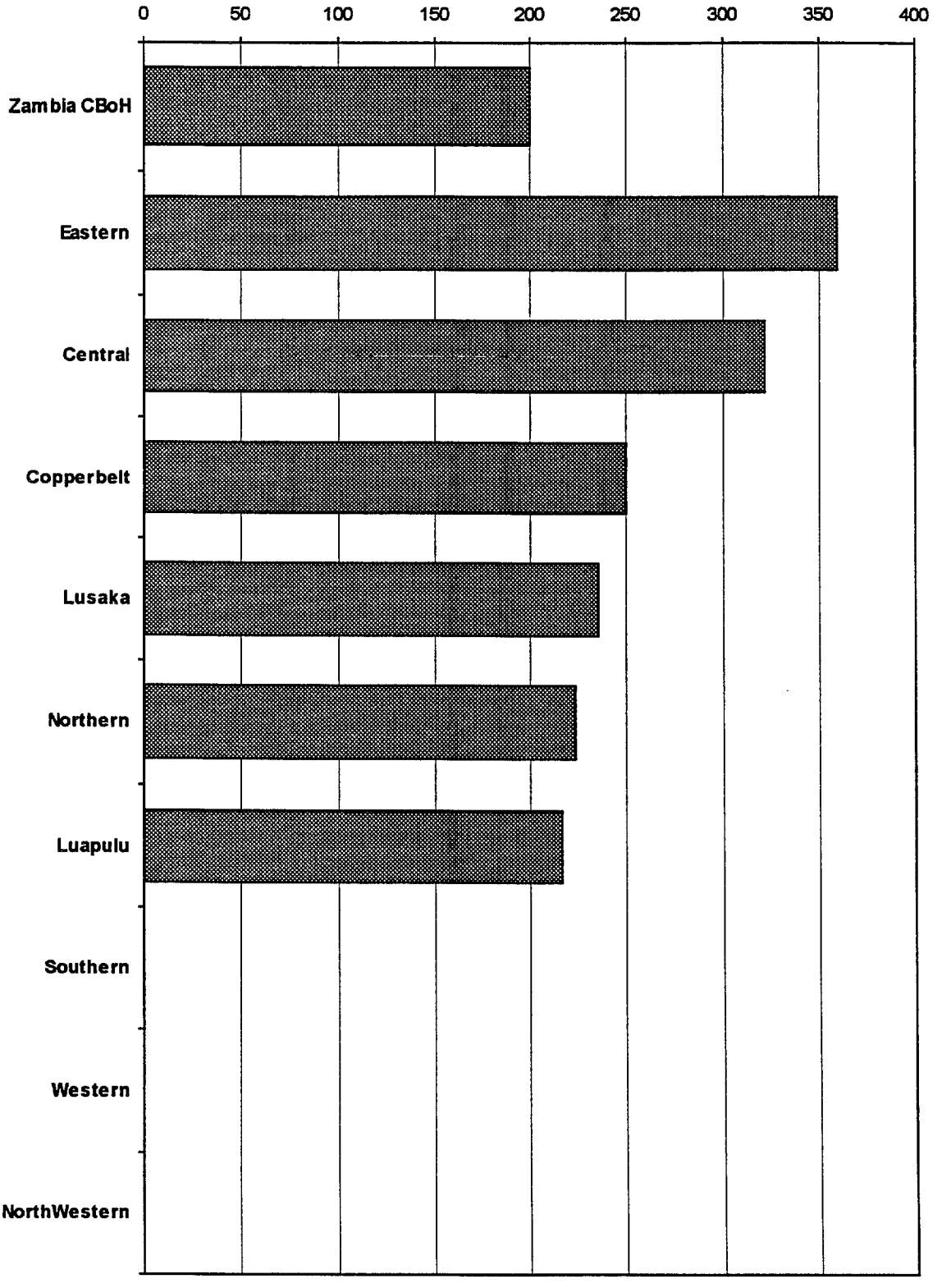
Rundate = Wednesday, 01 October, 1997

28

Contract Achievements: Malaria Cases per 1000 population
Zambia CBoH: 1995, All Quarters

Area	Malaria Cases	Total pop	cases / 1000 pop
Zambia CBoH	1,814,147	9,071,422	**200**
South East	733,799	2,485,278	**295**
North Central	538,129	2,003,326	**269**
North Western	542,219	2,765,029	**196**
South West		1,817,789	

Contract Achievements: Malaria Cases / 1000
Zambia CBoH: 1995, All Quarters



Rundate = Wednesday, 01 October, 1997

30

Contract Achievements: Malaria Cases per 1000 population
Zambia CBoH: 1995, All Quarters

Area	Malaria Cases	Total pop	cases / 1000 pop
Zambia CBoH	1,814,147	9,071,422	**200**
Eastern	429,598	1,193,526	**360**
Central	294,933	915,321	**322**
Copperbelt	405,565	1,623,336	**250**
Lusaka	304,201	1,291,752	**235**
Northern	243,196	1,088,005	**224**
Luapulu	136,654	630,955	**217**
Southern		1,113,895	
Western		703,894	
NorthWestern		510,738	

Contract Achievements: Malaria Cases per 1000 population
Zambia CBoH: 1995, All Quarters

Area	Malaria Cases	Total pop	cases / 1000 pop
Zambia CBoH	1,814,147	9,071,422	**200**
Lundazi	109,164	213,229	**512**
Chadiza	34,204	75,406	**454**
Mwense	41,302	93,889	**440**
Chama	23,989	59,938	**400**
Kabwe Urban	75,957	201,286	**377**
Kaputa	19,912	58,903	**338**
Kitwe	128,827	396,574	**325**
Chipata	117,391	362,387	**324**
Ndola Rural	60,222	189,142	**318**
Kasama	72,986	235,969	**309**
Chinsali	31,572	102,531	**308**
Ndola Urban	114,259	379,065	**301**
Kalulushi	19,383	73,908	**262**
Petauke	82,392	317,183	**260**
Samfya	33,724	135,170	**249**
Mkushi	33,746	135,874	**248**
Chilubi	12,238	50,236	**244**
Mumbwa	39,790	175,710	**226**
Lusaka Urban	224,115	1,016,940	**220**
Nchelenge	29,661	134,713	**220**
Katete	34,990	165,383	**212**
Serenje	23,540	128,474	**183**
Luanshya	28,380	160,759	**177**
Mbala	30,231	183,866	**164**
Mporokoso	11,740	71,967	**163**
Chililabombwe	10,913	68,261	**160**

Rundate = Wednesday, 01 October, 1997

Contract Achievements: Malaria Cases per 1000 population
Zambia CBoH: 1995, All Quarters

Area	Malaria Cases	Total pop	cases / 1000 pop
Kawambwa	14,564	93,535	**156**
Luwinga	11,766	80,454	**146**
Chingola	26,312	182,919	**144**
Mpika	19,465	148,433	**131**
Isoka	18,191	155,646	**117**
Mansa	17,403	173,648	**100**
Mufulira	17,269	172,708	**100**
Lusaka Rural		274,812	
Kabwe Rural		273,977	
Kalomo		232,529	
Mazabuka		192,959	
Choma		190,934	
Mongu		171,450	
Senanga		170,034	
Solwezi		169,844	
Monze		135,461	
Kaoma		128,048	
Mwinilunga		116,147	
Kalabo		111,267	
Namwala		110,077	
Zambezi		87,295	
Sinazongwe		85,197	
Livingstone		84,632	
Sesheke		66,994	
Kabompo		64,287	
Lukulu		56,101	
Gwembe		48,890	

Contract Achievements: Malaria Cases per 1000 population
Zambia CBoH: 1995, All Quarters

Area	Malaria Cases	Total pop	cases / 1000 pop
Kasempa		46,278	
Siavonga		33,216	
Mufumbwe		26,887	
Chibombo	57,997		
Chongwe	30,181		
Kafue	39,797		
KapiriMposhi	63,903		
Luangwa	10,108		
Nakonde	15,095		
Nyimba	27,468		

34

APPENDIX C

Report on Development Trainers Review of Automated HMIS

SUPPORT OF DHMT WITH AUTOMATED HMIS MEETING HELD
AT LYAMBAI HOTEL – MONGU
On Friday, July 25, 1997
KAOMA and MONGU DISTRICT

Members present

1.	Beron Nsonga	DHIO-Mongu	Chairperson
2.	Erica Muchilabanji	QA-Kaoma	Secretary
3.	Mimi Church	CBoH	Facilitator
4.	Victor Mulambwa	PHIO	
5.	John Mulyata	SCO/QA-MDHMT	
6.	Sibeso. F. Sibeso	PCOP Mongu	
7.	George Fwelu	P-Accountant	
8.	Boni Sitali	DHIO -Kaoma	

I. WELCOME

Opening remarks:

The Chairman opened the meeting by welcoming everyone to the meeting at 11.30 hours. He mentioned in his opening remarks that the meeting was about the automated HMIS. The chairman read through the agenda points.

Agenda:

1. 10:00 -10:15 Welcome
2. 10:15 - 10:30 Review of information available from automated system
3. 10:30 - 12:00 Information for external organisations –
   a. District Health Board
   b. Central Board of Health
4. 12:00 - 13:00 Internal Management
5. 13:00 - 14:00 Lunch
6. 14:00 - 15:30 Support of Health Facilities
   a. Internal Management of Facility
   b. Integration of HMIS with Quality Assurance and Supervision
7. 15:30 - 17:00 Strategies for introducing HMIS automated support to the DHMT

Objectives:

The main objectives of the meeting were:

1. To get feed back on automated HMIS from Kaoma and Mongu Districts.
2. To share ideas on how information from HMIS can be shared or for:
   - Support of DHMT,
   - Support to Health facilities,
   - Reporting to District Health Boards and Central Board of Health.
   - To come up with ways of how to improve on the reports
   - To find out how best these reports can be introduced to the DHMT

Introduction:

The automated HMIS is intended for countrywide use. What is new is that:
Data is stored in a different way, from the previous type where spreadsheets were used.
Data can easily be entered and manipulated in any presentation from within the program.

II. REVIEW OF INFORMATION AVAILABLE FROM AUTOMATED SYSTEM

Types of Reports:

There are basically four [4] types of reports available in this system.

1. Public Health Flag:- With the following indicators:
   - Fully immunised under ones,
   - Availability of basic drugs,
   - Supervised deliveries and
   - Community Health Worker

2. Contract Indicators: for achievements.
   There are about fifteen [15] different indicators that the Central Board of Health would like the districts to be reporting on in respect to frequency and procedures. Examples of such indicators are:
   - Staff work load,
   - Proportion of OPD attendance,
   - Malaria incidence,
   - Tuberculosis Defaulter rates, to mention but a few.

3. Self Assessment: The automated indicators of such reports are developed for :-
   - Health Centre, Hospital and
   - District levels.

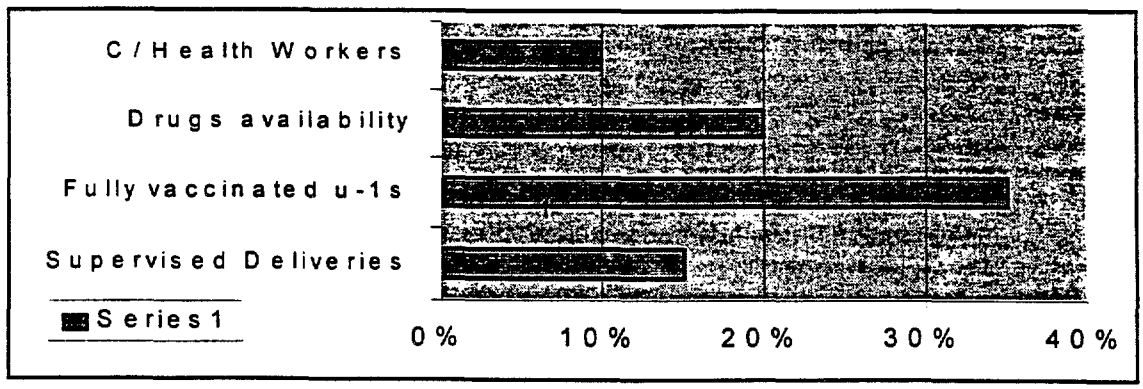
4. National HMIS Indicators like:
   - Case fatality rates,

   Will be primarily used annually. It was felt, how ever, in the meeting that the District Health Boards would need the same reports.

Presentation of Indicators:

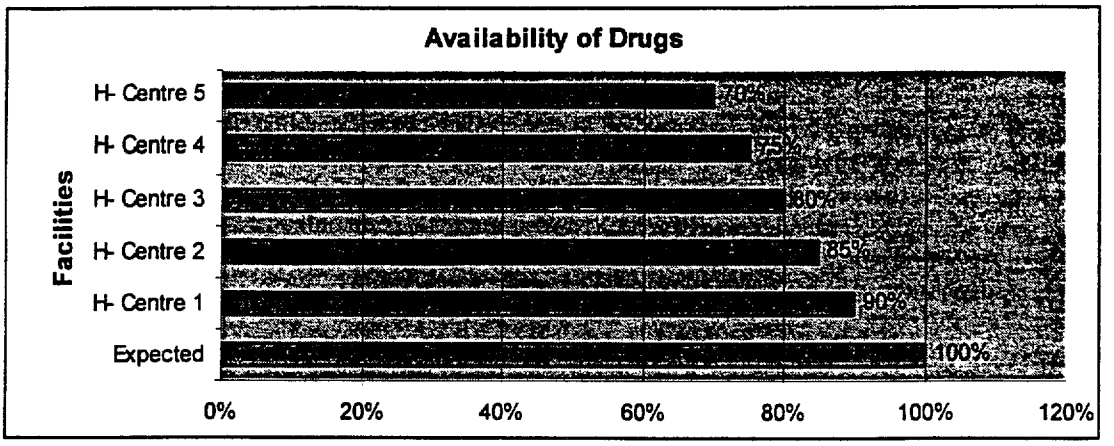
Public Health Flag

This is a basic format of data presentation that elicits coverage of the few chosen indicators in a graphic manner as illustrated hereunder.



This is eye catching data analysis in that it easily spells out at a glance the weak area in terms of coverage that would need much attention for improvement. Similarly, you would wish to look at different locations with one indicator to compare between specific locations' (facilities) performances as follows:

Indicator: Drug availability



Time trend is one other area one would like to look at this indicator, that might be annually or quarterly intervals. This would reveal as to whether services are available al round the period under review.

Enabling Conditions:

The meeting felt and made the following proposals to be critically analysed for quality data interpretation. Basically four areas of great concern as enabling conditions are:

1. *Population:*
   For any accurate results patterning demand for target population figures should be realistic. Demographic data should be updated and consistent.

2. *Procedures:*
   Procedures for data collection, with an element of compilation and frequency of when information should be presented to the DHMT should be well spelt out. This could be incorporated with other activities like supervisions.

3. *Consistency:*
   Resources need to be always available for effective indicator monitoring. To ensure continuity in service there should be consistence in resources like:
   - Drugs and
   - Staff

4. *User Friendly:*
   The system for Information management should be simple and easily accessible. The user should be able to access the information with out difficulties.

A question was raised on what shall be the type of equipment in circulation? In reply, Mimi church disclosed to the meeting the information technology that automation would preferably use uniform equipment with similar specifications like:

- Pentium (160-200 MH) speed
- 3.2 MB RAM and
- 2.3 Gigs Hardware drive modem.
- The software will include, Windows 95, MS Office 97 that unfortunately can / may not run on the current computers in circulation in the province due to less memory capacity.

It was noted that the DHMT need to consult technical specialists when making decisions about information technology.

Fears

There were some fears registered during the meeting concerning the likelihood of losing the bulk available health data on the computers programs in use if the automation takes over with a new and different format of data storage.
In answering to this viewed problem, it was clarified that some data can be imported depending on the way one would like to store it: Viz. Quarter or annually. Further more, even though comparative analysis would be difficult in some diseases following new case definitions with old case definitions.
Material resource wastage was another area of fear if New Information technology came in with completely new equipment with new software. The meeting concluded after analytical discussion that new equipment be brought in as they are part of the New HMIS program.

Observations:

- The meeting observed that measles could be used as a proxy to fully immunised under ones. The reality is that some under ones get full vaccinations outside their catchment areas and this makes the analysis of fully immunised child under one become difficult in the real sense of interpretation. It was resolved that there is need for a mechanism that would capture such information by involving the community to be taking data to their areas of origin (Catchment area).

- Under reporting on drug usage for those clients, patients coming from out side the Health centre catchment area was another issue. The solution to this problem as viewed by the meeting is to be using two tally sheets so as to capture the information that would be sent to respective Health Centres where clients or patients come from. The community would help in identification of migrants.

III. INFORMATION FOR EXTERNAL ORGANISATIONS:

1. The District Health Boards and
2. The Central Board of Health

The following shall be the Reports to the external organisations:
- Finances
- Coverage and
- Linkage of the coverage and finances *

- *Between certain chosen indicator*

Below is a few indicators recommended for inclusion on the **Public Health flag.**
1. Staff load
2. Malnutrition [Growth monitoring]
3. Pregnancy protected by Tetanus Toxoid

While complicated deliveries and safe water had their own implication of difficult in specification and definition. The DHMT should resolve this if there is a felt need for the two indicators.

Central Board of Health Reports:

The indicator interpretation should be very clear presented either in graphics showing trends like those for:
- Malaria incidence
- Case fatality rate
- TB cure rate
- TB defaulter rate
- New FP acceptors
- OPD: Two indicators:-
  Curative and Out patient attendance for staff workload.

IV. INTERNAL MANAGEMENT

Resource allocation to the DHMT e.g.

- Financial, Human and Material.

- **Inter District Collaboration:**

Propose to DHMT standard indicators to be used for uniform reporting in districts especially those for District Health Board self-assessment. Focusing on the six health thrust as areas of concern can facilitate this. A proposal was made on how inter District Collaboration can be achieved: that a coordinating body should be formed i.e. a committee appointed by the involved districts.

V. SUPPORT TO HEALTH FACILITIES

- Internal management of the Health centre
- Integration of HMIS with quality assurance and supervision.
- Concerning Community Health Worker's returns forms, the DHMT have to their option use the acceptable forms and data be aggregated at the correction points for the analysis and user by the collector. Other wise, there is need to have a standard reporting format in system.
- Problem solving technique to be part of training in HMIS.
- Feedback to RHCs on supervision on request for support. Feedback on Self assessment form given during supervision.

VI. STRATEGIES FOR INTRODUCING HMIS AUTOMATED SUPPORT TO DHMT

POINTS OF GREAT EMPHASIS TO DHMT:

1. Brief demonstration of
   The system
   Reports available
   Easiness to use

2. Examples of reports
   District Health Boards
   Central Board of Health
   District Health Management Team
   Facilities

3. Time frame be set for:
   Supervision
   Collection of Data (information)
   Reporting requirement to the Central Board of Health.
   DHB meetings
   Budgeting and planning period
   Presentation of information
   Use of DHIO (to be relieved from other pressing assignments)
   For appropriate use of skill.
   Schedule: control use of information technology.

The Meeting was closed at 17.30 hours

M. Church

Mimi Church	*B. Nsonga*	*E. Muchilabanji*
Facilitator	*Chairman*	*Secretary*

APPENDIX D

Instruments Used to Review FAMS and HMIS

Name of Health Institution_____

District_____

HMIS Pretest District Follow-up

Question	Comment	Finding and Possible Cause of Problem
OPD Register How is column (a) being used? Are patients given a sequential number?	If a patient returns for the second time in the month with a different illness, are they given a new number or do they use the number on the patient's notebook?	
Is origin code being filled in correctly? If not, why not?	Codes are: 1 = from within 12 KM, within catchment area; 2 = from more than 12 KM, within catchment area; 3 = from within district, but outside catchment area; 4 = from outside district; 5 = from outside Zambia; 6 = unknown.	
Is the Registration fee column being used? How is it being used?	Are exact amounts and/or codes used?	
Review the diagnoses recorded Do they correspond with the case definitions introduced in the HMIS training?	Specifically ***look at*** whether different types of diarrhoea are indicated, whether pneumonia is distinguished from non-pneumonia respiratory infections. ***Ask*** providers to name the signs and symptoms of pneumonia for example *Child*: cough and fast breathing 60 breaths or more per minute in neonate to 1 month; 50 breaths per minute or more in a child from 2 to 12 months old 40 breaths or more in a child 12 months to 5 years old or difficult breathing (with chest indrawing or stridor in calm child). *Adult*: severe cough, dyspnoea and fever, and chest pain with deep breathing or coughing, yellowish sputum.	
Are workers putting more than one diagnosis (where appropriate)?	1 or 2 diagnoses can be entered where appropriate	
Are the referral and remarks columns being used?	If not, ask why not.	

Name of Health Institution_____

District_____

Question	Comment	Finding and Possible Cause of Problem
Outpatient Attendance Tally Does the number of OPD first attendances correspond with the number of ticks under "new attendances" on the OPD tally sheet?	*Review* of the OPD Attendance Tally Sheet. Count the number of new entries in the OPD register for the entire time the register has been used and compare with ticks on tally sheet	
Is the concept of new vs. reattendance well understood? *Ask* providers to describe how they classify new and follow-up attendances. Does this corresponds with the HMIS definition on the tally sheet?	A **First Attendance** is a consultation in the OPD for a new complaint. If the patient is returning for a complaint that has not been cured, and a new, different diagnosis is made, it is counted as a new attendance. A **reattendance** is a consultation on a disease that was treated earlier or for a chronic condition. Follow-up visits are for dressings, injections, or other treat-ment of a previously diagnosed condition. Exception: A patient who presents with a chronic condition the first time in a year is registered so the disease can be tallied.	
Are reattendances being tallied?	Ask providers what happens when a patient comes in for a dressing change, injection etc—are they tallied? What if they don't pass OPD and go directly to a treatment room?	
Outpatient Disease Tally Sheet: How often are diagnoses being tallied? Is the person doing it trained in HMIS?	·	
If there are two diagnoses, are both being tallied?	*Ask* this question directly. Also, *Ask* how a disease like asthma is tallied (as it does not have its own separate category on the tally sheet)	
Notifiable Disease Forms Are notifiable diseases identified and a form filled out and set to district?	Scan the notifiable diseases on the disease tally sheet or the OPD register. *Ask* if the cases(es) were reported to the district.	
Were appropriate notifications made?	*Review* filled in forms if copies are available.	
What action was taken?	By the health institution, by the district.	

Name of Health Institution_____

District_____

Question	Comment	Finding
Inpatient Register How is column (a) being used? Are patients given a sequential number?	How do numbers correspond with admission s forms?	
Is origin code being filled in correctly? If not, why not?	Codes are: 1 = from within 12 KM, within catchment area; 2 = from more than 12 KM, within catchment area; 3 = from within district, but outside catchment area; 4 = from outside district; 5 = from outside Zambia; 6 = unknown.	
Is the Registration fee column being used? How is it being used?	Are exact amounts and/or codes used?	
Do diagnoses correspond with the case definitions introduced in the HMIS training?	***Review*** the diagnoses given. Specifically ***look at*** whether different types of diarrhoea are indicated, whether pneumonia is distinguished from non-pneumonia respiratory infections, etc.	
Are workers making more than one diagnosis where appropriate?	1 or 2 diagnoses can be entered where appropriate In case of deaths, cause of death should be on the first line of the diagnosis column in red ink.	
Check a few entries and see if duration of stay is being calculated correctly.	***Ask*** the worker if he/she understands how to calculate duration of stay.	
Are the referral and remarks columns being used?	If not, why not? Is yes, are they being used appropriately?	
Inpatient Admission Tally Sheet *Ask how admissions are being tallied*	***Check*** to see if the number tallied corresponds with the number admitted in the IP register. If it does not, try to diagnose the problem.	
Inpatient Diagnosis and Death Tally Sheet Is the tally sheet understood and used properly?	***Ask*** how often diagnoses are being tallied, Daily? Do providers indicate in the register that entries have been tallied? If there are two diagnoses, are both being tallied?	

Note: Calculating duration of stay: if the patient did not stay over into a new month, you simply subtract the date of admission from the date of discharge. If the patient did stay over the month, you subtract the date of admission from the last day of the month, then add the date of discharge.

Name of Health Institution_____

District_____

Question	Comment	Finding
Safe Motherhood Register	***Scan*** the name, address and age columns to see if they are being utilised.	
Are Parity and Gravida understood?	***Review*** if necessary the definitions: Gravida is the number of pregnancies including current one. Parity is the number of previous deliveries after 28 weeks, live and still births.	
Can providers calculate estimated date of delivery?	***Check*** to if the EDD has been calculated correctly given the date of last normal menstrual period: Add 9 months and 7 days to date of last menstruation.	
Is TT status recorded?	***Check*** to make sure that the TT status of the woman is being recorded (including the date)	
Are the columns on attendance in month of pregnancy (p) thru (v) understood?	***Ask*** if providers know how to determine in which month of pregnancy the woman has come. Note: in the development phase, this was the least understood concept. ***Review*** the importance of noting when and how often a woman comes for antenatal care.	
Are the risk factor and referral columns being used? Do workers know what the risk factors are?	***Scan*** the age and parity columns—if a woman over 35 or has more than 6 pregnancies, a risk factor should be noted. If it is not, this is one indicator that risk factors are not understood or not recorded, and women are likely not referred. ***Review*** risk factors (printed on the inside cover of the register).	
Are providers following the instructions for coding pregnancy outcome?	LB=Live Birth; SB=Still Birth; MIS=Miscarriage; MD in red ink for maternal death.	
Is the postnatal care section being used?	This is unlikely given that the register has only been used for a few weeks	
Any other Comments on the Register		

Name of Health Institution_____

District_____

Safe Motherhood Tally Sheet		
Are women being tallied?	***Review*** the first attendance box--do the numbers of ticks correspond with the number of first attendances in the register?	
Are providers ticking the Tally Sheet for follow-ups/revisits even for those that are being recorded in an old register?	If not, ***instruct*** workers that they should be tallying entries that are recorded in old as well as new registers.	
Is the pregnancies protected by TT immunisation understood?	***Ask*** the provider to review the criteria for tallying a pregnancy protected with TT. ***Ask*** if women who are not given an injection are tallied (when appropriate) ***Review*** the protocol if necessary (below)	
Are providers ticking the Tally Sheet for postnatal care even for those that are being recorded in an old register?	If not, ***instruct*** workers that they should be tallying entries that are recorded in old as well as new registers.	

If woman's TT status is:	Then the dose (s) required to protect this pregnancy is:				
	TT1	TT2	TT3	TT4	TT5
Nil or unknown	X	X			
Complete DPT as child			X		
Dose 1 of TT		X			
Dose 2 of TT			X		
Dose 3 of TT				X	
Dose 4 of TT					X
Dose 5 of TT	none, woman is protected for life				

For each case where there is an "X" plus the case of a woman who is fully protected, a tally should be made

Name of Health Institution_____

District_____

Question	Comment	Finding
Delivery Register and Tally	*Review* columns (a) through (i) and see if all are being filled in correctly.	
Do providers understand how to calculate duration of pregnancy (column j)?	*Review* the calculation if necessary. If is simply the number of weeks between beginning of last menstrual period and delivery. Add all day since the last menstrual period to the date of delivery, divide by 7 to calculate duration of pregnancy in weeks.	
Are risk factors identified?	*Review* risk factors if necessary.	
Do providers understand the proper codes for characteristics and intervention (columns n and o)	*Review* the Notes for Completing the Register (inside cover of register) to check if the instructions are understood for the various columns	
Are the 3rd stage and complications columns used?	*Review* the Notes for Completing the Register (inside cover of register) to check if the instructions are understood for the various columns	
Is data on the baby recorded?		
Any other Comments on the Register		
Delivery Tally Sheet Is the tally sheet is being used correctly?	*Review* the register and see if all deliveries have been tallied. Remember each delivery is tallied 1) by type of delivery (either normal or complicated); 2) by outcome (either live or still birth). *Scan* the birthweight column—are babies weighing under 2500 grammes being tallied as low birthweight?	

Name of Health Institution_____

District_____

Question	Comment	Finding
Child Under 5 Register Are columns (a) thru (f) properly filled in?	***Scan*** columns	
Are all of a child's immunisations ticked (or dated) or only the ones administered at the health facility?	***Ask*** if providers ever update the register using the Road to Health Card (i.e. if a child received a vaccination on outreach)?	
Is the preference for putting the date or ticking the box for vaccinations?	***Ask*** providers if they feel it is necessary to put the date in the register.	
Are codes for weight being used? Are they understood?	AG = above the lower line growing AS = above the lower line static AL = above the lower line losing BG = below the lower line growing BS = below the lower line static BL = below the lower line losing ***Find out*** if providers understand the relationship between the codes and the graph on the Children's Clinic Card	
Any other Comments on the Register		
Growth Monitoring Tally Are providers correctly tallying every child who is weighed?	Is the tally kept close to the place where children are weighed?	
Immunisation Tally Sheet Is this being used correctly?	***Verify*** that providers are only tallying children under age 1 year.	
Do providers understand when a child should be tallied as fully immunised?	***Remind*** providers that every child who is given measles immunisation and is up to date on other vaccinations and is under age 1 year should be tallied. If you notice a huge disparity between the number of measles immunisation and the number of fully protected children, this may indicate a data collection problem.	

Name of Health Institution_____

District_____

Question	Comment	Finding
Family Planning Register Is column (g) being filled in with the type of method?		
Are the revisit columns understood?		
Is the difference between a new acceptor and a revisit understood?	***Remind*** staff that a new acceptor is someone who uses a modern contraceptive method for the first time in his or her life.	
Are men recorded in the register (i.e. condom users)?		
FP Tally Are all FP clients tallied as either a new acceptor or a revisit?		
Are women who have entries in old registers also being tallied?	If not, ***instruct*** providers that the tallies are for all FP activity, even for clients from an old register.	

Question	Comment	Finding
Monthly Immunisation and ANC graphs and Disease Graphs Are providers able to calculate the figures to complete these graphs?	***See*** if graphs are available and used. ***Ask*** the provider to indicate how he or she would fill in the graph	
Do providers understand what the graphs are used for?	***Ask*** how the information is/would be used.	
Catchment Population Are catchment populations being calculated correctly?	***Compare*** figures from 1997 to 1996. Ask how 1997 population was calculated. Does the figure seem reasonable given the growth rate on migration conditions of the area?	

Name of Health Institution_____

District_____

Disease Aggregation Form Is this form understood?	Has it been filled in correctly for July? ***Ask*** if there are any problems going from the tally sheets to the HIA.1	
Service Delivery Aggregation Form Is the form understood?	Has it been filled in correctly for July? ***Ask*** if there are any problems going from the tally sheets to filling in the HIA.1	
	Specifically ***review*** part 5 on human resources. Can providers fill in for the number of qualified staff posted at the centre? Are there any other difficulties?	

IMPORTANT: Remind the health institution staff that we plan to return in October. That means that they should aggregate their quarterly data and work on the Self Assessment Forms within the first week of October.

Use this space below to write any comments or suggestions made by the health institution staff about the HMIS.

SUPERVISION TOOL-STORE MANAGEMENT

Health Institution_____ District_____

Parts A, B, C are for Health Institutions: PARTS A, B, C, and D are for District Stores

	CHECK FOR	Yes/No	If NO, what could be the cause(s)? Indicate from the following possible causes a. insufficient training? b.lack of funds c.lack of facilities/materials? d.insufficient staff? e.lack of motivation/initiative? f. others? (please specify)	COMMENT
A	**STORAGE CONDITIONS**			
1a	Are food items kept separate from medical supplies in another store room?			
1b.	If "no" and the cause is "lack of funds", has the officer in charge taken steps to obtain funds from the District or agreement to use fees?			
2a.	Is there adequate shelving for medical supplies? (at least 2/3 supplies on shelf)			
2b.	If "no" and the cause is "lack of funds", has the officer in charge taken steps to obtain funds from the District or agreement to use fees? if no why?			
3	Are drugs arranged SYSTEMATICALLY either alphabetically or by generic names in order of medical stores code number ?			
4	Are FEFO and FIFO observed? look at shelf arrangement to assess FEFO			
5a.	Are drugs adequately protected from heat, light and moisture?			
5b.	If "no" and the cause is "lack of funds", has the officer in charge taken steps to obtain funds from the District or agreement to use fees?			
6	Is the store room adequately secured? e.g. burglar bars, pad locks.			
7	Are internal and external preparations kept segregated in the treatment room? (Verify after finishing work in the store room)			
B	**STOCK LEVELS**			

Health Institution_____ District_____

Parts A, B, C are for Health Institutions: PARTS A, B, C, and D are for District Stores

	CHECK FOR	Yes/No	If NO, what could be the cause(s)? Indicate from the following possible causes a. insufficient training? b.lack of funds c.lack of facilities/materials? d.insufficient staff? e.lack of motivation/initiative? f. others? (please specify)	COMMENT
1	Are any of the items in the EDP kit out of stock in the centre? check using the EDP check list.			
2	Are there any expired drugs? or drugs close to expiry ? (i.e. within 3 months)			
3	Are stock levels below acceptable maximum = 2 months average consmpution?			
4	Are quantities above maximum level of over stocked items returned to the District?			
C	**STOCK CONTROL**			
1	Are stock cards used for all consumable items?			
a.	Are stock control cards used when issuing out of store room?			
b.	Are stock control cards used when issuing drugs to in-patients in the ward?			
2	Is the balance calculated correctly (physical stock + or - stock issued or received)			
3	Is the balance recorded on the cards equal to physical count? If not find reasons			
4	Is minimum stock entered on card?			
5	Are the stock cards correctly filled for other columns?			
6	Are the stock books correctly updated each month?			
D	**SUPPY VOUCHERS AND REQUISITIONS (District Store Only)**			
1	Is the stock control book used for filling out the requisition			

Health Institution_____ District_____

Parts A, B, C are for Health Institutions: PARTS A, B, C, and D are for District Stores

	CHECK FOR	Yes/No	If NO, what could be the cause(s)? Indicate from the following possible causes a. insufficient training? b.lack of funds c.lack of facilities/materials? d.insufficient staff? e.lack of motivation/initiative? f. others? (please specify)	COMMENT
	at district level?			
2	Is the supply voucher being used?			
3	Is the supply voucher being filled in correctly?			
4	Is the supply voucher being used for ordering items from the main store?			
5	Do the 5 copies of the supply voucher go to the correct people? 1. District accountant 2. Issuer 3. Deliverer 4. Requester (original) 5. Requester (after supplies received)			

53

APPENDIX E

Solwesi Team Itinerary

Solwezi Team 1 (BASICS Vehicle N1)
M. Church, Mr. C. Mukwala (7th - 13th August), Mr. Mufanga (14th – 20th August)

Date	Destination	Sleep
Thursday, 7 August	Travel to and supervise Lukendo, Muzimanzov, travel to Mapunga	Mapunga
Friday, 8 August	Supervise Mapunga, travel to and supervise Matebo, travel to Muyashi	Muyashi
Saturday, 9 August	Supervise Muyashi, travel to and supervise Mumena, travel to Mutanda Resort	Mutanda Resort
Sunday, 10 August	Rest and meet team 2 at Mutanda Resort	Mutanda Resort
Monday, 11 August	Supervise Mutanda and Mutanda Research	Mutanda Resort
Tuesday, 12 August	Travel to and supervise Katandano and Mushindamo	Mushindamo
Wednesday, 13 August	Travel to and supervise Kipushi	Boma
Thursday, 14 August	Travel to and supervise Kamitonte and Kyafukuma	Boma
Friday, 15 August	Travel to and supervise Kansashi and Solwezi Hospital	Boma
Saturday, 16 August	Travel to and supervise Kapijimpanga and St. Francis	St. Francis
Sunday, 17 August	Travel back to Boma, meet with Team 2	Boma
Monday, 18 August	Travel to and supervise Luamala and Kanuma, travel to St. Dorothy	St. Dorothy
Tuesday, 19 August	Supervise St. Dorothy, travel to Boma and meet Team 2 to prepare report	Boma
Wednesday, 20 August	Travel to and supervise Luamfula, Mr. Mufanga sleeps Chingola, Mr. Mwanza, Ms. Church to Ndola	

Solwezi Team 2 (District Vehicle)
Mr. S. Mwanza, Mrs. D. Lungu

Date	Destination	Sleep
Thursday, 7 August	Travel to and supervise Kankozhi and Chomue	Chomue
Friday, 8 August	Travel to and supervise Chitungu and Chisasa	Chisasa
Saturday, 9 August	Travel to and supervise Mumbezhi ZNS and Holy Family, travel to Mutanda Resort	Mutanda Resort
Sunday, 10 August	Rest and meet team 1 at Mutanda Resort	Mutanda Resort
Monday, 11 August	Travel to and supervise Kalengelenge and Jiwundu, travel to Mukumbi	Mukumbi
Tuesday, 12 August	Travel to and supervise Kyanyika and Mangala	Mukumbi
Wednesday, 13 August	Supervise Mukumbi, travel to and supervise Lumwana East	Lumwana East
Thursday, 14 August	Travel to and supervise Shilenda and Maheba D	Maheba D
Friday, 15 August	Travel to and supervise Maheba F and UCZ	Maheba D
Saturday, 16 August	Travel to and supervise Maheba G and Maheba A	Maheba D
Sunday, 17 August	Travel back to Boma, meet with Team 1	Boma
Monday, 18 August	Travel to and supervise STTC and Mitukutuku	Boma
Tuesday, 19 August	Travel to and supervise Kimasala and Solwezi Urban, meet Team 2 to prepare report	Boma

APPENDIX F

Trip Reports: Solwezi District and HMIS Team Report

HMIS First Month Follow Up
Solwezi District
6-20 August, 1997

The team consisted of 5 persons: Mr. Kufanga, Provincial Health Information Officer, Ms. Lungu, District Chief Nurse, Mr. Mwanza, Provincial Accountant, Mr. Mukwala, District Health Information Officer, and Ms. Church, HMIS Development Team. The team divided into two groups and visited the 42 health facilities in the district.

Integrated Technical Guidelines (ITG). The ITG book was very positively received. Most of the HMIS trainees had read at least part of the book. They felt that the material was easy to read and that the organisation according to the six health thrusts and promotive, preventive, and curative interventions was useful.

Interviewees' suggestions for improvement:

1. Difficulty in locating information makes the book less useful for reference while treating patients. Page numbers should be consecutive from chapter to chapter. A table of contents with page numbers should be included. An index with page numbers should be included.
2. The malaria treatment guidelines appear to be in error. An errata sheet should be distributed and error corrected in future editions.
3. Additional information on STDs, particularly treatment, should be included. Some of the treatments recommended rely on drugs that are not included in the drug kits and are not usually available at health centres.
4. Additional pharmacological information, including side effects and contraindications.
5. Persons with higher qualifications (RN, RM, CO) asked for more clinical information and suggested that technical terms be included.
6. Include discussion of the cost-effectiveness of alternative promotive and preventive interventions.
7. The binding and paper will not last long and should be improved.

Stores Management. Not all facilities had received the new stock cards and the stock books, but those that had received them were using them and understood the procedures.

Observations:

1. At most facilities non-medical supplies, including food and paraffin, were kept in the same room as drugs and medical supplies; in a few facilities drugs and medical supplies were kept in a locked cabinet in an office. Most rooms lacked security bars and had minimal light and ventilation. However, with one exception, the pharmaceuticals and medical supplies were separated from other materials as far as possible, and storage conditions were as clean as could be expected in such circumstances. Officers were aware that the storage conditions were not up to standard. Several larger facilities were in process of renovation and expected to have improved storage facilities soon; however most saw little prospect of funds for improvement from district or medical fees.

58

2. Drugs were arranged alphabetically, and FEFO / FIFO observed (with occasional mistakes).
3. Some of the EDP drugs were out of stock at some facilities. Nearly all facilities reported that they run out of some EDP items before receiving a new drug kit. With the exception of some large facilities within easy reach of the Boma, most reported that supplementary supplies were difficult or impossible to obtain from the district, largely because of transport and communications difficulties. Facilities also reported that both drug kits and supplementary supplies were often out of stock at the district. Drugs frequently reported as being out of stock are:
   Paracetamol, especially paediatric.
   Cotrimoxazole (It was recommended at several institutions that cotrimoxazole be substituted for Pen V as the indicator out of stock drug.)
   Pen V
   Injectable chloroquine
   Lidocaine
   Supplies frequently reported as being out of stock are:
   Disposable needles and syringes
   Gauze bandages
   Cotton wool
4. In nearly all cases where expired drugs were found, the drugs in question had been supplied by the district with expiry dates near or already passed.
5. Most facilities understood the instructions regarding the calculation of minimum and maximum balances. However the new stock cards and procedures had been in place for less than two months, so not enough time had elapsed to calculate the minimums and maximums using the new procedures. A few facilities had calculated the balances based on the old stock cards and the experience of the in-charge. Staff also pointed out that until the pull system is implemented and the district has adequate supplies, the calculation of stock balances required will have little effect on the drug supply.
6. It seems clear that logistics management needs strengthening, both between the facilities and the district and between the district and central medical stores.

HMIS Forms and Procedures. The new registers and tally sheets were being used at all facilities; with the exceptions noted below, particularly in the Safe Motherhood, Delivery, and Family Planning Registers, and the immunisation tallies, these were well understood. The instructions for completing the Disease and Service Delivery Aggregation forms at the end of the month were less well understood and most facilities had not completed both. Few facilities were completing the EPI, ANC, and disease graphs. Staff welcomed this round of follow up visits, and most had already prepared a list of questions regarding the new system.

A. Training. The training was conducted for groups of 39-42 persons, and it was felt that this was too large a group. Trainers observed that clinical staff understood the training much more readily than non-clinical staff (EHTs and CDEs). Given the importance of clinical issues in the training, especially case definitions and Safe Motherhood, it was felt that preference should be given to nurses (rather than EHTs) in selecting the second staff member

to be trained. In Solwezi the four trainers included only one clinician; it would have been preferable to have at least two so that one clinician could support each of the two simultaneous training sessions. The core training support group also did not include a clinician. Some misunderstanding of the way to use registers may be avoided by having clinicians conduct these training sessions. The instructions from Lusaka regarding clinical qualifications of trainers and trainees should be clearer.

B. **Stationery and Supplies.** There was apparently some miscommunication between Lusaka and the district, so that stationery was supplied for only 39 facilities, while there are 42 in the district. The packets from Lusaka were separated and divided among all facilities, with the result that all facilities lacked some of the necessary forms.

C. **Implementation of system.** Facilities with a Clinical Officer in charge implemented the system with only a few minor misunderstandings. Most experienced ZENs were also able to put the new procedures in place. Facilities where the in charge has lesser clinical qualifications or experience, or where EHTs and CDEs play a large role in providing service, had more problems.

1. **Outpatient Registers and Tallies.** In general the new case definitions were being used and two diagnoses were recorded and tallied as appropriate. Two notable exceptions were found. In one facility the in charge was not trained and did not use the new case definitions. At the Solwezi General Hospital OPD two clinicians had been trained but had not shared the new case definitions or procedures with colleagues so that these were not being used. Also at the hospital OPD clinicians are too busy to enter data in the registers, and many diagnoses and all treatments were unrecorded. A new organisation of register and clerk placement to capture data at the appropriate points in patient flow was proposed and approved by the personnel director, who was the most senior manager on duty. (It was also noted that nurses at hospital often record diagnoses and treatment so that it would be useful to train the chief nurse.)

   The new attendance tallies sometimes appeared low in comparison with the OPD register, and the reattendance tallies also appeared low in comparison with new attendances. However, the difference between the two different types of attendance was understood in principle. More emphasis on attendance tallies during training (and the differences between the new and old systems in recording attendance and diagnoses), along with an explanation of the use of these data in calculating staff workload and consequent resource allocation would be useful.

   Some practitioners tally the diagnoses as they screen patients; others at the end of the day.

   It was suggested that the diagnosis column on the OPD register should have a dotted line to delineate the spaces for two diagnoses like the IPD register (and like the name/address columns on both registers).

   It was noted that the OPD register can often be seen and read by patients, so practitioners are reluctant to enter a diagnosis of AIDS or STDs. It was suggested that practitioners in a facility agree on a code for these sensitive diseases (like persistent cough, skin

ulceration, etc) and record this in the register while marking AIDS or STD on the tally sheets.

The leftmost column in the OPD register was most frequently used to record the OPD card number of the patient. There was occasional confusion as to whether this number could be recorded twice or whether a new number needed to be assigned each time a patient attended with a new case.

The origin code and registration fee columns are understood and used. Usually "E" is noted if the patient is exempt; otherwise the fee is recorded. "P" has also been used to denote Prepayment, and the letter "U" for Unable to pay.

The referral and remarks columns are used appropriately, although the remarks column is rarely used to denote anything other than "Admitted."

There was confusion as to whether an admitted patient should be included in the count of outpatient attendances. Most staff objected to the double counting that results when they are included.

The use of the "optional" communicable diseases and codes on the diagnosis tally and the Disease Aggregation form (anthrax, bilharzia, etc., 2.95.xx) was not understood. It is not clear whether these were covered in training. Bilharzia is reported and viewed as an urgent problem.

2. **Notifiable Disease Forms.** While the use of these forms was usually understood when practitioners were queried, only two facilities had actually completed the forms when a notifiable disease was encountered. In one case, these forms had not been sent to the district since the facility is a day's journey from the Boma, but were held in readiness for the next trip. In the other case, the forms had simply been filed at the District, with no response or feedback to the Health Centre. The District plans to institute procedures so that the forms are sent to the DDH, who then assigns responsibility for further action and feedback.

   The hospital had notified the district of one case of meningitis. The District had sent notification onwards to the PS in Lusaka, but had had no feedback. The notification and feedback procedures between HC and District and District and Region/Lusaka need clarification and support.

   Most of the notifiable diseases seen were bloody diarrhoea (suspected dysentary). Practitioners noted that these were not infrequent and the patients were followed closely, so the need to send a notification to the district was not seen as urgent. Guidance should be sought again from the national epidemiologist for the appropriate response to dysentary. Aside from dysentary, one case of measles was the only other notifiable disease observed at the Health Centres.

3. **Inpatient Registers and Tallies.** These were used and generally well understood.

   The first column refers to the patient OPD card or record if one exists; otherwise a sequential number is assigned. Origin code and registration fee columns are used as for the OPD register. The practices with regard to case definitions and multiple diagnoses are as with the OPD register.

   The referral columns are being used appropriately. In some cases it was not understood that a referred patient should be marked as discharged on the date of onward referral. There may have been confusing instructions given during training. The remarks column is used, often to note follow up recommended.

   Duration of stay was not always calculated correctly when the stay spanned the end of a month.

   It was not generally understood that admissions should be tallied at the time of admission and diagnoses at the time of discharge.

4. **Safe Motherhood Register.** This register was least well understood by non-clinical staff and health assistants. In light of the problems noted below, it would be useful for the district family health nurse to participate in this portion of the training so that she can also provide technical support in her rounds of health centres.

   Gravida was well understood; parity was generally confused with the number of children, and sometimes with the number of living children. It appeared that gravida was sometimes assumed to be one more than parity and that the patient was sometimes not asked directly about the number of pregnancies. The comparison between gravida and parity to see the number of miscarriages was often not understood. Midwifery training courses apparently instruct in the use of + numbers (indicating miscarriage) and – numbers (indicating children who have died) in the upper right hand corner of the parity column. While some practitioners use them, their interpretation was not consistent; for example, some say – indicates a still birth.

   Some less qualified staff (ZENs and below) had difficulty calculating the expected date of delivery. It was also noted that women sometimes do not know even the month of the last menstrual period.

   The TT status was not recorded consistently (or correctly) except by COs, RNs, and midwives. In general the convention used was to indicate immunisations given before the current pregnancy with a tick mark and those in the current pregnancy with the date. Tallying pregnancies protected by TT was also not well understood. Often people tallied each immunisation (as had been the previous practice). Usually pregnancies in which the woman had completed 5 immunisations before the current pregnancy were not tallied (in other words, if a shot was not given, a tally was not made). When the new instructions were explained, they were understood. Then the series of questions regarding when and

how to tally TT immunisations given to women and girls who are not pregnant and how to account for vaccine utilisation arose. It was suggested that the instructions regarding TT doses at the front of the register should also include comments or examples of women who receive additional doses before or between pregnancies. Some staff believe they must continue to complete the UCI/EPI "doses given" form.

In some cases practitioners did not tick the "attendance in month of pregnancy" columns.

The risk factor columns were not generally completed.

In the few cases where pregnancies had come to term the outcomes were being recorded correctly. However, there was a misconception that the pregnancy outcome columns should be completed only if the woman delivered at the facility. This should be clarified in training, so that data available from midwives and other facilities are included, as well as data on home births from the women themselves.

Practitioners wanted to use the "Date of postnatal visit" column to record when the woman was instructed to return rather than the date when she actually returned. The suggestion was then made to also record the actual date of attendance under the date if the client returned.

Tallies for first antenatal attendances, revisits, and postnatal attendance were well understood, regardless of the register used (old or new).

5. **Delivery Register and Tallies.** These were not used in many facilities, because the only qualified staff are male, and women declined to come to these facilities for delivery. Where used, there were frequent misunderstandings, as noted below. As with the Safe Motherhood Register, it would be useful to involve the district family health nurse in this portion of the training.

   Calculation of the duration of pregnancy was understood, although the date of last menstruation was sometimes not known.

   The risk factor columns were generally not used. The codes for characteristics, interventions, 3rd stage, and outcome were also not generally understood, although a reasonable notation was often made in these columns. The complications column was also not understood. Data on the baby were usually recorded.

   In cases where a woman was entered in the delivery register but did not deliver at the facility (retained placenta and false labour), she was not tallied with the inpatient diagnosis of complications of pregnancy and delivery. There needs to be flexibility in entering women in the delivery register if the practitioner want to use this register as a record of delivery related cases. But there also need to be clear instructions as to how to tally complications of pregnancy and delivery

Because of misunderstanding regarding the complications column, complicated deliveries were generally not tallied correctly. The other tallies were done correctly.

In some centres tTBAs have very close associations with the HC, and the HC wants to use part of the delivery register to record deliveries attended by these women. This seemed reasonable provided that these data are recorded in a separate section of the register, like the end, so that they are not confused with institutional deliveries in the tallying process.

6. **Children Under 5 Register and Tallies.** These were used and generally understood. The main problems revolved around tallying immunisations and using codes for growth monitoring in the register. Facilities received only one register and most requested a second for outreach.

   Columns a-f were completed correctly. All facilities preferred to enter the date of immunisation rather than simply tick. At most facilities, children were entered into the register if they came for the under 5 clinic, even if they had attended before. (Many facilities had not used under 5 registers previously.)

   Some facilities did not use the growth codes and instead entered the weights in these columns. Those that used the codes understood them very well.

   The growth monitoring tallies were generally used correctly, although there apparently was some confusion regarding children who were above the upper line and children who were between the lines.

   In tallying immunisations it was not clear to some that only under 1s should be tallied. In some cases all DPTs/OPVs (1, 2, and 3) were tallied in the DPT3/OPV3 sections. The questions regarding vaccine accountability and tallying all doses also arose. As with TT for women of child bearing age, it needs to be made clear during the training that the service should be delivered even if it is not tallied. "Fully immunised" was generally understood, although in several cases it was interpreted as completing the "series" (DPT or OPV).

7. **Family Planning Register and Tally.** These were used and understood with the confusions regarding method, contraceptives dispensed, and condom distribution noted below.

   The method column was often completed with the brand dispensed instead of method.

   Use of the "revisit" columns was often not understood, and there were questions regarding recording contraceptives distributed on first visits. The heading for these columns should probably read "Contraceptives distributed."

   Condom distribution to men was generally not recorded. Addition of a column for sex

could help clarify. Also it was not clear that condoms distributed for disease prevention should be included in the family planning register.

The definition of new acceptor was understood and the tallies appeared to be completed correctly.

8. **Monthly Immunisation, ANC, and Disease Graphs.** These were usually not maintained. Even where used, their implications regarding service delivery were often not understood.

9. **Catchment Population.** Nearly all facilities are in the process of updating their populations through a census using the Neighborhood Health Committees or chiefs registers. It is not clear whether there is understanding of how to gauge the accuracy of these counts. It is also not clear how the district intends to reconcile these counts with the population figures estimated by the CSO.

10. **Disease and Service Delivery Aggregation Forms.** The Service delivery form had been completed in about half of the institutions; the disease form in a few.

Report on HMIS/FAMS/ITG Field Visits (second draft)
August 1997

1. Background

In June of this year, 12 districts successfully trained staff members from all health centres and first level referral hospitals. Two staff members per health centre and four staff members per hospital participated in the training. Topics in the integrated course were the use of the new Health Management Information System (HMIS) and a number of elements of the Financial, Administrative Management System (FAMS) including stores procedures, medical fees imprest, and asset registration. During the same training, participants were introduced to the new CBoH Integrated Technical Guidelines. As part of the on-going implementation of these new initiatives, a series of follow-up visits were conducted in all of the 12 HMIS Pre-test Districts. The follow up visits took place between 2 and 20 August 1997. Pretest Districts include:

South East:	Luangwa and Nyimba
South West:	Choma, Mazabuka, Kalabo, Lukulu, Senanga, and Sesheke
North West:	Masaiti and Solwezi
North Central:	Kabwe and Kapirimposhi

Nearly all health institutions in the 12 districts were visited by a team of 2-4 people. Team members included at least one HMIS/FAMS trainer from the DHMT, one HMIS/FAMS Core Trainer, and in some cases, a member of the HMIS Development Team or a CBoH FAMS officer. Twenty of the 22 Core trainers participated in the exercise.

Support was obtained from two regional offices (North West and North Central) for transport needs. No officers from the regional level were invited to participate in this round of visits due to the fact that staffing is still very limited in most of the offices.

2. Findings from field visits

A. Use of Systems

The general finding in relation to the HMIS is that most qualified staff in the health centres understand the system and apply it properly. Implementation at District Hospitals has proved more difficult (see discussion below). A number of small systematic errors were identified which were common to several districts. Some other problems stemmed from the fact that workers were not aware of the instructions which were printed on the inside covers of new registers and failed to read other supporting materials (instructions on the tally sheets, procedures manuals, etc.). In response to these errors, a newsletter has been compiled and will be distributed to all health institutions using the new HMIS.

The new Store Procedures are generally well understood as well. This is likely due to the fact that most districts were using a similar stock control system in the past. Stock control cards are used correctly while some errors were found in the Stock Control Books. One of the main reasons to introduce a stock control system is to support a "pull" stock system, in which health institutions and districts order their own drugs based on maximum and minimum stock levels. However, the fact that

66

a "push" system, which includes the use of essential drug kits, still exists, the "pull" function of the new system cannot be realized. Many health institutions faced serious shortages of drugs; they knew how much to order but there was no consistent mechanism to place an order and receive drugs.

The use of the medical fees imprest system was not systematically reviewed during these visits. However, it was observed in some districts that the system does not yet appear to be working well. Asset registration was not reviewed because most health institutions have not yet received the stationary. In fact, lack of stationary, at national, district and health centre levels is proving to be a major constaint in implementing the new systems.

Integrated Technical Guidelines are being used often and are said to be very useful. Workers encountered problems in finding topics due to the page numbering in the book.

B. Constraints in the Application of the New HMIS

The overall consensus of the HMIS Development Team is that the new system is sound and that only minor adjustments need to be made. Constraints encountered in its application are largely related to managerial, administrative and technical difficulties existing in the health institutions.

Staffing

One main problem encountered during the field visits relates to staffing. Some health centres have only one trained person on staff, at best, while others are staffed by a CDE only. Such health centres do not perform well, either in improving health services or in using HMIS.

In cases where a health centre has a Clinical Officer, an EHT and a nurse, the former two officers were sent to the HMIS training leaving the nurse without training. This was an unfortunate mistake because it is often the health centre's nurse who is responsible for a great deal of the OPD and MCH care. A great deal of information in the HMIS focuses on these two departments. In the future preference should be given to nurses for participation in the training.

A general problem encountered with HMIS (as well as with many other training programmes) is that those staff who go for training often do not properly disseminate the information they have learned to those who could not attend the course. This also led to problems in implementation of the HMIS by staff members who were not invited to the training. The problem of dissemination is particularly big in hospitals.

Poor Diagnostic Skills

At the heart of the new HMIS is the idea of producing better information on the burden of diseases in Zambia and closer monitoring of performance. In the old HMIS, a large percentage of patients were diagnosed with "symptoms or ill-defined conditions" or "other diagnoses" for example, which did not contribute to an understanding of disease burden in Zambia. During the HMIS course, participants were introduced to a uniform set of Case Definitions for the most prevalent diseases and conditions found at health institutions. Health workers were instructed to distinguish between pneumonia and non-pneumonia for respiratory infections as well as to distinguish between types of diarrhoeas. In practice it appears to be very difficult for health workers to apply the proposed case definitions in the right way. The HMIS Development Team recognizes that a module on Case Definitions lasting a few hours cannot compensate for the fact that many clinicians have a low level of skill when it comes to examining and diagnosing patients. Thus in some cases, the system will continue to suffer from the syndrome of "garbage in, garbage out". Incorrect diagnoses will be reported until the skills of clinicians are upgraded.

Irrational Prescription Habits
The new out-patient register provides better possibilities for doing a register review and assess prescription habits. While the first round of follow-up visits did not specifically focus on clinical skills, a number of HMIS trainers were able to document irrational prescription habits. Often a patient with only a cough or minor diarrhoea is prescribed 1 or more antibiotics. It is not uncommon for patients to leave a health centre with 3 types of medication. The Team has recognized the need to incorporate clinical supervision into regular visits to health institutions.

Low Level of Knowledge on Maternal Health, Child Health and Preventive Health
Most clinicians, nurses and Environmental Health Technicians recognize that MCH and other preventive health activities are important, but many do not understand the "why and how" of activities involved in preventive health activities. This insufficient understanding leads them to neglect the correct procedures involved in assuring that these preventive activities achieve a health impact.
Most staff do not recognize the importance of identifying mothers with "at risk" pregnancy nor do they know what to recommend when one is identified. The elements of a proper postnatal visit are not well understood by staff and the importance of postnatal care consequently not relayed to mothers. Not surprisingly this leads to a very low (virtually nil) postnatal attendance rate. While health centres put a great deal of effort into weighing children and recording their weights on the Children's Clinic Card, there is little support and no follow-up of children whose growth is faltering. Vitamin A is often not provided to young children, because the health workers do not know the effects of vitamin A and may not have access to the drug.
As a result of this low level of knowledge, the indicators in the field of MCH will show a poor performance in the self-assessment at the end of the quarter. Without support the health workers will not be able to improve their performance.

Poor Supervision
One factor that contributes to the low quality of performance of some health workers is that many workers never receive a clinical or technical supervision. In many districts, when members of the DHMT visit a health centre on supervision, the majority of time is spent on administrative issues. In general, when district officers visit a health centre, they do not take the time to find out how many children are receiving vitamin A. They do not monitor whether or not pregnant women are receiving tetanus toxoid at the right time. They do not observe if mothers with children with diarrhoea are being taught properly the use of ORS. Prescription habits of clinicians are virtually never reviewed. The district supervisors do not have the experience and habit of problem analysis and subsequent action planning.

Management Problems at Hospitals
At the District Hospitals where the new HMIS is being applied, the team found a number of difficulties in implementing the system. Several causes were identified. First, it seems that in many hospitals, the persons sent for training were clerks or statisticians, rather than hospital administrators or clinical officers/nurses. Hence those who have been trained have had difficulty in disseminating the information to their colleagues and encouraging "ownership" of the system by those with decision-making authority in the hospital. Second, most hospitals face serious internal management problems which make the adaptation of new systems difficult to integrate into the daily running of the institution. Despite the fact that the district hospital often employs a large percentage of the

district's health staff, lack of personnel was often sited as a reason explaining why the new system(s) were not implemented properly. Hospitals also appeared to have difficulty in guiding their flow of patients to assure that information is recorded correctly. In general, information flows within the hospitals seem to be fragmented and poorly understood by lower ranked workers.

Conclusions of the follow-up visits

The new Health Management Information System is well understood by most health workers trained. The system is being applied in a proper manner. Small systematic errors have been detected.
Major problems in low level of medical and technical skills will continue to cause a low level of quality of the HMIS information. Solving these problems is not within the scope of the HMIS Development programme.
The programme will incorporate elements of on-the-job training in supportive supervision as a contribution to improve the skills of DHMT members.

C. Next Steps

During a series of meetings with staff members within the Directorate of Monitoring and Evaluation, members of the Integrated Technical Guidelines Task Force and with Cooperating Partners, it was decided that the October HMIS/FAMS follow-up visits provide an opportunity to improve some of the constraints encountered during the August visits.

Improved Supervision
It was decided that the October visits should not only focus on the use of HMIS tools but also incorporate a number of other important initiatives currently being carried out within the CboH and DHMTs. These include Quality Assurance Techniques, introduced in 8 of the 9 provinces to date, an Integrated Supervisory Check-list, tested in Lusaka District and QA techniques in supervision as developed in Mongu District, Masaiti District and Nchelenge District. From 6 till 8 October, Core Trainers along with one District Trainer from each pre-test district plus a few guests from districts which have been working on innovative supervisory tools, will participate in a workshop to develop a guideline for the October visits. This guideline will incorporate HMIS and QA tools with technical supervision tools. The visiting teams will discuss the developed tools with the DHMTs and involve them in a kind of on-the-job training. The ultimate goal is to institutionalize the concept of integrated supervision into the normal functioning of DHMTs.

A draft schedule of the workshop is attached.

Involvement of Regional Offices
The importance of the new Regional Offices in the area of monitoring the implementation of the new HMIS as well as in the area of supervision cannot be understated. Regional offices play a critical role in supervising and providing feedback to districts as well as serving as a link to the national CBoH. It is important that the Regional Offices begin to feel a sense of ownership in the new HMIS. Hence, Clinical and Performance Audit Mangers from the 4 regions will be invited to participate in the October workshop as well as the visits to health institutions. Along the same line new managers and experts within the Directorate of Monitoring and Evaluation will be included in the HMIS development programme.

Adjustment in the Training Programme

Using the experiences of the follow-up visits and the recommendations of the evaluation team reviewing the training given during the pre-test phase, the HMIS development team will adjust the training programme. One prominent conclusion is that the hospital staff requires a special training programme. Another important conclusion is that the training programme should be more practice oriented. The team awaits the final conclusions before making the modifications in the training programme.

10

APPENDIX G

HMIS Newsletter

HMIS News Letter

30 AUGUST 1997

In this Newsletter the HMIS Development Team tries to answer some of the burning questions asked by health workers in the pre-test districts.

Some of you will notice that in this newsletter the answers to some of your questions differ from the answers you have got during the follow-up visits by HMIS trainers in August. The reason is simple: we are still refining the system, using your comments from 12 pre-test districts.

We want to take this opportunity to thank you all for your contributions and your enthusiasm in applying the new system. We realize it is not always easy for you to implement a system still under development. But in the spirit of the Health Reforms, we are learning by doing.
For any question or comment, contact HMIS Development Team at the Central Board of Health.

We will discuss systematically all registers, tally sheets and report forms. Please take note of the changes and additions.

Outpatient register

First attendance is frequently misunderstood as the first visit of the year. This should be understood as new attendance or a new period of disease.

Column "a" Outpatient Register Number
This should be read as Outpatient Card Number. In column "a" the number of the patient's OPD card is noted. This can be an old number or a new number. If you want to give sequential numbers to all patients, use the left margin. (Sequential numbers assist in keeping track of numbers of attendances.)

Column "g" Registration fee paid
This should be understood as Fee(s) paid. The amount can be copied from the receipt the patient has got. Some districts want to note the receipt number. This can be done in the column "Remarks".
Do not leave the spaces blank in this column.

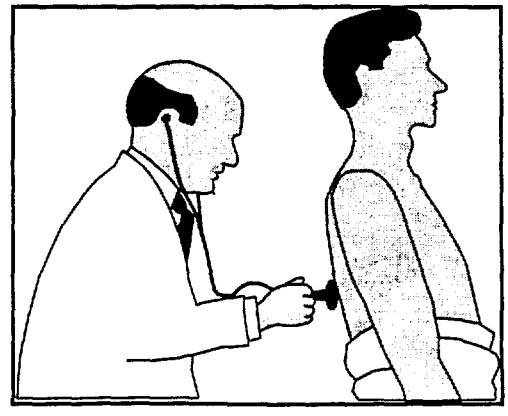
Column "h" Diagnoses
In this column you should write the diagnoses as precisely as possible. No symptoms like "cough" or "fever" and no disease categories like "muscular skeleton diseases". When you tally, you look for the most appropriate category. For example in the case of the diagnosis "infertility", you tally in the category "gynaecological diseases - other than above 5.35".

Column "I" Treatment Given
Fill the name of the drugs and the strength, for example "Chloroquine 150 mg"

Column "j" Quantity read this as "dosage".
Write here the dosage prescribed, e.g. 1 bd x 5/7, or 2 qid x 3/7.

OPD attendance tally

You can tally first attendance at the end of the day (both the attendance and the disease) or you can tally this when you see the patient. You are free to choose what is most appropriate in your institution. Please check at the end of the month whether your tallies match your entries in the OPD register. You MUST tally reattendance and follow-ups at the moment of attendance, because you do not have a register where you write the names of those patients.



OPD disease tally sheet

"AIDS: suspected and confirmed" should be read as "AIDS: suspected or confirmed". The same applies for "Tuberculosis".
Please refer to the instructions on "communicable disease (specify)(2.95.)" in the procedures manual. Use this space to tally diseases especially relevant for your district or institution, e.g. bilharzia. Transfer the data to the specific space on the disease report form.

Inpatient register

General remark: *record all deliveries in the inpatient register*, in order to account for duration of stay, fees paid, etc. Avoid double counting of deliveries. Take number of normal deliveries from the delivery tally sheet; enter these in Service Delivery Form, not in Disease Report form.

Column "a" Inpatient Register Number should be read as inpatient number. This number is copied from the inpatient admission sheet. We recommend that all institutions use a specific admission sheet.

Column "g" Registration fee paid should be read as Fee(s) paid. This space is to register additional admission fees. Do not re-enter fee paid in the OPD.

Column "h" Diagnoses
Read this as "diagnoses on discharge". Fill in this column using the final diagnoses on the inpatient admission sheet.
In case of death of a patient you can fill in two diagnoses, if you feel that a contributing factor should be recorded. But tally ONLY the FIRST diagnosis as cause of death. The second diagnosis should be tallied under diseases.

Column "I" Date of discharge should be interpreted as date of discharge, death or referral

Duration of stay
When patient is discharged, referred or dies on the same day of admission, you count this as ZERO days of admission (do not count hours).

In Patient Disease and Death Tally Sheet

The instruction on top of the page "Mark this tally sheet from the inpatient register at the end of each day" is wrong! Change this to "Tally diagnoses on discharge from the box final diagnoses on the inpatient form. If you do not use the inpatient forms in your institution, tally on the in-patient disease tally sheet when you enter diagnoses on discharge in the register."
Please note that normal deliveries are not tallied on the disease tally sheet; only tally complications of pregnancy or delivery.

Safe Motherhood Register

Column "f" Gravida refers to number of pregnancies including the present one.
Column "g" Para refers to number of deliveries (of more than 28 weeks). This includes live births, still births and children who died after delivery.

Column "k-o" TT status
Add to instructions that TT vaccination given during this clinic visit should be included, not only the TTs from history taking.
Note that we are interested in knowing the *pregnancies protected*. This is different from *protected for lifetime*. The woman who gets TT2, TT3, TT4 or TT5 is protected, so is the woman who had five TTs in the past. Please note that you should tally only once per pregnancy in the box "pregnancies protected" on the safe motherhood tally sheet.

Column "w" Risk factors during first visit should not be left blank. Note any risk factor identified or otherwise write "none". Remember that risk factors are listed in the inside cover of the register.

Delivery Register

Column "j" Duration of pregnancy in weeks is time since last normal menstruation, NOT fundus height. Note that there can be a considerable difference between duration of

pregnancy and fundus height in for example multiplets, or small baby.
Count the number of days since LMP and divide by 7 for calculating duration of pregnancy.

Delivery third stage
Column "p" Placenta:
Add to codes on inside cover of the register CCT = controlled cord traction (do not use MRP for simple active third stage management).
Column "q" Blood:
Please note the estimated blood loss in milliliters.

Column "s" Complications:
Add to list of complications on inside cover of the register: multiplets

Baby
Column "v" Live/stillbirth
Do not forget to record explicitly fresh still birth (FSB) or macerated still birth (MSB).

Delivery Tally Sheet

Low Birth Weight
Only tally live children!

Children under 5 register

Column "g-q" Immunizations
Many health workers prefer recording the date of vaccination instead of ticking. This is recommended now.
Add to the instructions on the inside cover that the column "p" fully vaccinated should be ticked the day when the full set of vaccinations is completed. This is also the moment of tallying in the box fully vaccinated on the immunisation tally sheet.

Column "r-ad" Body weight
The lines on the road to health card do not reach the y-axis (the 0 months line). Please extend the line from the point where it starts at two months to the point of 2.5 Kg at the 0 months line.
When a child comes for the first time, you do not know the previous reference weight and you cannot know whether the child is growing, static or loosing weight. Do not use the codes AG/AS/AL or BG/BS/BL, but write the actual weight and the code "A--" or "B--".

Family Planning Register

Column "a" FP reg. No
Use sequential numbers only. If you enter continuing acceptors in the register, give them a new number and copy the new number to the client card. (If you do not give a new number, you will not be able to trace the client back.)
Column "f" Parity
In this column you write the sex and for women parity. For man you write number of living children he has.
Column "h-s" Revisits
Read this as visits

Tally sheets

The boxes "total" should be used to fill in the actual numbers of tallies. When tally sheets are used for more than one month, you start on a new line and draw a clear (red) line to separate from the previous month. Numbers of the totals of tallies of the previous month should be written above the separation line.

Vaccination and ANC graph

Please do not forget to fill your graphs. They will help you to assess your performance and plan for action.

We will visit you again between 8 October and 18 October 1997.

Please be prepared:

- ñ **aggregate your data on the disease report form and the health service delivery aggregation form**
- ñ **fill in your self-assessment form**

HMIS = DART

- ñ **Decentralized**
- ñ **Action Oriented**
- ñ **Responsive**
- ñ **Transparent**