Zambia Health Management Information System (HMIS): Technical Assistance in Information Systems

2 October-7 November, 1997

Mary Church

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ACKNOWLEDGMENTS

The HMIS development team has been supporting the design and implementation of a new national health reporting system since September of 1996. 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; Mr. Bornwell Sikateyo, manager of Information and Health Systems Research; and Mr. Charles Mundale, HMIS coordinator: Jaap Koot, Tabo Mubonda, Anne Young, and the consultant. The Solwezi DHMT and health facilities provided both personal and professional hospitality during this mission.

ACRONYMS

BASICS	Basic Support for Institutionalizing Child Survival
CBoH	Central Board of Health
CDC	Centers for Disease Control and Prevention
CHW	Community Health Worker
CSO	Central Statistics Office
DANIDA	Danish International Development Agency
DHMT	District Health Management Team
HMIS	Health Management Information System
IMCI	Integrated Management of Childhood Illness
IT	Information Technology
M&E	Monitoring and Evaluation
ODA	Overseas Development Agency
QA	Quality Assurance
ToT	Training of Trainers
USAID	United States Agency for International Development
ZFPS	Zambia Family Planning Services

EXECUTIVE SUMMARY

A. Purpose of the Trip

USAID/Zambia, in collaboration with BASICS and the Centers for Disease Control and Prevention (CDC), have provided both technical and logistical support to the development of a new Health Management Information System (HMIS) in Zambia for several years. 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. The main purpose of this trip was to review the results of the field pilot tests of both manual and automated systems and to prepare for the rollout of the system to the remainder of the country.

B. Activities

Activities for 1997 have focused on pilot testing the system and the training materials. By October, the system had been operating in 20 percent of all districts in the country for at least 1 quarter: 12 districts for 1 full quarter and in 2 districts for 2 quarters. Two major activities were undertaken while in Zambia: a) review and support of facility and district use of data during quarterly self-assessment and supervision; and b) extension of automated support to pretest districts. Since leaving Zambia, the consultant and other team members have revised all of the documentation and training materials in light of the lessons learned during the pretest phase.

1. Review and support of facility and district use of data during quarterly self-assessment and supervision.

During the last 3 weeks of October, HMIS trainers visited each of the 270 pretest health facilities. Before this round of visits, a 3-day workshop was held to remind the trainers of the review's objectives and to reinforce the practice of supportive supervision. The consultant was the team leader in Solwezi and visited many of the same facilities as in the August round. Facilities had implemented most of the refinements discussed in August, and routine recordkeeping (registers, graphs, and aggregation) had improved. The quarter's data were reviewed to assess each facility's performance and to develop action plans to address problems. Facility staff certainly appreciated the opportunity to review and plan, and were generally able to identify plausible causes and remedial actions for the problems detected. A debriefing meeting with the DHMT revealed a similar interest in the use of data to assess performance and action planning skills.

2. Extension of automated support to pretest districts.

Procurement of information technology for pretest districts has been delayed. Technology was installed in only one pretest district: Kabwe Urban. However, copies of the quarterly returns for

each facility were retrieved from the district and entered into the automated system. Use of the automated system in the development districts continued into the third quarter and data were transmitted to Lusaka via diskette. These data were automatically uploaded into a national system. Hence, there is automated support for the analysis of all data collected through the new HMIS.

3. Revision of forms, documentation, and training materials.

While together in Lusaka, the HMIS development team reviewed all the forms and documentation. After separating, the team has remained in email contact and has revised all written material.

C. Conclusions and Next Steps

1. The original implementation plan called for rollout of the HMIS to the remaining districts in the country in November and December of 1997. In August, the CBoH asked that this be delayed until the beginning of 1998, so as not to coincide with the transfer of staff from civil service to contract status, and often from one position to another (the so-called delinkage process). As this consultancy was ending, the CBoH asked that all training of health staff be deferred until after 1 February, 1998. It is not clear whether this moratorium will be extended.

   The next logical step in implementation of the HMIS is to train the remaining districts in the country in its use. There is no point in commencing this training until the staff relocation is reasonably settled and until the key members of the District Health Management Team (DHMT) are in place. After staff are in place, HMIS training should begin as promptly as possible. National health data are available through 1995. Since then, nationwide systematic collection of data has ceased. It is critical to collect routine data both to manage the health care system and to gauge the effects of health reform in Zambia.

2. While facility staff can use information to identify and address problems, it will require nurturing and supportive supervision from the district for facilities to assume the responsibility of local autonomy that decentralization brings. Similarly, institutionalizing the processes of self-assessment and independent problem solving at the district will require regular support and supervision from the region. Developing procedures for regional use of data, including feedback to districts, will be a high priority.

   The workshop that preceded the review benefitted from the participation of one of the developers of the BASICS/IMCI supervisory approach that had been piloted in Lusaka in February. While there was general agreement on the framework for supportive supervision, the integration of the Lusaka checklist was not accepted by all, primarily because of divergences in the expectations of the advisors. In a process as complex as the

health reforms in Zambia, there are bound to be differences in emphasis. As in this case, the differences may simply mask an insufficient definition of the objectives and expectations of complementary technical approaches. It is appropriate to refer these questions to a larger forum, preferably chaired by a representative of the CBoH, so that discussions can help inform the reform process. It is also appropriate for collaborating advisors to be frank about expectations; this time, recalling our earlier successful collaborations, we all neglected the details.

3. Automating the recording and analysis of HMIS data enhances the district's (and region's and CBoH's) ability to identify problems and to adopt a more rational approach to management. Introducing automated support in the districts where the information officer is computer literate is an easy task; it simply requires the purchase and installation of a computer. The CBoH's information technology specialist can install the automated HMIS and explain how to use it in less than half a day. However, introducing information technology (IT) in an environment where it has not been used earlier presents a greater challenge. And in many, if not most, districts in Zambia, the information officer has not had an opportunity to develop basic computer skills. Successful automation of the HMIS as planned at the district level depends on developing and implementing a plan for maintaining the technology, and for training and supporting staff in its use.

   HMIS development has been funded primarily by USAID and DANIDA. It has been assumed that DANIDA would support the information technology assistance; however, the scheduling and level of support have become less clear in recent months. It would be appropriate for representatives of USAID, BASICS, DANIDA, and the CBoH to meet with the HMIS development team to discuss this and other similar issues of funding and transfer of ownership of the system to the CBoH.

I. PURPOSE OF 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.

- Support and review self-assessment and problem solving in pretest districts.
- Introduce automated support for the HMIS in selected pretest districts.
- Revise documentation in accord with pretest results, prepare for nationwide HMIS training, and review ongoing integration with other CBoH initiatives.

II. 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 development districts were selected that 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 a cascade training: a district training of trainers (ToT), who 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 then trained the facility staff. By 1 July, the new HMIS was being used at every facility in the pretest districts.

In July, the automated system developed by the consultant was introduced to the development districts and in August, the whole team participated in a field review of the instrumentation, one month after the system had been in use. In August and September, an independent team evaluated the effectiveness of the training, particularly the cascade approach. By October, the time had come for review of the first quarterly reporting cycle at pretest facilities and to extend the use of the automated system to pretest districts.

III. TRIP ACTIVITIES

A. Review and Support of Facility and District Use of Data During Quarterly Self-assessment and Supervision

Follow up of the facilities' application of HMIS self-assessment and problem solving techniques is scheduled after the first quarter of using the system. While this first visit is intended specifically to support the HMIS procedures, it is expected that the DHMT, in their quarterly supervisory visits, will use similar problem solving techniques with facility staff. This round of visits offered the opportunity to reinforce and formalize district supervisory processes. (A review of the pretest phase, which reports on details of the workshop and review, was prepared by a participating consultant and is in the HMIS development library.)

A 3-day workshop for HMIS core and district trainers and for regional technical officers (some 60 persons) was held to review the quarterly procedures and to discuss strategies for sustainable supervision. (The program of this workshop is in Appendix A.) Districts with established supervisory systems were invited to present their experiences. In the workshop these positive experiences were to provide the basis of the recommended supervisory process. While the importance of supervision is generally acknowledged, the experience of most participants was that supervisory visits are rarely done (lack of funds or transport were reasons given). In some districts, supervisors' allowances are viewed simply as supplementary income for senior officers; while visits are made, they are simply for the purpose of collecting an allowance.

All districts that had ongoing routine supervision had used, and rejected, a checklist in the form of specific, detailed questions intended to assess the clinic as a whole. These districts had adopted a more flexible approach, with probes suggested for clinical and managerial areas and intended to identify potential problems. Each of these districts also had a separate (but coordinated) rota for clinical supervision and personal coaching, conducted by either a physician or a senior clinical officer. Hence, this was the model used in the workshop. Representatives from Lusaka and Nchelenge were invited and accepted, but did not attend. These are two districts that have based their supervisory strategies on a general purpose checklist, but there was no information available at the workshop regarding how they use the checklist to follow up on successive supervisory visits.

Based on the experiences presented at the workshop, and in collaboration with the BASICS expert on quality assurance, each of the technical questions included in the checklist was incorporated into, and explicitly mentioned in, the problem solving process. These are the procedures that were tested during the field visit. The supervisory and assessment guidelines are included in Appendix B. The approach adopted focuses on operational issues; the document explicitly notes that guidelines and standards need to be developed for clinical supervision and personal coaching, and points to the IMCI standards and associated checklist as a model.

In fact, there are many issues surrounding the institutionalization of both operational and clinical supervision. Financial resources, transport, and supervisory and technical skills in the DHMT may all constrain adherence to supervisory protocols. Institutionalization of regular supervision in all (or most) districts will likely depend on the emphasis regions and the center place on supervision during their regular audit of district performance. This brings up a related issue. Performance audit of districts (and facilities) has been an important part of district assessment in the past. It is important to bring these three processes into alignment: operational review, clinical supervision, and performance audit. This is a long term project and should be coordinated through the Systems Development Directorate in the CBoH. The consultant has made this recommendation to the director of Monitoring and Evaluation (M&E).

After the workshop, the district support teams dispersed to their field sites. The consultant visited 12 health centres and the provincial hospital in the company of the provincial health information officer. (See itinerary in Appendix C.) When the support team arrived at the facility, staff had usually completed the data aggregations. In some facilities the staff had also completed the self-assessment process. The support team reviewed the self-assessment with the facility staff. In Solwesi, shortage of supplies, both vaccines and drugs, was a fairly common problem; in some cases, the cause was a failure of the facility to order in a timely fashion, and in some cases, a failure of the district to replenish supplies as requested. This points to the importance of training in logistics and stores management at all levels.

Other problematic areas noted by review teams include—

- *DHMT ownership.* The DHMT needs to own the process from the outset, otherwise it becomes marginalized. In response, a 3-day workshop with the DHMT is planned immediately after the district HMIS ToT and immediately before training the health facility staff.

- *Clinical skills.* Knowledge of preventive care, particularly antenatal risk factors, was weak. Diagnostic skills are sometimes weak and influence both the quality of care and the data collected. Improved clinical supervision and on the job training are essential.

- In general, it has been difficult to introduce the HMIS into hospitals. In part, this is because the HMIS has been focused on primary care (in accord with the priorities of Zambia's health reforms) and requires adjustment to reflect the issues germane to hospital management, and in part because the hospital staff designated for training have not necessarily been those who can initiate change in the hospital. Inclusion of the hospital administrator and OPD in charge in the course, and focus on hospital information requirements by the HMIS development team in 1998 are designed to address this problem.

- A number of analytic tools have been introduced: maps, graphs, self-assessment questions. Use of these tools needs to be integrated when applied during problem solving. This should be emphasized in classroom and on-the-job training.

- Response to notifiable disease reports, particularly from the national to the district level, remain inoperative and ill-defined.

- *Catchment areas and population estimates.* There are sometimes substantial differences between the population estimates of the Central Statistics Office (CSO) and facility estimates. Many facilities have made their own population estimates in collaboration with community health workers (CHWs) and find that their own population estimates give much more reasonable estimates of coverage than the CSO figures. The CSO has granted permission to use facility-based population estimates so long as these are labeled "Ministry of Health head counts" and not "CSO estimates."

B. Automated HMIS Support

While it had been planned to automate all of the pretest districts in November, a shortage of equipment resulted in the automated system being installed in only one district: Kabwe Urban. Installation in the remaining 11 pretest districts is scheduled for late February or early March of 1998. In order to test the automated system more thoroughly, the quarterly returns from each facility were collected and entered into the automated system. The electronic data from the development districts were sent via diskette. These data have been assembled so that it is possible to analyze the national trends using the 12 pretest and 2 development districts. (Examples of national reports are included in Appendix D. A copy of the automated HMIS and data have also been submitted with this report.)

Four observations emerge from preliminary analysis:

- Coverage correlates fairly clearly with population density (the more densely populated an area, the higher the coverage).

- There are a number of opportunities for improving data quality—some denominators are incomplete and some are missing entirely. Some events also seem to be miscounted.

- Some performance indicators show a surprising fluctuation from place to place. For example, in Luangwa, 2.5 health kits were used per 1000 patients, while in Sesheke, it was only 0.4 per 1000. The expected range is 0.8-1.2 kits per 1000.

- Even when an indicator seems on target at the district, there may be underlying problems. For example, Kalabo averaged almost exactly one kit per 1000. However, only 3 of its 15 health centres was within the expected range. The others were too high or too low.

During the next visit, plans for routine analysis and dissemination of data at regional and central levels will be drawn up, in collaboration with information and service managers. Techniques for reviewing data quality will be discussed with district, regional, and central users of information.

IV. FOLLOW-UP ACTIVITIES

The follow up activities have been described in the Executive Summary.

APPENDIXES

APPENDIX A

TRAVEL ITINERARY

Itinerary

2 Oct:	Depart Santa Fe
4 Oct:	Arrive Lusaka
	Meet with other team members to complete preparations for workshop and field review.
5 Oct:	Continue preparations. Team joined by Dr. Gilbert Burnham, quality assurance advisor for BASICS.
6-8 Oct:	Workshop (Program in Appendix A).
7 Oct:	Meet with George Blair and Jennifer Kaonde on Human Resources Information System.
9 Oct:	Travel to Solwezi
10-18 Oct:	Provide supportive supervision in HMIS, in partnership with provincial information officer, in health facilities in Solwezi district; detailed itinerary in Appendix C.
18 Oct:	Debrief with Solwezi DHMT
19 Oct:	Travel to Lusaka
20-26 Oct:	With team members review lessons learned from field test of HMIS.
	Review forms and documentation to agree on changes and assign responsibility for editing.
	Revise automated system to incorporate recommendations from field use.
27 Oct:	Plan for pretest IT deployment.
	Meeting between M&E QA team and advisors and HMIS development team to coordinate definitions and messages and identify opportunities for further collaboration during rollout.
28 Oct:	Coup attempt; confined to hotel. Work on automated system.
29 Oct:	Travel to Kabwe
	Debriefing with Dr. Paul Zeitz.
	Install IT and automated HMIS in Kabwe Urban district, in collaboration with Mr. Cornelius Njelisani , IT Specialist of CBoH.
30 Oct:	Review completeness of reports received from pretest districts.
	Continuation of earlier meeting with QA unit.
31 Oct:	Joint debriefing with Dr. Eddie Limbambala, Dr. Paul Zeitz, Mr. Bornwell Sikateyo, and Ms. Jolee Reinecke.
	Work on automated system.
1-2 Nov:	Work on automated system and HMIS documentation.
3 Nov:	Review data collection, entry, and report procedures with Mr. Sikateyo and Mr. Njelisani.
4 Nov:	Meet with Mr. Charles Banda, Central Statistics Office, regarding use of local census data.
	Meet with Irish Aid and FAMS representatives regarding coordination of FAMS and HMIS training.
5 Nov:	Debrief with Dr. Remi Sogunro, BASICS/COP.
6 Nov:	Depart Lusaka
8 Nov:	Arrive Santa Fe

APPENDIX B

LIST OF PERSONS MET

Persons Met

USAID/Lusaka:	Paul Hartenberger, Chief Health Officer Dr. Paul Zeitz, Assistant Health Officer
BASICS:	Dr. Remi Sogunro, COP
ZFPS:	Suzanne Thomas, COP Ken Oliviola, JSI ZFPS Liaison
QA Project:	Jolee Reinecke, Chief of Training
CBoH:	Dr. Eddie Limbambala, Director Monitoring and Evaluation Bornwell M. Sikateyo, Manager of Information and Systems Research Charles Mundale, HMIS Coordinator Cornelius Njelisani, IT Specialist Steven Mtonga, FAMS Chief Chikuta Mbewe, Pharmacist Jennifer Nyoni, Director Human Resources
DANIDA:	Erik Blas, Chief Health Advisor Dr. Knud Jensen, Medical Advisor Sven-Erik Mueller, FAMS Advisor
ODA (formerly):	George Blair, Human Resources Specialist
Solwezi:	District HMIS follow up teams: Steven Mwanza, Deterious Lungu, Mr. Kufanga, Mr. Ngosa; Members of the DHMT, and health facility staff
Kabwe Urban:	Gloria Silondwe, DHIO

APPENDIX C

WORKSHOP PROGRAM

Programme for Preparatory Meeting for
HMIS/FAMS/ITG Follow-up Visits
6-8 October 1997

Monday 6 October

Morning:	*Chairperson Mr. B. Sikateyo*	
9.00 hr	Opening remarks and introduction of participants	Mr. B. Sikateyo
9.30 hr	Review of results from August visits; review newsletter	Dr. Jaap Koot
10.00 hr	Unresolved issues of FAMS, HMIS and ITG, burning questions	Dr. Jaap Koot
10.45 hr	Tea	
11.00 hr	Self Assessment Forms (HC, Hospital and District)	Ms. Mimi Church
11.45 hr	Use of Graphs in Supervision	Ms. Tabo Mubonda
12.00 hr	Practical Exercise on Self Assessment	Ms. Anne Young
13.00 hr	Lunch	
Afternoon:	*Chairperson Ms. Mtonga*	
14.00 hr	Plenary Discussion on Exercise on Self Assessment	
15.30 hr	Tea	
15.45 hr	Review Quality Assurance Techniques for Problem Solving	Ms. Joyce Tembo
17.00 hr	End of day 1	

Tuesday 7 October

Morning:	*Chairperson Dr. Simwanza*	
8.30 hr	Role of a supervisor	Dr. Gil Burnham
10.00 hr	Vision on supervision: LAP, DART in supervision	Dr. Jaap Koot
10.15 hr	Tea	
10.30 hr	Experiences from Mongu, Masaiti, Nchelenge and Lusaka in structured supervision	
12.30 hr	Lunch	
Afternoon:	*Chairperson Dr. Janet Sikasote*	
13.30 hr	Introduction to the triple A form	Dr. M. Wiebenga
14.00 hr	The role of check lists and QA standards in supervision	Dr. Jaap Koot
14.30 hr	Tea	
14.45 hr	Small group discussion on supervision guidelines - Supervision visit (the visit itself) - Preparation and feed-back of supervision - The triple A form in relation to self-assessment - The triple A form in relation to checklists - Personal Coaching in supervision	
15.45 hr	Report on small group discussion and proposed changes to documents	

Tuesday 7 October (continued)

20.00 hr	Revision of Triple A form and other documents	HMIS dev.team Volunteers

Wednesday 8 October

Morning:	*Chairperson Dr. A. Sitali*	
8.30 hr	Demonstration Computer Programme HMIS	Ms. Mimi Church
9.30 hr	Expectations of the coming round of Supervisory visits	Ms. Tabo Mubonda
10.00 hr	Institutionalizing an integrated supervision into the normal operations of the DHMT; Coordination of the supervision process with Regional Level, forum discussion	Ms. Mimi Church
11.30 hr	Tea	
11.45 hr	Review Health Flags How to work with Health Boards, Health Centre Advisory Committees and Neighbourhood Health Committees	Dr. M. Wiebenga
13.00 hr	Lunch	
Afternoon:	*Chairperson Ms. Mwale*	
14.00 hr	Mechanisms for feedback to health centres, "contracts"	Ms. Mimi Church
14.30 hr	Discussion of future programme for roll-out	Mr. C. Mundale
15.00 hr	Last minute logistics	Mr. C. Mundale
15.30 hr	Any Other Business	

APPENDIX D

SUPERVISORY AND ASSESSMENT GUIDELINES

Supportive Supervision Guidelines

1. Problem statement

More and more health care managers realize that supervision is a crucial part of quality assurance in health care. Most health workers operate in small teams in health centres, small hospitals or in the District Health Management Teams (DHMT). Daily work pressure, routine activities, and lack of communication make it difficult for health workers to maintain the quality standards of work. Refresher courses and seminars may help to improve theoretical knowledge, but - as we know by now – have very little impact on working practices. People need on-the-job training, reflection on practical issues and exchange of experiences to remain sharp and (self-) critical. Supervision visits have been established to provide this practical support. DHMT members supervise health staff in health centres and hospitals and provincial, regional and national staff supervise DHMTs.

In the past, supervision in the health sector has often been unstructured and not aimed at problem solving. Too often it has been an ad-hoc "police" type of supervision: control and fault finding.

Several efforts have been undertaken to make supervision work better. Some districts have developed checklists for supervision by DHMT members. Under the auspices of the IMCI programme a 14 page checklist has been developed and pre-tested in Lusaka Province. The supervisory processes in this document draw on experiences using checklists in Lusaka Province, Nchelenge District, Mongu District and Masaiti District.

The reporting and assessment forms developed under FAMS and used in Western and Northern Provinces offered the Provincial Medical Offices the opportunity for a structured supervision. Experiences from these supervision processes have also been incorporated in this document.

2. Mission Statement for Supportive Supervision

The aim of supervision is to empower the supervised health worker so that he or she can improve performance. Some supervision tools aim at giving the health worker insight into his or her strengths and weaknesses and guidance in planning for improvement of performance. Other supervision tools aim at analysis of critical factors causing health problems and planning for action to tackle these problems. Another important aspect of supervision is on-the-job training to improve clinical and technical skills of health workers, so that patients receive the best possible care. The aim of training supervisors is to provide them with the necessary skills and attitude to facilitate such an "empowering supervision".

3. HMIS and other problem solving tools: QA and HIPPOPOC

In the new HMIS a number of tools have been introduced to stimulate close monitoring of activities:

- Self-assessment form
- Health flags (public health flag and curative care flag)
- Graphs (ANC and Vaccination: disease trend monitoring)

These tools indicate areas requiring further investigation and show alarm signals. The HMIS tools as such do not indicate solutions, but should trigger discussion of the problems.

The Quality Assurance (QA) unit has developed a variety of tools for solving problems. The QA tools bring the HMIS data to life and make them useful in problem solving and planning. The *Assessment, Analysis, and Action Guidelines* (triple A) describes a QA problem solving process that can be used with the HMIS indicators. The problem solving process should take place within the Health Centre and hospital teams, and between health facility staff and DHMT members. The most appropriate moment for the DHMT to discuss the problems identified by health institutions is during the regular supervision.

Problem solving is an essential part of the HIPPOPOC planning model, which was introduced in 1993 at the beginning of the health reforms. This problem solving process uses the technique of making a causal tree ("but why" questions). QA uses similar techniques and often calls it a "Bubble Chart". In the QA process described in the triple A guidelines this technique is also recommended. The weakness of the HIPPOPOC planning model was that the identification of problems was based more on gut feeling than on rational data. The QA tools link the problem warnings of HMIS and the planning of HIPPOPOC.

During the problem solving cycle additional data requirements may be identified. For example, data may be needed to confirm or rule out suspected causes of problems, or to assist in setting the priority of feasible interventions. The HMIS is intended as a problem identification tool. While it may provide some of the data required during the problem solving process, it may also be necessary to collect additional data.

4. The Triple A guidelines and supportive supervision

The triple A guidelines provide a context for problem solving during supervision visits. "Triple A" stands for Assessment Analysis and Action. (It is not a coincidence that this title is similar to the title of Module XI in the HMIS training: it tackles the same issues, using the same principles.) The triple A guides the analytic discussion from problem warning to problem solving. The format is not a checklist as such, though elements from checklists have been integrated into the guidelines. In the triple A document the examples of how to apply the guidelines use the HMIS self assessment form. In practical supervision, health centre staff, community members, and the DHMT may identify other problem areas; the triple A guidelines and problem solving cycle can be applied to these problems as well.

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In both this document on supervision and in the triple A guidelines the focus is on supervision of the Health Centre by the DHMT. The tools and principles can be used in other supervisory or problem solving contexts.

The triple A guidelines can be used by the staff of the health facility to discuss within the team the problems identified during the self-assessment. The DHMT can use the guidelines during the quarterly supervision visit, especially to discuss the action points and the district's contributions to solving the problems.

In weaker institutions the supervision team and health facility staff can complete the triple A process together during the supervision visit.

The Regional Health Office can use these guidelines for supervision of the district teams as well. (Or guidelines that include other issues that may relate only to district planning.)

5. The supervision process

5.1. Planning for the supervision

- ***Composition of the supervisory team***

  At least two District Health Office members should conduct supportive supervision at each Health Centre. At least one of the supervisors should be an experienced health worker with clinical skills. Accounts staff should accompany the supervisory team whenever necessary.

  Organize supervision teams and rotate the leadership in the teams. All members of the DHMT should participate in supervision, not only the top managers.

- ***General preparation of the DHMT members who participate in supervision***

  To enable integrated supervision, each quarter DHMT members should share information and ideas on each technical programme and on managerial issues in order to update knowledge of the services we are offering (DHMT technical workshop).

  Use standardized guidelines for supervision on specific technical programmes and update them quarterly, or regularly. These guidelines can be used in a systematic manner where the supervisors identify problem areas.

  It is mandatory that all supervisors have good knowledge of the Integrated Technical Guidelines for Frontline Health Workers.

- ***DHMT preparation for each supervisory visit***

  Documents to be used by DHMT members during preparation for the next supervision visit:
  - quarterly self assessment reports
  - health centre (and district) action plan
  - feedback reports on previous visits
  - report forms HIA.1 and HIA.2
  - updates on technical guidelines by CBoH

  Fixed supervisory schedules (dates) have to be communicated well in advance to allow time for Health Centres to organize:
  - patients that need extra attention (if an experienced clinician is part of the supervisory team)
  - quarterly health centre reports for the quarter and month just completed
  - reserve time for the supervisory team (e.g. avoid collision with the Health Centre outreach programme)
  - meetings with Health Centre Advisory Committee (HCAC) and community members

  Study the Health Centres' action plans for the forthcoming quarter so that the supervisory team can bring materials and provide other logistic support for the Health Centres (e.g. bring materials when a training of TBAs is due).

  Consultations with the district accountant and the stores officer should be done well in advance to make the logistic support more efficient. (Always take supplies. If communication is possible through telephone or radio, ask what the requirements are.)

- ***Health Centre preparation for each supervisory visit***

  Documents to be prepared in advance of the next supervision visit:
  - report forms HIA.1 and HIA.2
  - monthly charts
  - quarterly self assessment reports
  - updates to health centre action plan
  - review responses to feedback reports from previous visits

  The health centre staff should analyse the self assessment form and prepare action points to address problem areas. The staff should also meet to discuss, brainstorm and prepare action points to address other problems that have been identified.

  Community and HCAC members should be invited well in advance of the supervisory visit.

- ***Frequency of the supervisory visits***

  Regular supervision is done on a quarterly basis, for at least one whole day. Health Centres with specific identified problems will receive additional support

during the following weeks. Whenever appropriate DHMTs can decide to make extra unscheduled visits to the health institutions.

- ***Personal Coaching***

There is a need to pay special attention to the service delivery (including clinical) skills of health staff. This requires assessment of the knowledge and skills of health workers and provision of on-the-job training (coaching) where necessary.

Instruments for the assessment of health worker knowledge and skills in each of the key health interventions are being developed, as has been done in the IMCI programme. Where a health worker is found to have problems, either in understanding or performance, the supervisor will need to provide immediate coaching. These instruments are designed for use by experienced clinicians, nurses and environmental health technicians. Where a DHMT does not have sufficient staff with advanced levels of clinical knowledge and experience, they should involve hospital staff in clinical supervision.

Assessment and coaching are time consuming and should not be rushed during a routine supervision. The Integrated Technical Guidelines offer excellent reference material for technical standards to be achieved.

DHMTs should use other ways to improve clinical skills of staff, for example by discussing clinical topics during district meetings where Health Centre staff are invited or by publishing newsletters or other information material for health workers.

5.2. The Visit

- ***Documents used during the supervision***

Streamline supervision by sharing well-prepared written reports between supervision team and Health Centre staff. Reports to be shared are

- the adjusted version of the action plan of the Health Centre,
- the agreement between DHMT and Health Centre after the latest supervision visit and
- the completed self-assessment form.

- ***Focus of the supervision***

The main focus of the supervision is on:

- Review of the action plan of the previous quarter, the self-assessment report and any other problems identified by health workers or DHMT. The triple A guidelines provide a context for problem solving during this process.
- Improvement of clinical and technical skills of health workers.

Rules for a supportive approach are:

- To focus on activities, not on persons: NO FAULTFINDING
- To apply active empathic listening,

- To respect Health Centre workers as equal partners
- To show openness for constructive criticism from the side of health workers
- To co-ordinate tasks among supervisors in the team
- To involve community representatives as equal partners
- MIND YOUR LANGUAGE

- ***The supervision step by step***

1. Meet the In Charge of the Health Centre.
2. Brief the In Charge on the objectives of the supervision visit and special points of attention.
3. In larger health institutions the In Charge selects health workers who should participate throughout the supervision visit.
4. The supervision team performs a general assessment (details in following bullet point).
5. The supervision team meets with the Health Centre representatives: the In Charge chairs the meeting. This meeting has three main items of business:
   (a) Discuss the action plan and followup to agreements reached during previous supervisory visits.
   (b) Discuss the self assessment and other analytical tools applied by the Health Centre staff. The visiting team makes other observations if necessary. QA problem solving tools, like those in the triple A guidelines, are applied. HMIS analytic tools like graphs and maps are applied as well.
   (c) Discuss any other problems identified by health workers and DHMT.
6. After this meeting a general staff meeting takes places where the outcome of the previous visit report is discussed, as well as the findings of the present assessment.
7. The visiting team and the In Charge of the Health Centre meet with representatives from the Health Centre Advisory Committee and/or the Neighborhood Health Committees and analyses problems.
8. A written agreement is made on actions to be undertaken by different parties (Health Centre, community and DHMT)

- ***General Assessment***

Before the supervisory team can discuss the findings of the self-assessment, the team has to assess whether the basic conditions for operating and improving the facility are met.

- Have the catchment area and catchment population been defined and are the numbers of target groups known?
- Have the registers been kept properly and have reports been produced according to the guidelines? (Through a register review it is possible to assess the quality of diagnosis and treatment and the quality of preventive health contacts.) Have the graphs (ANC, EPI, and disease trends) been made and updated regularly? Do the numbers on the tally sheets, registers, reports and graphs match?

- How is the Health Centre team functioning? Is the work schedule maintained according to plan? Is the outreach conducted according to plan?
- Have the workers done the self-assessment and have they discussed how they together can solve the problems they have identified? Are all individuals contributing to planning and implementation?
- How is the Health Centre being run? Is it clean? Are all necessary supplies available and are stock kept according to the instructions? (See supplies and stock requirements in triple A guidelines.) How is the cold chain? (Fridge temperature between 0° and 8°: fridge temperature chart filled in twice daily: sufficient stock of paraffin)

- ***Community involvement during the supervision***

  Including community visits and participation in the supervision process can help increase community involvement in improving health status.

  Health Centre Advisory Committee members should be present and participate during a part of the supervision. (This will enhance empowerment and help them know their rights, roles and responsibilities.) If possible members from Neighbourhood Health Committees or Village Health Committees should be present as well.

- ***Completion of the supervision***

  Make a written agreement between Health Centre staff and DHMT on action points to be tackled by both parties during the forthcoming quarter.

5.3. The Follow-Up

- ***Tasks after the supervision visit***

  After each supervision visit *the entire supervision team* will write a feedback report. The feedback report should include the following topics: Objective of supervision / Review of previous recommendations / General findings / Strong points / Weak points General assessment and comments on self assessment / Recommendations for the Health Centre and the District. This report should be sent to the Health Centre and other members of the DHMT.

  The DHMT also gives a general feedback at the District Integrated Meeting (when DHMT meets with representatives from all Health Centres) where performance of different Health Centres is compared.

  The Health Centre should use the results of the self-assessment and problem analysis to update the annual action plan. The Health Centre must submit the main changes in the action plan for the following quarter to the District Health Office during or after the quarterly supervision. These action plans help the DHMT to plan support to the Health Centre, and serve as a tool to be used during preparation of next supervision visit. The action plan can also be used for honoring claims from Health Centre staff.

Assessment, Analysis and Action: Triple A Guidelines

Quality Assurance problem solving applied to HMIS data

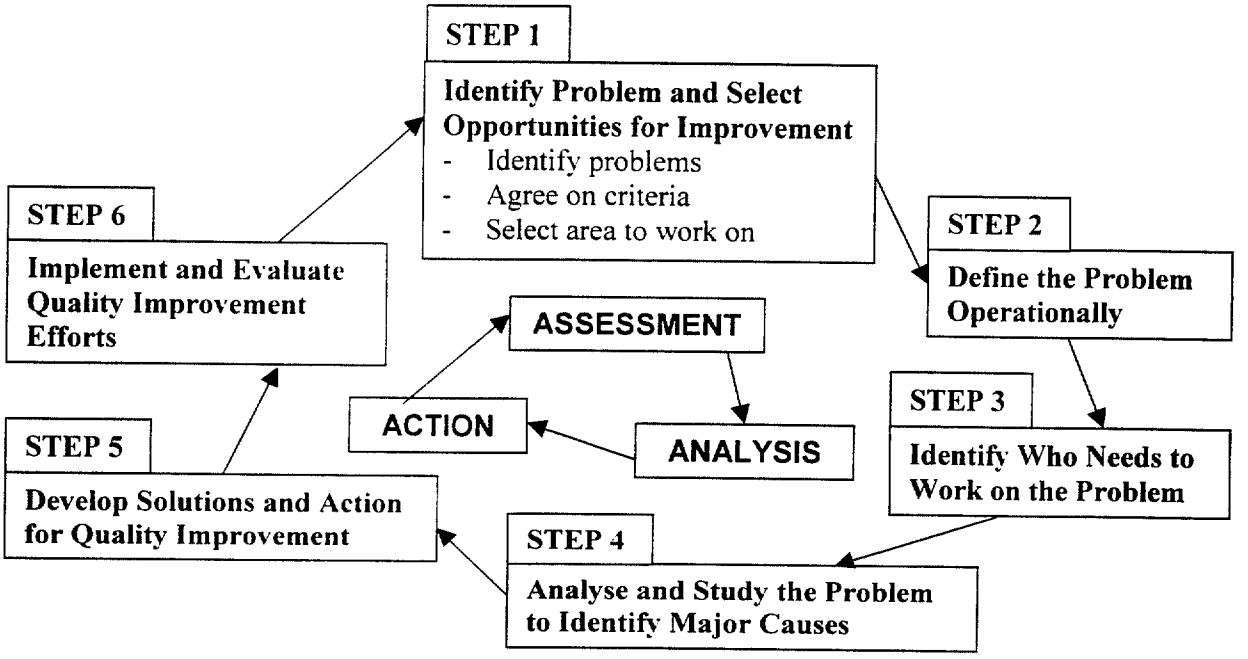
1. The Triple A Guidelines

The triple A guidelines focus on the processes of assessment, analysis, and action. This process forms a cycle, with the results of actions becoming the focus of assessment, analysis, and further refinement of action during the next cycle. This process is also known as the problem solving cycle in Quality Assurance (QA).

The triple A guidelines focus on the following six steps that lead from assessment to action. (In the larger QA cycle these are steps 5-10.)

1. Identify the problem
2. Define the problem
3. Choose the team to work on the problem
4. Analyze and study the problem to identify major causes
5. Develop solutions and actions
6. Implement and evaluate quality improvement efforts

PROBLEM SOLVING CYCLE (STEPS 1-6)



Step 1. Identify the problem

The subject for investigation and problem solving may arise from the HMIS self assessment process or from other problem identification techniques, like brain storming, experience, observations, suggestion boxes and complaints from clients.

The examples used in this document are drawn from the HMIS self-assessment form (HIQ.1) because each Health Centre will use this problem identification technique quarterly. The self-assessment form has numbered questions that cover the six main areas for health interventions and managerial issues. The self-assessment questions are answered by determining whether the indicator signals "Further investigation: yes/no". The triple A form concentrates on those questions that are answered by "Further investigation: yes".

The QA Problem Grouping Criteria

The QA problem solving process identifies three major categories of root causes.

1. **Beyond control** or sphere of influence. These are causes that no one can control, like the weather. Or they may be causes over which the Health Centre has very limited control, like staffing, housing, emoluments, etc. The Health Center can take few actions besides bringing these problems to the attention of higher level management.
2. **Easy to tackle**. These are called "low lying fruit" because they are easy to pick off. An example is following routine stock control procedures to ensure an adequate supply of drugs and supplies.
3. **Difficult to tackle**. These are difficult to tackle because more research is necessary to verify that they are indeed root causes or because the action to address them is complex and requires time.

These problem groupings should be applied to the major areas of investigation, as well as to the root causes identified within each area. The groupings can be used to prioritize the actions. In practice, if a "low lying fruit" is identified, this problem can be tackled first, because it is easier and faster to make quality improvements. The effects of the action can be observed, and the problem solving cycle begins again if the problem remains.

During the problem identification step, these criteria can be used to select which problems to analyse at first, and which aspect of the problem to tackle.

Pitfalls in Problem Identification

It is important that the supervisory team uses its technical expertise here. Though a number of indicators on diseases may show "no investigation" because they are not outside the expected range, there may be a problem because figures deviate substantially from the figures in other health facilities. The supervisory team should have the comparison of data between health facilities at hand when discussing the information with health staff. Coverage figures also may show "no investigation" because they are above the threshold. However excessively high coverage rates, like 180%, should be investigated.

In addition it is important to remember that indicators are derived from raw and aggregated data, and problems in collection of these data can distort an indicator. If the results of an indicator seem intuitively incorrect, a review of the data collection instruments may uncover the problem.

Step 2: Define the problem

In this step problem is described and related facts assembled. The problem should be described in measurable, operational terms. If the problem is not measurable it will be difficult to know when the problem has been solved.

Five questions can help describe the problem.

Question 1: *What is the problem? Or what is not functioning as we desire?*
Example: Low immunization coverage for fully immunized

Question 2: *How do we know it is a problem? What information do we have to substantiate the existence of the problem or deficiency?*
Example: Out of the expected target of 80%, we could only cover 30 %.

Question 3: *What are the effects on the population we serve?*
Examples: Epidemics from immunisable diseases like measles; and the case fatality rate is high in unimmunised children.

Question 4: *How long has the problem existed? How frequently does it occur?*
Example: Since the 2nd quarter of 1997.

Question 5: *How will we know when the problem is solved? What is the desired state?*
Example: When the coverage is 80% or higher. We may also set intermediate targets that are then raised until the national target is achieved.

Step 3: Choose the team to work on the problem

Choose the team to work on the problem: identify specific individuals, and determine whether others need to be involved. Considering the following questions can assist this process.

- Who works within the process containing this problem?
- Who is affected by the problem?
- Who has authority over the problem?
- Who has the technical expertise to help understand the problem?

Step 4: Study and analyse the problem

QA has developed a variety of analytic tools for problem solving, including bubble charts, flow charts, and fish bone diagrams. The examples used in this document apply the bubble chart technique to areas identified for investigation through the quarterly self-assessment. QA experts also recommend that a framework be used during analysis to prompt investigation into all factors that might influence health care provision. The most commonly used QA framework is called the four Ms: Machinery, Manpower, Methods and Materials.

The HMIS analytic framework distinguishes two main sets of factors influencing health care provision. On the one hand there are the community factors, which

determine the demand for services. and on the other hand there are the service delivery factors. which reflect the constraints in service delivery. The health care providers can have the greatest influence on the second group of factors. which relate to service delivery. Discussions with health care providers during the supervisory visits tend to concentrate on the service delivery factors. It is very important to discuss the community factors with representatives from the community (Health Centre Advisory Committee. Neighbourhood Health Committee. etc).

The causal tree. or bubble chart. goes deeper into the "but why" type of questions. A number of factors are listed. but others can be added and should be identified during the analytic process.

Community factors:	- Socio-economic factors
	- Natural Resources
	- Others like cultural. demographic
Service delivery factors:	- Availability
	- Accessibility
	- Acceptability
	- Quality of supplies
	- Staff performance

Questions are identified for verification with data collected through the HMIS and from other sources. The data used during this process should be verified and reviewed as described in Step 1. Pitfalls in Problem Identification. In the examples that follow (from page 13 through to page 22) specific relevant questions are mentioned. not with the aim to limit the questions to be asked. but with the aim to be a reminder in the discussion. In the actual problem solving process. other questions should arise and be recorded and included in the analytic process. Review of relevant immunisation. ANC. and disease graphs. as well as maps. should be included in this problem analysis process. After bubbling the team should validate the theories that have been brain stormed.

The questions identified must be analysed further. using relevant data. to determine which actually contribute to the problem. These are called the root causes of the problem. When the root causes of the problem have been identified. these causes must be further analysed with the problem grouping criteria described earlier. to decide which causes should be tackled. Additional prioritisation criteria may also include feasibility scoring. as used in the HIPPOPOC planning process. and potential for impact. Some problems may need action by other levels of management or the community; even in these cases the Health Centre can take some action. for example. by motivating the other party to take action.

Most of the problems are not easily solved (e.g. increase of incidence of disease). The action points are those interventions that are feasible to be undertaken during the coming quarter. Both health centre and DHMT responsibilities should be mentioned here. These action points enter in the action plan for the coming quarter (which is an update of the annual action plan of the health centre and district).

Step 5: Develop solutions and actions

In this step action points or interventions are developed to address each of the root causes. Prioritise interventions and choose appropriate solutions which are workable and can give quick results. The *HMIS Indicators Manual* and *Integrated Technical Guidelines* include suggestions for responses to problems. Several techniques for prioritising actions have been mentioned above: the QA prioritisation model decribed in Step 1, and the HIPPOPOC model described in Step 4.

The actions, and the root causes that they address, may be organised in a matrix to show their relationships and priorities clearly. The self-assessment form has such a matrix on its last page, where facilities are asked to describe the actions to address problems identified.

Step 6: Implement and evaluate

After prioritising the actions, implement the solutions using the PDCA Tool:

P- Plan: How you will implement the activities? Make an action plan.
D- Do: Carry out the actual activities.
C- Check: set intermediate indicators to monitor process of implementation. Is the intervention working or not?
A- Act: Correct any shortfalls and if necessary go back to "P".

Intermediate targets

The new HMIS offers the possibility to set adjusted intermediate targets. The targets listed on the self-assessment form are national targets or targets set by the DHMT. In many cases health institutions are not able to reach the targets set, because of various reasons. This offers the institution the possibility to set realistic targets for itself, which should be reached within a set period of time, following the action points of step 5. For example: health centre A has a percentage of supervised deliveries of 23%. The health centre makes an action plan of improving of the maternity ward, of constructing a mother shelter, and of training TBAs. The health centre sets a target of reaching a percentage of 30% in one year's time. This is still below the national target, but a considerable improvement. Setting the intermediate target allows health institutions to plan realistically and measure progress. Intermediate targets should be listed on the self-assessment form next to their action points.

2. How to use the triple A guidelines

When the triple A guidelines are used to respond to problems identified during self-assessment, step 4 guides in asking the critical questions to identify the root causes of the problem. This step is best undertaken with team brainstorming. The questions can be written in the form of a bubble chart on the flip chart or piece of paper. The questions are then investigated using data to identify the root causes. Each root cause identified, along with the actions to address it and any intermediate targets, should be listed on the last page of the self-assessment form.

The following examples show possible responses to investigation of each of the self-assessment questions, as well as several other areas of investigation that may arise.

Application of the guidelines

Self-assessment form, (specify question)	*HMIS analytic framework and Causal tree*		*Examples of specific questions arising during hubbling process* *Questions marked with * are explained further under the table*
Further investigation = yes	Community factors	Socio-economic	
		Natural Resources	
		Others	
	Service Delivery factors	Availability	
		Accessibility	
		Acceptability	
		Quality of supplies	
		Staff performance	

Items to be checked are listed below each set of questions.

Self-assessment form Q.1. ***Malaria***	*HMIS analytic framework and Causal tree*		*Examples of specific questions arising during bubbling process*
Number of malaria cases exceptionally high or low. Further investigation = yes NB: also look at incidence rate and disease trend graphs!	Community factors	Socio-economic	CQ available in community (CHW)?
		Natural Resources	Seasonal climate compared to last year?
		Others	Use of bed nets? Preventive activities? * Development of resistance?
	Service Delivery factors	Availability	
		Accessibility	
		Acceptability	
		Quality of supplies	Anti-malarials available? *
		Staff performance	Diagnostic skills? * Standard Case management? *

- Preventive activities:
  discuss with Neighbourhood Health Committees malaria control strategy, both public health (controlling stagnant water) and personal protection (bed nets, impregnated curtains, spraying)
- Anti-malarials:
  are second line drugs available?
- Diagnostic skills:
  History: vomiting? Convulsions?
  Examination: temperature taken? Lethargy or unconsiousness? Neck stiffness?
- Standard case treatment:
  correct indication for second line anti-malarials?
  Proper instructions to the patient on administration of drugs

Self-assessment form. Q.2. ***Antenatal Care***	*HMIS analytic framework and Causal tree*		*Examples of specific questions arising during bubbling process*
Proportion of ANC attendance too low? Further investigation = yes	Community factors	Socio-economic	
		Natural Resources	
		Others	tTBA programme?
	Service Delivery factors	Availability	Distances to clinics, supermarket approach?
		Accessibility	Outreach programme, long queues/waiting periods?*
		Acceptability	Female staff available?
		Quality of Infrastructure?	ANC screening facility? Privacy?
		Staff performance	Midwifery skills? * Knowledge of staff?*

- Outreach programme:
  - antenatal care systematically in outreach programme?
  - Community sensitization on risk factors of pregnancy?
- Midwifery skills:
  - physical examination: check for BP, aneamia, oedema, weight, abdominal palpation?
- Knowledge of staff
  - Risk factors identified? (Review register)
  - Knowledge of Safe Motherhood Register?

Self-assessment form. Q.3. ***Tenatus Protection***	*HMIS analytic framework and Causal tree*		*Examples of specific questions arising during bubbling process*
Percentage of pregnancies protected against tentanus too low? Further investigation = yes	Community factors	Socio-economic	
		Natural Resources	
		Others	ANC attendance in general?
	Service Delivery factors	Availability	School health programme?
		Accessibility	Outreach programme?
		Acceptability	
		Quality of supplies	Availability of vaccines, needles and syringes?
		Staff performance	Knowledge of vaccination schedule? *

- Knowledge of staff
  - TT status checked and correct action taken? Tallied correctly?
  - Knowledge of Safe Motherhood Register?

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Self-assessment form. Q.4. ***Deliveries***	*HMIS analytic framework and Causal tree*		*Examples of specific questions arising during bubbling process*
Is the proportion of supervised deliveries too low? Further investigation = yes	Community factors	Socio-economic	Local traditions? Compare with other facilities?
		Natural Resources	Distance from communities to health care providers incl. tTBAs?
		Others	Transport facilities?
	Service Delivery factors	Availability	Delivery room? Maternity ward? *
		Accessibility	Mother shelter? Referral Possible? *
		Acceptability	Female trained staff?
		Quality of supplies	Equipment, drugs? Water?
		Staff performance	Use of partogramme? * Post-natal care? *

- Delivery equipment recommended:
  - Chitle forceps, episiotomy scissors, suture needles, needle holder, artery forceps, cord scissors, ring (sponge) forceps, tooth forked forceps, neonatal musk extractor
  - Delivery bed, light (e.g. hurricane lamp)
- Consumables recommended:
  - linen/cloth to dry baby, gauze/cotton wool, plastic sheeting, cord clamps/ties, suture material, maternity pads, IV giving sets, disinfectant, syringes, needles, gloves
  - partogrammes
- Partogrammes:
  - Filled correctly
  - BP and foetal heart beat checked propriately?
  - Vaginal examination done and recorded?
- Referral:
  - Radio communication with district hospital available?
  - Transport available or possibility to arrange transport? District support?
- post natal care:
  - check for anaemia, vagina and perineum, abdomen, breasts, BP
  - give Vit A (within four weeks after delivery)
  - give Family Planning advice.

Self-assessment form. Q.5. ***Family Planning***	*HMIS analytic framework and Causal tree*		*Examples of specific questions arising during bubbling process*
Is the new number of family planning clients decreasing? Problem = yes NB: local target may be higher!	Community factors	Socio-economic	Local beliefs?
		Natural Resources	
		Others	Availability of contraceptives in community?
	Service Delivery factors	Availability	Outreach programme: available to all, regardless of marital status, age, and partner's consent?
		Accessibility	Supermarket approach? *
		Acceptability	Privacy for clients
		Quality of supplies	All contraceptives available? *
		Staff performance	Staff with sufficient knowledge?

- Supermarket approach:
  - FP services available for mothers who come with babies, or who come for post-natal control?
  - TT provided to women who come for FP?
- Check expiry dates of contraceptives
- Review FP revisit ratio and total visits to make sure these are stable or rising.

Self-assessment form. Q.6. ***STD cases***	*HMIS analytic framework and* Causal tree		*Examples of specific questions arising during bubbling process*
Is the number of STD cases exceptionally high or low? Further investigation = yes NB. Compare incidence with other health facilities !	Community factors	Socio-economic	Community sensitization?
		Natural Resources	
		Others	Condom distribution in community? Preventive activities? *
	Service Delivery factors	Availability	
		Accessibility	Obstacles of religious or social nature to provide care?
		Acceptability	Privacy of consulting rooms?
		Quality of supplies	Drugs and condoms available? Lab facilities?
		Staff performance	Knowledge treatment protocols? *

- Preventive activities:
  - Health promotion? Sex education in schools?
  - Home based care activities?
- Treatment protocols:
  - Is syndromic treatment for STDs applied as described in *Integrated Technical Guidelines*?
  - Is AIDS counselling done? Is counsellor trained?

Self-assessment form, Q.7. ***Child Pneumonia***	*HMIS analytic framework and Causal tree*		*Examples of specific questions arising during bubbling process*
Is the number of pneumonia cases among under fives exceptionally high or low? Further investigation = yes NB: Compare incidence with other facilities!	Community factors	Socio-economic	
		Natural Resources	Climate changes?
		Others	CHW activities?
	Service Delivery factors	Availability	
		Accessibility	Child clinic with integrated case management?
		Acceptability	
		Quality of supplies	Availability of drugs?
		Staff performance	Diagnostic skills? * Prescription habits?*

- Diagnostic skills:
  History: how many days?
  Examination: raise shirt, count breaths, look for indrawings.
- Prescription habits: over prescription of antibiotics? (should be less than half of children)

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Self-assessment form Q.8. ***Child diarrhoea***	*HMIS analytic framework and Causal tree*		*Examples of specific questions arising during bubbling process*
Is the number of diarrhoea cases among under fives exceptionally high or low? Further investigation = yes NB: Compare incidence with other facilities!	Community factors	Socio-economic	Water storage?
		Natural Resources	Clean water sources?
		Others	Epidemics of some kind? (Dysentery, Cholera)
	Service Delivery factors	Availability	ORS corner?
		Accessibility	Integrated child clinics?
		Acceptability	Waiting times
		Quality of supplies	ORT corner? *
		Staff performance	Diagnostic skills ? * Prescription habits? *

- ORT corner functional if:
  - table, seating for mother and child
  - potable water in sufficient supply
  - 2 large cups (500 ml), 2 medium cups (250 ml)
  - 1 tablespoon (10 ml), 1 teaspoon (5 ml)
  - ORS sachets in sufficient supply
  - ORT register completed
- Diagnostic skills:
  History: how many days? Blood in stool?
  Examination: observation of drinking? Skin pinch abdomen?
  Prescription habits: Each child should get ORS. Over-prescription of antibiotics?
  Vitamin A given if indicated?

Self-assessment form. Q.9. ***Immunizations***	*HMIS analytic framework and Causal tree*		*Examples of specific questions arising during bubbling process*
Is the coverage of fully immunized too low? Further investigation = yes	Community factors	Socio-economic	Planting/harvesting time? Rainy season?
		Natural Resources	
		Others	Target group well defined?
	Service Delivery factors	Availability	Outreach programme? Implemented according to schedule?
		Accessibility	Seasonal road conditions?
		Acceptability	Waiting times?
		Quality of supplies	All vaccines available? Cold Chain? *
		Staff performance	Knowledge of schedule?

- Cold Chain
  - fridge temperature between 0° and 8°
  - fridge temperature chart filled in twice daily
  - sufficient stock of paraffin

Self-assessment form. Q.10 ***Underweight***	*HMIS analytic framework and Causal tree*		*Examples of specific questions arising during bubbling process*
Is the proportion of underweight children too high? Further investigation = yes NB: District target is required here!	Community factors	Socio-economic	Poverty, specific groups?
		Natural Resources	Draught, flooding, etc.?
		Others	Epidemics? Diseases? * Health education CHWs?
	Service Delivery factors	Availability	Outreach programme? *
		Accessibility	
		Acceptability	
		Quality of supplies	Availability of HEPS?
		Staff performance	Health education practices? * Health promotion activities? Follow up of at-risk children? *

NB: Underweight in children can be caused by various factors:

- nutritional disorders
- diseases (e.g. diarrhoea, TB, AIDS)
- small children (maybe genetic, or due to disease or nutritional disorder in the past

- Health education:
  - Is breast-feeding only during first six months promoted?
  - Is advice given on type and frequency of weaning food (cf. ITG)?
- Follow up of at-risk children:
  - programme for home visits?
  - Register for at-risk children (chronically ill, orphans, below lower line loosing weight)?

Self-assessment form. Q.11 ***CHWs***	*HMIS analytic framework and Causal tree*		*Examples of specific questions arising during bubbling process*
Are there too few CHWs to meet community needs? Further investigation = yes NB: District target!	Community factors	Socio-economic	Community Support to CHW?
		Natural Resources	
		Others	Neighbourhood Health Committee active?
	Service Delivery factors	Availability	Plans for training?
		Accessibility	Dropouts of CHWs?
		Acceptability	Health promotion by CHW?*
		Quality of supplies	CHW drug kits available?
		Staff performance	Relation HC staff and CHWs?

- Health Promotion activities in the community include:
  - sanitation promotion: construction of VIP latrines, waste disposal
  - safe water supply: construction of bore-holes, shallow wells

Self-assessment form. Q.12 ***tTBAs***	*HMIS analytic framework and Causal tree*		*Examples of specific questions arising during bubbling process*
Are there too few trained traditional birth attendants? Further investigation = yes	Community factors	Socio-economic	Local traditions with regard to deliveries? Role of TBAs in general?
		Natural Resources	
		Others	Community knowledge on maternal risk factors?
	Service Delivery factors	Availability	Training plans?
		Accessibility	Drop-outs among tTBAs
		Acceptability	Fee paying or support to tTBAs?
		Quality of supplies	TBA kit provided?
		Staff performance	Supervision of tTBAs

Self-assessment form. Q. 13 ***Drug Kits***	*HMIS analytic framework and Causal tree*		*Examples of specific questions arising during bubbling process*
Are too many or too few drug kits being used? Further investigation = yes	Community factors	Socio-economic	
		Natural Resources	
		Others	Specific disease patterns?
	Service Delivery factors	Availability	
		Accessibility	Logistics?
		Acceptability	
		Quality of supplies	
		Staff performance	Stock keeping? Prescription habits?

- Push system often causes unbalance between health facilities. Some receive too many kits, some too few. Flexibility is necessary!

Self-assessment form. Q.14 ***Drugs In Stock***	*HMIS analytic framework and Causal tree*		*Examples of specific questions arising during bubbling process*
Are critical drugs in stock? Problem = yes	Community factors	Socio-economic	
		Natural Resources	
		Others	Epidemics?
	Service Delivery factors	Availability	Logistics a general problem? Out of Stock of vitamin A or TB drugs?
		Accessibility	Extra buffer supplies available next to the kits?*
		Acceptability	
		Quality of supplies	Drugs expiring? *
		Staff performance	Stock keeping? Prescription habits?

- Extra supplies
  - It is recommended that health centres have second line anti malarials (pyrimenthamine-sulfa tabs)
  - Health centres in the IMCI programme should have gentamycin
  - Health centres with maternity ward should have IV giving sets. ergometrin and IV anticonvulsants
- Expiring of drugs:
  - Does facility follow FEFO (first expiring first out)?
  - Is district taking back unused drugs for redistribution?

Self-assessment form. Q. 15 ***Work load***	*HMIS analytic framework and Causal tree*		*Examples of specific questions arising during bubbling process*
Was daily workload within acceptable range? Further investigation = yes	Community factors	Socio-economic	
		Natural Resources	Seasonal variation attendance?
		Others	Epidemics? Community sensitization? *
	Service Delivery factors	Availability	Enough staff posted?
		Accessibility	Sick leave or holidays?
		Acceptability	Other staff problems?
		Quality of supplies	Drugs available?
		Staff performance	Salary problems? Clinical lectures? Study time? *

- Workload is not only determined by patient contacts!
  - What amount of time is spent on community activities. e.g. meeting neighbourhood health committee. school health programme. community seminars?
  - What time is spent on activities with regard to environmental health?
- Staff performance:
  - Is time spent on clinical lectures. or study using materials provided to improve quality?

Self-assessment form. ***Tuberculosis***	*HMIS analytic framework and Causal tree*		*Examples of specific questions arising during bubbling process*
Is the proportion of TB patients under treatment who have NOT taken drugs for more than one month more than 10% NB: Only for TB treatment centres	Community factors	Socio-economic	Support from family and community?
		Natural Resources	
		Others	
	Service Delivery factors	Availability	Distance from health centre?
		Accessibility	Supermarket approach to TB treatment? DOTS?
		Acceptability	
		Quality of supplies	Availability of TB drugs? *
		Staff performance	Follow up of defaulting patients? Sputum control at 2, 5 and 8 months done? Knowledge of DOTS?

- TB drugs: TB drugs should be available for the patients on treatment with at least one month extra stock

Additional question. ***Water and Sanitation***	*HMIS analytic framework and Causal tree*		*Examples of specific questions arising during bubbling process*
Is the number of households with access to safe water too low? NB: District or local target and threshold.	Community factors	Socio-economic	Paying for water a problem?
		Natural Resources	Availability of water in the area?
		Others	
	Service Delivery factors	Availability	Distances to safe water points?
		Accessibility	Water always available or drying up?
		Acceptability	
		Quality of supplies	Quality of water *
		Staff performance	Knowledge about actual situation? *

- Quality of water:
  - Is sampling done?
  - Does the health centre have a stock to treat contaminated water?
- Knowledge about actual situation:
  - HC staff should perform survey annually, in collaboration with Neighbourhood Health Committees, village leaders and Department of Water Affairs

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HEALTH CENTRE QUARTERLY SELF ASSESSMENT

District:_____ **Form HIQ.1**
Health Centre:_____ **quarter_____ in year_____**

The Health Centre quarterly assessment indicators were selected to provide insight into the accessibility, quality, and cost-effectiveness of care, as well as utilisation and health status. They include curative and preventive services (1-10), community participation (11-12), drugs and supplies (13-14), and performance (15).

Instructions for completing form.

First complete the Self-Assessment Tables (form HIQ.2) for the quarter, and use them to enter the Numerator, Denominator, and Indicator Value for each question. If the Indicator Value is outside the Expected Range or passes the Threshold Value further investigation is recommended. Enter Yes or No to indicate whether further investigation should be undertaken.

Supportive Supervision, the triple A guidelines, and Self-Assessment

Analyse the problems for questions that have a Yes answer. The triple A guidelines used during supportive supervision include review of the Health Centre's quarterly Self-Assessment form. These guidelines assist in identifying the root causes of problems detected during the self-assessment process. When the self-assessment indicators suggest the need for further investigation, the problem solving process described in the triple A guidelines should be used to isolate the root causes and to plan actions to address them.

At the end of this report, indicate the root causes of problems and the corrective actions to be taken, including support requested from the District, as well as intermediate targets for improvement, for each question with a Yes answer. Use additional sheets of paper as required.

Question	Numerator	Denominator	Indicator	Target	Threshold or Expected Range	Further Investigation? (Yes/No)
Malaria						
1. Is the number of new malaria cases exceptionally high or low? (Data source: HIQ.2 Table 2a)	Number of new cases this quarter	Number of new cases in same quarter last year	Numerator x 100 / Denominator	<none>	85 - 115%	_____
Maternal Health						
2. Is the proportion of pregnant women who seek antenatal care at health institutions too low? (Data source: HIQ.2 Table 3a)	Number of first antenatal attendances	Expected number of pregnancies	Numerator x 100 / Denominator	90%	80%	_____

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District:_____
Health Centre:_____

HIQ.1
quarter_____ in year_____

Question	Numerator	Denominator	Indicator	Target	Threshold or Expected Range	Further Investigation? (Yes/No)
3. Is the proportion of pregnancies protected against tetanus too low? (Data source: HIQ.2 Table 3b)	Number of pregnancies protected	Expected number of pregnancies	Numerator x 100 / Denominator	80%	70%	
4. Is the proportion of deliveries supervised by a trained provider too low? (Data source: HIQ.2 Table 3c)	Number of deliveries supervised	Expected number of deliveries	Numerator x 100 / Denominator	rural 50% urban 80%	Rural 40 % Urban 70%	
5. Is the number of new family planning clients decreasing? (Data source: HIQ.2 Table 3d)	a) Number of new family planning clients	b) Number of new family planning clients last quarter	change: a-b	over 0 (or higher district target)	Below 0	
AIDS / STD						
6. Is the number of new STD cases exceptionally high or low? (Indicator is statistically reliable only if Health Centre has a catchment population of more than 10,000) (Data source: HIQ.2 Table 2b)	Number of new cases this quarter	Number of new cases in same quarter last year	Numerator x 100 / Denominator	<none>	85 – 115%	
Child Health						
7. Is the number of new pneumonia cases among under 5s exceptionally high or low? (Indicator is statistically reliable only if Health Centre has a catchment population of more than 10,000) (Data source: HIQ.2 Table 2c)	Number of new cases this quarter	Number of new cases in same quarter last year	Numerator x 100 / Denominator	<none>	85 – 115%	
8. Is the number of new diarrhoea cases among under 5s exceptionally high or low? (Data source: HIQ.2 Table 2d)	Number of new cases this quarter	Number of new cases in same quarter last year	Numerator x 100 / Denominator	<none>	85 – 115%	

Health Centre Quarterly Self Assessment

District:_____
Health Centre:_____

HIQ.1
quarter_____ in year_____

Question	Numerator	Denominator	Indicator	Target	Threshold or Expected Range	Further Investigation? (Yes/No)
9. Is the coverage of under 1s with the full series of immunisations too low? (Data source: HIQ.2 Table 4a)	Number fully immunised	Expected number of children reaching age 1 during quarter	Numerator x 100 / Denominator	80%	70%	
10. Is the proportion of children under 5 who are underweight too high? (Data source: HIQ.2 Table 4b)	Number below lower line	Number weighed in the quarter	Numerator x 100 / Denominator	District target	above District threshold	
Human Resources						
11. Are there too few active Community Health Workers to meet community needs? (Data source: HIQ.2 Table 5)	Number of active CHWs	Catchment population	Numerator x 1000 / Denominator	District target	below District threshold	
12. Are there too few active trained Traditional Birth Attendants to meet community needs? (Data source: HIQ.2 Table 5)	Number of active TBAs	Catchment population	Numerator x 1000 / Denominator	District target	below District threshold	
Drugs / Supplies						
13. Is the number of Health Centre kits used within acceptable range? (Data source: HIQ.2 Table 6a)	Number of kits opened	Number of patients attended / 1000	Numerator / Denominator	1	0.8 - 1.2	
14. Were critical drugs ever out of stock? (Data source: HIQ.2 Table 6b)			Number of months drug or vaccine was in stock throughout month			
Chloroquine				3	3	
Paracetamol				3	3	
Cotrimoxazole				3	3	
Oral Contraceptives				3	3	
BCG Vaccine				3	3	
DPT Vaccine				3	3	
OPV Vaccine				3	3	
Measles Vaccine				3	3	
TT Vaccine				3	3	

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District:_____
Health Centre:_____

HIQ.1
quarter ____ in year____

Question	Numerator	Denominator	Indicator	Target	Threshold or Expected Range	Further Investigation? (Yes/No)
Performance						
15. Was the daily staff load for curative and preventive care within acceptable range? (Data source: HIQ.2 Table 7)	Number of patient contacts	Number of qualified staff x 68	Numerator / Denominator	District target	District range	
District:			Numerator / Denominator	District target	District range	

For each question investigated, describe the root causes of the problem, the action points, and intermediate target for improvement.
Please add additional sheets of paper as necessary.

Question investigated	Root causes	Action points	Intermediate target

Completed by:_____
Title:_____

Signature:_____
Date:_____

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HEALTH CENTRE SELF-ASSESSMENT TABLES

District:_____ **Form HIQ.2**
Health Centre:_____ **year**_____

The self-assessment process

The quarterly self-assessment process provides an opportunity for the Health Centre to review the services it has provided and compare them with the services planned. In this review process, problems are identified, analysed, and an action response is planned.

In the conceptual framework that guides the self-assessment, we can distinguish two major categories of causal factors. On one hand there are the health needs factors, and on the other hand there are the service delivery factors. Health needs factors influence the demand for services, and service delivery factors influence the supply of services.

Examples of health needs factors are demographic and epidemiological conditions:

- demographic: composition of the population and changes due to population growth, migration.
- epidemiological: seasonal patterns of the disease, epidemic spread of some diseases, development of drug resistance.

Examples of service delivery factors are:

- availability of services, especially distances to health institutions
- accessibility of services, due to temporary closure, patient fees, etc.
- acceptability of services, due to cultural factors, gender issues, etc.
- quality of supplies and equipment, e.g. drug shortages
- quality of staff, e.g. capacity to diagnose correctly.

About the Indicator Values

Interpreting the indicator may mean comparing its current value with its value at another point in time, an "expected" value; or with a value established by policy, a "target" value; or with a value that warns of potential problems, a "threshold" value. Expected ranges of values are often associated with disease patterns; if the indicator varies unexpectedly outside the expected range of values, it may warn of a change in disease patterns. Target and threshold values are often associated with delivery of preventive services; if the indicator varies unexpectedly from the target and passes the threshold, it may warn that the delivery of the service is in danger of being compromised. If coverage falls below the threshold, clients may not be receiving the service. The indicators' "threshold" values or "expected" ranges of values are warning signals. If an indicator passes the threshold value, or moves outside the expected range, it warns that there may be a problem in service delivery or disease patterns. Using the indicators for action planning relies on interpreting their warnings.

Interpretation of Service Delivery Statistics

Preventive services that are provided for a specific population group, like immunisations for children under one or for pregnant women, usually have a specific target and threshold that are based upon the number of persons in the population group. If the indicator falls below the threshold, the contributing health needs and service delivery factors should be analysed in the self-assessment process. For example, low immunisation coverage may be related to many factors: an interruption in the vaccine supply, distance to service delivery points, or parents' misunderstanding of the importance of immunisation. Exceptionally high coverage

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figures (more than 150%) should also be investigated. They may indicate that the client population is larger than expected, and that population figures should be updated for improved planning. Or high coverage may indicate a systematic error in data collection or analysis.

Interpretation of Disease Trends

Interpretation of trends in disease patterns is not easy, because many different factors contribute to changes all the time. First of all it is impossible to define a target for cases of disease. Ideally we aim for zero cases (health for all), but that is not realistic. A second problem is that we do not measure the "real" number of cases, because we don't count ill people who do not come to health institutions. The number of patients seen is influenced by service delivery factors. This gives the awkward situation that the number of cases goes down when we reduce availability of services. Therefore: **we aim at reduction of the number of cases, while improving the service delivery factors.**

Expected range of values

In real life the number of patients seen varies. Obviously during an epidemic of measles or meningitis the number increases dramatically. But also the number of patients seen for other diseases, like diarrhoea or malaria, may vary. The expected variation is arbitrarily assumed to be plus or minus 15% compared to the previous period of time (for example, to the previous quarter, or to the same quarter in the previous year). We can say: if the increase is less than 15% or the decrease is less than 15% compared to the previous period there is no major change in health service or community factors. If the increase is more than 15% or if the decrease is more than 15% further analysis is necessary. For diseases that have pronounced seasonal variation (like malaria, diarrhoea, and pneumonia), the comparison should be made with the same period in the previous year.

Further analysis

Further analysis in the case of major changes (more than 15%) concentrates first on service delivery factors. Have there been changes in service delivery that can explain a major change in cases seen? A decrease in cases can be caused by reduced attendance due to temporary closure of the health facility, or due to higher patient fees, or lack of drugs, or a new health worker who does not use standard case definitions, etc. An increase in cases can be caused by supply of drugs causing higher attendance, change in use of case definitions etc.

After analysis of the service delivery factors, the health needs factors are analysed. An increase in cases can be caused by a certain epidemic, or by an influx of patients from a neighbouring area, or by resistance against drugs (for example, chloroquine resistance). A decrease may be caused by changing disease patterns (for example, at the end of an epidemic), or as a result of preventive measures (for example, reduction of vaccine-preventable diseases).

Response

The response is highly dependent on the causes found for the change in indicator value. Probably most of time, a series of factors contributes to a change. If there are clear indications from the analysis that service delivery factors have deteriorated (for example, a shortage of drugs) appropriate actions are obvious: improve service delivery. If service delivery factors are stable or even improving and indicator values are still deteriorating, there is need for further study of health need factors. What is going on in the community causing a number of cases? Often it will be necessary to discuss the problems with representatives of neighbourhood health committees and other community members, in order to plan for a joint response to the

problem. These activities can range from stepping up a vaccination programme, improving supply of safe water, to nutrition education and AIDS/STD information campaigns, depending on the analysis of the problem.

Self-Assessment Tables

These tables contain the data that are needed to complete the Health Centre Quarterly Self-Assessment form (HIQ.1). Data are entered in these tables from the Disease Aggregation Form (HIA.1) and the Service Delivery Aggregation Form (HIA.2). The tables should be retained at the Health Centre and used each quarter during self-assessment. They provide an ongoing record of the accomplishments and constraints during the year.

Table 1: Population Estimates

Data in this table provide the population denominators for questions 2, 3, 4, 9, 11, and 12 in the Health Centre Quarterly Self-Assessment form. The proportions suggested for estimating target group populations are based on national statistics from the Central Statistics Office. Districts may use proportions derived from district census data or from community-based census data. If a Health Centre uses its own population data, it should not be attributed to the CSO; instead the annotation should be "Ministry of Health Headcount"

	Annual	Quarterly Target*
Total Population in Catchment Area		xxxxxxxx
Expected Pregnancies (5.4% x Total Population)		
Expected Deliveries (5.2% x Total Population)		
Under ones (4% x Total Population)		

* Divide the Annual amount by 4 to obtain the quarterly estimate.

Table 2: Cases of Disease

The quarterly self-assessment process includes questions on the utilisation of curative services for four important diseases: malaria and STDs in all ages, and pneumonia and diarrhoea among children under 5 years. To assess whether the utilisation is in the expected range, based on historical trends, compare the number of new cases in this quarter with the number of new cases in the same quarter of the previous year. If the current year's cases are more than 115% of the previous year's cases, or less than 85%, then there may be a problem associated with changes in health service delivery or community factors. (The number of cases is the sum of outpatient attendances, inpatient discharge diagnoses, and deaths.)

If the disease trends indicate that further investigation should be undertaken, the charts of monthly disease cases can support analysis and point to causes of change. Comparison of the actual number of cases with the expected number, as calculated in the curative care health flags, can also provide greater understanding of disease trends.

Table 2a: Malaria Cases

Data in this table provide the Numerator and Denominator for question 1 in the Health Centre Quarterly Self-Assessment form.
Is the number of new malaria cases exceptionally high or low?

	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Annual
NUMERATOR: Number of new malaria cases in current period (from Disease Aggregation form, HIA.1, the sum of columns c, f, and i for disease 2.40)					
DENOMINATOR: Number of new malaria cases in same period in previous year (from Disease Aggregation form, HIA.1, the sum of columns c, f, and i for disease 2.40)					
INDICATOR: (NUMERATOR x 100) / DENOMINATOR					
FURTHER INVESTIGATION? Yes or No					

The expected range is 85 - 115%. Further investigation is recommended if the indicator value falls below 85% or above 115%.

Table 2b: Sexually Transmitted Disease (STD)

Data in this table provide the Numerator and Denominator for question 6 in the Health Centre Quarterly Self-Assessment form.
Is the number of new STD cases exceptionally high or low?
This indicator is statistically reliable only if the Health Centre has a catchment population of more than 10,000. If the population is lower, the number of cases will probably be small and random fluctuations may cause relatively large proportional changes.

	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Annual
NUMERATOR: Number of new STD cases in current period (from Disease Aggregation form, HIA.1, the sum of columns c, f, and i for disease 2.70)					
DENOMINATOR: Number of new STD cases in same period in previous year (from Disease Aggregation form, HIA.1, the sum of columns c, f, and i for disease 2.70)					
INDICATOR: (NUMERATOR x 100) / DENOMINATOR					
FURTHER INVESTIGATION? Yes or No					

The expected range is 85 - 115%. Further investigation is recommended if the indicator value falls below 85% or above 115%.

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Table 2c: Pneumonia Cases among Under 5s

Data in this table provide the Numerator and Denominator for question 7 in the Health Centre Quarterly Self-Assessment form.
Is the number of new pneumonia cases among under 5s exceptionally high or low?
This indicator is statistically reliable only if the Health Centre has a catchment population of more than 10,000. If the population is lower, the number of cases will probably be small and random fluctuations may cause relatively large proportional changes.

	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Annual
NUMERATOR: Number of new pneumonia cases among under 5s in current period (from Disease Aggregation form, HIA.1, the sum of columns a, d, and g for disease 2.65.1)					
DENOMINATOR: Number of new pneumonia cases among under 5s in same period in previous year (from Disease Aggregation form, HIA.1, the sum of columns a, d, and g for disease 2.65.1)					
INDICATOR: (NUMERATOR x 100) / DENOMINATOR					
FURTHER INVESTIGATION? Yes or No					

The expected range is 85 - 115%. Further investigation is recommended if the indicator value falls below 85% or above 115%.

Table 2d: Diarrhoea Cases among Under 5s

Data in this table provide the Numerator and Denominator for question 8 in the Health Centre Quarterly Self-Assessment form.
Is the number of new diarrhoea cases among under 5s exceptionally high or low?

	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Annual
NUMERATOR: Number of new diarrhoea cases among under 5s in current period (from Disease Aggregation form, HIA.1 the sum of columns a, d, and g for diseases 2.15.1, 2.15.2, and 2.15.3, all diseases summed)					
DENOMINATOR: Number of new diarrhoea cases among under 5s in same period in previous year (from Disease Aggregation form, HIA.1, the sum of columns a, d, and g for disease diseases 2.15.1, 2.15.2, and 2.15.3, all diseases summed)					
INDICATOR: (NUMERATOR x 100) / DENOMINATOR					
FURTHER INVESTIGATION? Yes or No					

The expected range is 85 - 115%. Further investigation is recommended if the indicator value falls below 85% or above 115%.

Table 3: Maternal Health

The three maternal health indicators, first antenatal contacts, pregnancies protected against tetanus, and supervised deliveries, should be compared with each other. Usually, antenatal coverage is highest. If the TT or supervised delivery coverage is substantially lower than antenatal coverage, opportunities have been missed in providing TT protection and in encouraging women to take advantage of institutional and tTBA delivery services.

Table 3a: First Antenatal Contacts

Data in this table provide the Numerator and Denominator for question 2 in the Health Centre Quarterly Self-Assessment form.

Is the proportion of pregnant women who seek antenatal care at health institutions too low?

The graph of cumulative monthly antenatal coverage assists in investigation of delivery of this service. For example, if coverage appears too low, fluctuations in the monthly ANC graph can confirm suspected effects of seasonal or temporary service delivery problems, like breakdown of transport.

	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Annual
NUMERATOR: Number of first antenatal contacts (HIA.2, datum 1.1.1.1)					
DENOMINATOR: Expected number of pregnancies during the period (from Table 1, Population Estimates, above)					
INDICATOR: (NUMERATOR x 100) / DENOMINATOR					
FURTHER INVESTIGATION? Yes or No					

The national target for antenatal attendance is 90%. Further investigation is recommended if the indicator value falls below 80%.

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Table 3b: Pregnancies Protected Against Tetanus
Data in this table provide the Numerator and Denominator for question 3 in the Health Centre Quarterly Self-Assessment form.
Is the proportion of pregnancies protected against tetanus too low?

If the proportion of women receiving antenatal care is low (see previous question), then the proportion of pregnancies protected against tetanus is also likely to be low. In this case, it may be useful to assess the quality of antenatal care by calculating the proportion of first contacts whose pregnancy is protected. This proportion should be 80% or higher. This proportion is calculated by dividing the number of pregnancies protected (the numerator for this indicator) by the number of first antenatal contacts (the numerator for the previous indicator). If the proportion of pregnancies protected against tetanus is substantially higher than antenatal coverage, there may be inaccuracies in counting the number of first antenatal contacts or in counting protected pregnancies.

	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Annual
NUMERATOR: Number of pregnancies protected against tetanus (HIA.2, datum 1.1.2)					
DENOMINATOR: Expected number of pregnancies during the period (from Table 1, Population Estimates, above)					
INDICATOR: (NUMERATOR x 100) / DENOMINATOR					
FURTHER INVESTIGATION? Yes or No					

The national target for protected pregnancies is 80%. Further investigation is recommended if the indicator value falls below 70%.

Table 3c: Proportion of Deliveries Supervised by a Trained Provider
Data in this table provide the Numerator and Denominator for question 4 in the Health Centre Quarterly Self-Assessment form.
Is the proportion of deliveries supervised by a trained provider too low?

"Deliveries supervised by a trained provider" include those attended by a health care professional or a trained Traditional Birth Attendant (tTBA).

	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Annual
NUMERATOR: Number of deliveries supervised (HIA.2, datum 1.2 plus 5.2.2)					
DENOMINATOR: Expected number of deliveries during the period (from Table 1, Population Estimates, above)					
INDICATOR: (NUMERATOR x 100) / DENOMINATOR					
FURTHER INVESTIGATION? Yes or No					

The national target is 50% in rural areas and 80% in urban areas. Further investigation is recommended if the indicator value falls below 40% in rural areas and below 70% in urban areas.

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Table 3d: Increase in new family planning acceptors

Data in this table provide the two values for question 5 in the Health Centre Quarterly Self-Assessment form.

Is the number of new family planning acceptors decreasing?

In reviewing family planning performance, the new acceptor rate and the revisit ratio should be used together and interpreted in the light of the local situation. In areas where family planning activities have been weak for many years, the number of new acceptors will probably be low and increase as family planning services improve. The self-assessment process is geared towards programmes at this stage of development. Eventually the number will level off. The revisit ratio will likely increase as services improve and gradually level off. Depending on the family planning activities emphasized, the revisit ratio may reflect the effects of the program more sensitively than the new acceptor rate. With service improvements either rate or ratio or both can be expected to increase, then level off at a new standard. A sustained decline in either, and particularly a decline in the total number of users, should set off a warning signal. A decrease in utilisation should be coupled with review of the indicator that signals problems with drugs and supplies that may affect service utilisation rates (see Table 6b).

	Quarter 4 last year	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Annual
Number of new family planning acceptors (HIA.2. datum 2.1.1)						
INDICATOR: This quarter minus previous quarter						
FURTHER INVESTIGATION? Yes or No						

The objective is to increase new acceptors. Districts are encouraged to set specific targets in terms of % increase. Further investigation is recommended if the indicator value falls below 0.

Table 4: Child Health

Table 4a: Fully Immunised Children

Data in this table provide the Numerator and Denominator for question 9 in the Health Centre Quarterly Self-Assessment form

Is the coverage of under 1s with the full series of immunisations too low?

The graphs of cumulative monthly coverage of each antigen provide insight into problems associated with delivering the full series of immunisations to children. Sometimes low coverage for full immunisation is accompanied by high drop out rates. For example, BCG coverage may be high while measles coverage may be much lower. This may reflect shortage of the later vaccines, or it may indicate a need to improve the messages regarding completing the series that are given to mothers of infants receiving BCG. (A high dropout rate, with high BCG coverage, tends to rule out distance as a primary deterrent in seeking immunisation services.)

A high BCG coverage accompanied by low postnatal coverage can point to an opportunity to provide postnatal care to the mother when the infant receives the first immunisation.

Low coverage should be coupled with review of the indicator that signals problems with drugs, vaccines, and supplies that may affect availability of immunisation services(see Table 6b).

	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Annual
NUMERATOR: Number of fully immunised children under 1 (HIA.2, datum 3.1.9)					
DENOMINATOR: Number of children reaching age 1 during the period (from Table 1, Population Estimates, above)					
INDICATOR: (NUMERATOR x 100) / DENOMINATOR					
FURTHER INVESTIGATION? Yes or No					

The national target is 80%. Further investigation is recommended if the indicator value falls below 70%.

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Table 4b: Underweight Children

Data in this table provide the Numerator and Denominator for question 10 in the Health Centre Quarterly Self-Assessment form

Is the proportion of children under 5 who are underweight too high?

	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Annual
NUMERATOR: Number of children under 5 years with weight for age below the lower line (HIA.2, datum 3.2.1)					
DENOMINATOR: Number of children under 5 years weighed during the period (HIA.2, datum 3.2.2)					
INDICATOR: (NUMERATOR x 100) / DENOMINATOR					
FURTHER INVESTIGATION? Yes or No					

The district sets the target and threshold values.

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Table 5: Human Resources

Data in this table provide the Numerator and Denominator for questions 11 and 12 in the Health Centre Quarterly Self-Assessment form.
Are there too few Community Health Workers (CHWs) to meet community needs? and
Are there too few trained Traditional Birth Attendants (tTBAs) to meet community needs?

The national target for CHWs is 2 per 1000 population (or 1 per 500), and the target for tTBAs is 1 per 1000 population.

	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Annual
tTBA NUMERATOR: Number of active tTBAs (HIA.2, datum 5.2.1)					
tTBA DENOMINATOR: Total Population in Catchment Area (from Table 1, above)					
tTBA INDICATOR: (tTBA NUMERATOR x 1000) / DENOMINATOR					
tTBA FURTHER INVESTIGATION? Yes or No					
CHW NUMERATOR: Number of active CHWs (HIA.2, datum 5.3.1)					
CHW DENOMINATOR: Total Population in Catchment Area (from Table 1, above)					
CHW INDICATOR: (CHW NUMERATOR x 1000) / DENOMINATOR					
CHW FURTHER INVESTIGATION? Yes or No					

The district sets target and threshold values.

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Table 6: Drug Supplies and Service Utilization

Table 6a: Health Centre Kits

Data in this table provide the Numerator and Denominator for question 13 in the Health Centre Quarterly Self-Assessment form

Is the number of Health Centre kits used within acceptable range?

	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Annual
NUMERATOR: Number of Health Centre Kits opened (HIA.2, datum 7.1)					
DENOMINATOR: Number of OPD attendances (new and reattendances) plus IPD admissions (HIA.2, datum 6.1.9 plus datum 6.2) divided by 1000					
INDICATOR: NUMERATOR / DENOMINATOR					
FURTHER INVESTIGATION? Yes or No					

The national target is 1. Further investigation is recommended if the indicator value falls below 0.8 or above 1.2.

Table 6b: Shortage of Critical Drugs

Data in this table are used to answer question 14 in the Health Centre Quarterly Self-Assessment form

Were critical drugs ever out of stock?

For each drug, enter the number of months during the time period in which the drug was in stock throughout the month. For example, if cotrimoxazole was in stock throughout January and March, but out of stock for two weeks in February, then it was in stock throughout 2 months in the first quarter, and the number 2 would be written in Quarter 1 for cotrimoxazole.

	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Annual
Chloroquine (HIA.2, datum 7.2.1)					
Paracetamol (HIA.2, datum 7.2.2)					
Cotrimoxazole (HIA.2, datum 7.2.3)					
Oral Contraceptives (HIA.2, datum 7.2.4)					
BCG Vaccine (HIA.2, datum 7.2.5)					
DPT Vaccine (HIA.2, datum 7.2.6)					
OPV Vaccine (HIA.2, datum 7.2.7)					
Measles Vaccine (HIA.2, datum 7.2.8)					
TT Vaccine (HIA.2, datum 7.2.9)					

Further investigation is recommended if any of these drugs was out of stock during the period (if the number of months in stock per quarter is less than 3).

Table 7: Staff Performance

Data in this table provide the Numerator and Denominator for question 15 in the Health Centre Quarterly Self-Assessment form.
Was the daily staff load for curative and preventive care within acceptable range?

The number of staff days is estimated assuming that each staff member works 6 days per week, minus 24 vacation days and 10 public holidays per year. This comes to 272 working days per year, for an average of 68 working days per quarter per staff member.

	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Annual
NUMERATOR: Number of client contacts: OPD first attendances and reattendances plus Admissions plus Preventive contacts (HIA.2. datum 6.1.9 plus datum 6.2 plus datum 4.9)					
DENOMINATOR: Number of qualified staff in Human Resources Register (HIA.2. datum 5.1.1) x average number of working days in period (or **68** days)					
INDICATOR: NUMERATOR / DENOMINATOR					
FURTHER INVESTIGATION? Yes or No					

The district sets the target and expected range of values.

APPENDIX E

SOLWESI TEAM ITINERARY

Solwezi Team 1 (BASICS Vehicle N1)
M. Church, Mr. Kufanga

Date	Destination	Sleep
Friday, 10 October	Travel to and supervise Kapijimpanga	Boma
Saturday, 11 October	Travel to and supervise Katandano and Kansashi	Boma
Sunday, 12 October	Rest	Boma
Monday, 13 October	Travel to and supervise Lukendo, Muzimanzov, travel to Mapunga	Mapunga
Tuesday, 14 October	Supervise Mapunga, travel to and supervise Matebo	Matebo
Wednesday, 15 October	Travel to and supervise Muyashi and Mumena, travel to Boma	Boma
Thursday, 16 October	Travel to and supervise Kamitonte and Kyafukuma, travel to Mushindamo	Mushindamo
Friday, 17 October	Supervise Mushindamo, travel to Boma. Meet with Team 2 in evening.	Boma
Saturday, 18 October	Supervise Solwezi Hospital; meet with DHMT	Boma
Sunday, 19 October	M. Church travels to Lusaka; Mr. Ngosa to Kabwe	

Solwezi Team 2 (District Vehicle)
Mr. S. Mwanza, Mrs. D. Lungu, Mr. Ngosa (10-19 October)

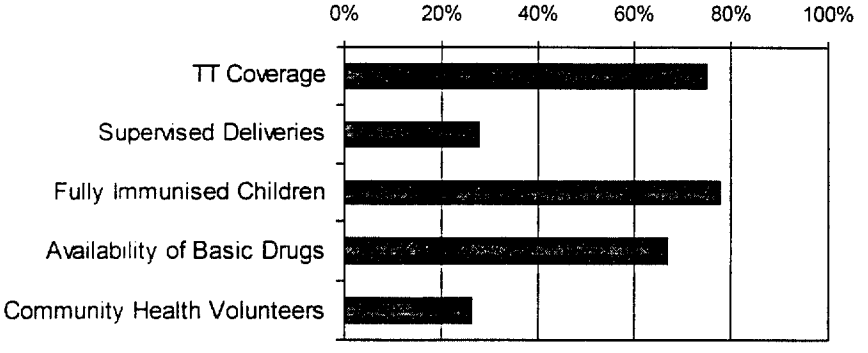
Date	Destination	Sleep
Friday, 10 October	Travel to and supervise STTC	Boma
Saturday, 11 October	Travel to and supervise Mitukutuku and Kimasala	Boma
Sunday, 12 October	Rest	Boma
Monday, 13 October	Travel to and supervise Kankozhi and Chomve	Chomve
Tuesday, 14 October	Travel to and supervise Chitungu and Chisasa	Chisasa
Wednesday, 15 October	Travel to and supervise Jiwundu and Mumbezhi ZNS	Mumbezhi
Thursday, 16 October	Travel to and supervise Holy Family and Lumwana East	Lumwana East
Friday, 17 October	Travel to and supervise Shilenda and Maheba A, travel to Boma. Meet Team 1 in evening.	Boma
Saturday, 18 October	Supervise Solwezi Hospital; meet with DHMT	Boma
Sunday, 19 October	Rest	Boma
Monday, 20 October	Travel to and supervise Kalengelenge and Kyanyika, travel to Mukumbi	Mukumbi
Tuesday, 21 October	Supervise Mukumbi, travel to and supervise Mangala, travel to Mukumbi	Mukumbi
Wednesday, 22 October	Travel to and supervise Maheba F and UCZ	Maheba D
Thursday, 23 October	Travel to and supervise Maheba B and Maheba D	Maheba D
Friday - Sunday, 24-26 October	Independence Day holiday	
Monday, 27 October	Supervise Mutanda and Mutanda Research	Boma
Tuesday, 28 October	Travel to and supervise Luamala and Kanuma, travel to St. Dorothy	St. Dorothy
Wednesday, 29 October	Supervise St. Dorothy and St. Francis	Boma
Thursday, 30 October	Supervise Solwezi Urban, travel to Chingola	Chingola
Friday, 31 October	Travel to and supervise Luamfula. Mr. Mwanza to Ndola; Mrs. Lungu to Solwezi.	Boma

APPENDIX F

EXAMPLES OF NATIONAL REPORTS FROM AUTOMATED HMIS

District Health Board
Zambia: 1997, Quarter 3

Indicator	Expected Demand	Service Delivered	% Coverage
TT Coverage	27,668	20,775	**75%**
Supervised Deliveries	26,645	7,425	**28%**
Fully Immunised Children	20,494	15,916	**78%**
Availability of Basic Drugs	2,304	1,544	**67%**
Community Health Volunteers	4,158	1,091	**26%**



Underweight Ratio	235,152 under 5s weighed	53,117 underweight	**23%** % underweight
HC Daily Staff Contacts	802,586 total client contacts	1,232 HC staff	**9.58** contact / staff day

Rundate = Monday, 12 January, 1998

Self Assessment
Zambia: 1997, Quarter 3

	Numerator	Denominator	Indicator	Target	Threshold	Problem?
Malaria Cases	140,416 (cases this prd)	(this prd, prev year)		<none>	85% - 115%	?
First Antenatal Attendance	22,036 (attend)	27,668 (est. preg)	**80%**	90%	80%	no
TT Coverage	20,775 (preg with TT)	27,668 (est. preg)	**75%**	80%	70%	no
Supervised Deliveries	7,425 (sup. del.)	26,645 (est. del.)	**28%**	50%	40%	yes
Family Planning New Acceptors	8,258 (this prd)	1,065 (prev prd)	**7,193**	0	0	no
STD Cases	9,365 (cases this prd)	(this prd, prev year)		<none>	85% - 115%	?
Under 5 Pneumonia Cases	7,628 (cases this prd)	(this prd, prev year)		<none>	85% - 115%	?
Under 5 Diarrhoea Cases	21,532 (cases this prd)	(this prd, prev year)		<none>	85% - 115%	?
Fully Immunised Children	15,916 (immun)	20,494 (under 1)	**78%**	80%	70%	no
Underweight Ratio	53,117 (underweight)	235,152 (weighed)	**23%**	<district>	?	?
Active Community Health Workers	610 (active CHWs)	4,158 (expected)	**15%**	<district>	?	?
Active trained TBAs	481 (active tTBAs)	2,079 (expected)	**23%**	<district>	?	?
Drug Kit Utilisation	454 (kits opened)	491,017 (HC OP att + IP adm)	**0.92** (kits / 1000 att + adm)	1	0.8 - 1.2	no
Drug Availability	1,544 (months avail)	2,304 (stock months)	**67%**	100%	100%	yes
Health Centre Daily Client Contacts	802,586 (client contacts)	1,232 (HC staff)	**9.58** (daily staff load)	<district>	?	?

Rundate = Monday, 12 January, 1998

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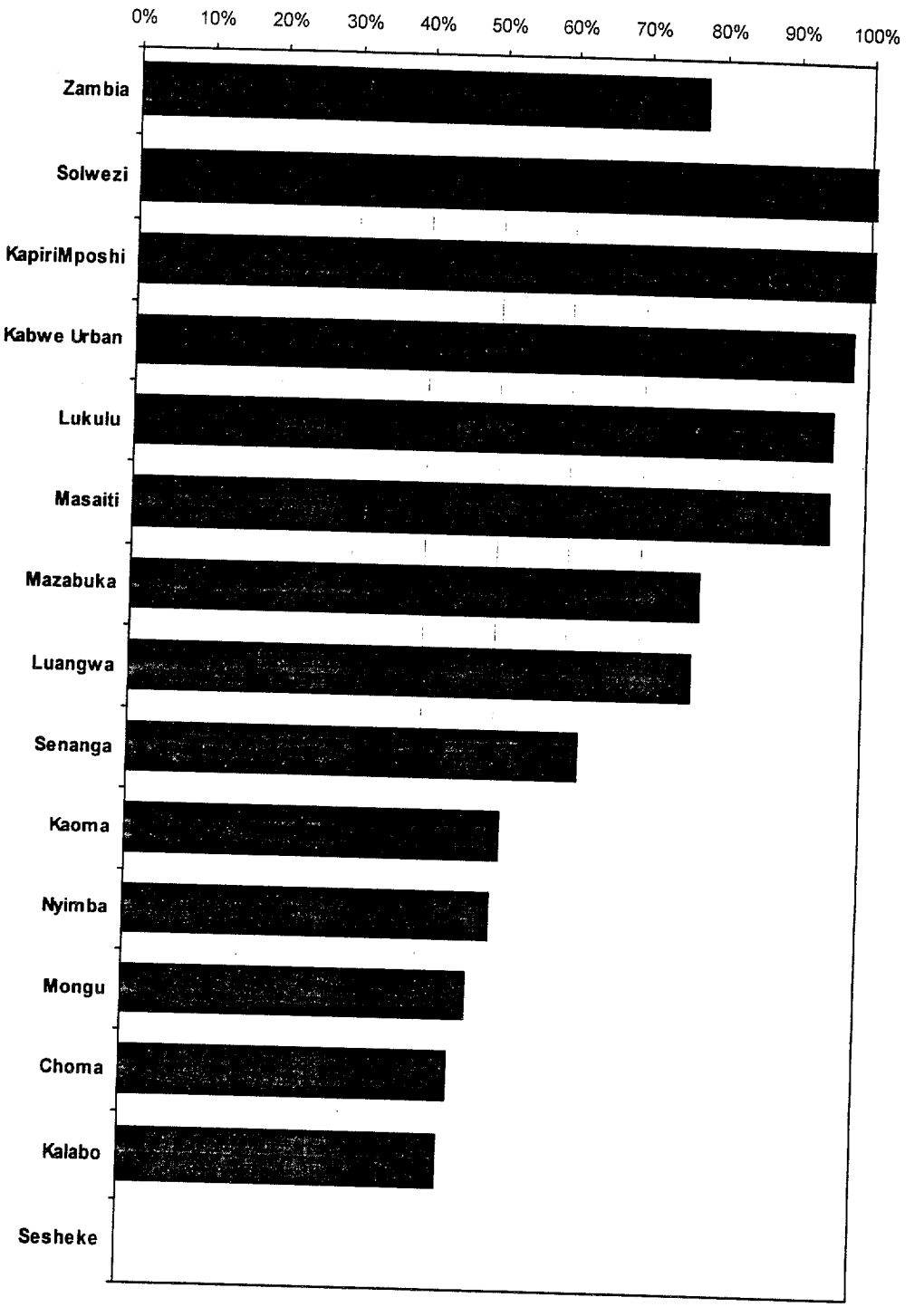
Self Assessment: Fully Immunised Children
Zambia: 1997, Quarter 3

	Target: 80%	Threshold: 70%		
Area	Fully Immunised	Est. Under 1	% coverage	Problem?
Zambia	15,916	20,494	**78%**	no
Solwezi	2,377	1,092	**218%**	no
KapiriMposhi	2,148	2,106	**102%**	no
Kabwe Urban	1,744	1,781	**98%**	no
Lukulu	569	596	**95%**	no
Masaiti	1,090	1,147	**95%**	no
Mazabuka	1,654	2,124	**78%**	no
Luangwa	198	258	**77%**	no
Senanga	1,111	1,800	**62%**	yes
Kaoma	808	1,576	**51%**	yes
Nyimba	408	816	**50%**	yes
Mongu	994	2,116	**47%**	yes
Choma	1,723	3,854	**45%**	yes
Kalabo	534	1,229	**43%**	yes
Sesheke	558			?

Rundate = Monday, 12 January, 1998

Self Assessment: Fully Immunised Children
Zambia: 1997, Quarter 3



Rundate = Monday, 12 January, 1998

Self Assessment: Drug Kit Utilisation
Zambia: 1997, Quarter 3

Target: 1 **Threshold: 0.8 - 1.2**

Area	kits opened	OP attend. admits	kits / 1000 ptts.	Problem?
Zambia	454	491,017	**0.92**	no
Luangwa	20	7,842	**2.55**	yes
Lukulu	17	10,234	**1.66**	yes
Masaiti	31	19,980	**1.55**	yes
Solwezi	78	58,336	**1.34**	yes
Choma	66	50,312	**1.31**	yes
KapiriMposhi	44	42,139	**1.04**	no
Kalabo	21	21,120	**0.99**	no
Mongu	35	35,360	**0.99**	no
Senanga	40	41,840	**0.96**	no
Nyimba	16	18,272	**0.88**	no
Mazabuka	29	48,049	**0.60**	yes
Kaoma	12	27,705	**0.43**	yes
Kabwe Urban	35	85,056	**0.41**	yes
Sesheke	10	24,772	**0.40**	yes

Rundate = Monday, 12 January, 1998

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Self Assessment: Health Centre Daily Client Contacts
Zambia: 1997, Quarter 3

Target: <district> **Threshold: ?**

Area	Total OP/IP/MCH	Total HC staff	contact per staff day	Problem?
Zambia	802,586	1,232	**9.58**	?
Lukulu	15,360	6	**37.65**	?
Sesheke	36,896	18	**30.14**	?
Nyimba	30,023	19	**23.24**	?
Kalabo	32,518	23	**20.79**	?
Senanga	60,198	52	**17.02**	?
Mongu	52,066	51	**15.01**	?
Solwezi	97,804	129	**11.15**	?
Kaoma	37,154	52	**10.51**	?
Masaiti	40,161	66	**8.95**	?
Choma	91,328	152	**8.84**	?
KapiriMposhi	85,167	144	**8.70**	?
Kabwe Urban	128,730	241	**7.86**	?
Luangwa	12,726	26	**7.20**	?
Mazabuka	82,455	253	**4.79**	?

Rundate = Monday, 12 January, 1998