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The Zambia Quality Assurance Project

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The Quality Assurance Project (QAP) is funded by the U.S. Agency for International Development (USAID), under Contract Number HRN-C-00-96-90013. QAP serves countries eligible for USAID assistance, USAID Missions and Bureaus, and other agencies and nongovernmental organizations that cooperate with USAID. The QAP team consists of prime contractor Center for Human Services (CHS); Joint Commission Resources, Inc. (JCR); and the following entities at the Johns Hopkins University: the School of Hygiene and Public Health (JHSPH), Center for Communication Programs (JHU/CCP), and the Program for International Education in Reproductive Health (JHPIEGO). QAP provides comprehensive, leading-edge technical expertise in the design, management, and implementation of quality assurance programs in developing countries. CHS, the nonprofit affiliate of University Research Co., LLC (URC), provides technical assistance in the design, management, improvement, and monitoring of healthcare systems in over 30 countries.

TECHNICAL REPORT SUMMARY

The Zambia Quality Assurance Program

Abstract

This report summarizes an earlier, longer report titled, “The Zambia Quality Assurance Program: Final Evaluation.” Like the longer report, it provides information on Zambia’s Quality Assurance Program (QAP) and the evaluation that took place five years after the 1993 start of the QAP.

This report first describes the purpose and methods of the evaluation and then provides background on the Zambian QAP. Amid severe shortages, the QAP provided training for problem-solving teams, created a network of coaches and link facilitators to support those teams, and involved ancillary organizations in improving the quality of healthcare in Zambia. The summary is particularly detailed in explaining the structures and successes of the various aspects of quality assurance that evolved with the QAP’s assistance. It provides interesting details in such areas as the conditions necessary for problem-solving teams to form and solve problems, the difficulties teams had in gathering data, and the innovative ways healthcare centers supported each other. Also detailed are revelations on supervisors’ unwillingness to observe the provision of healthcare and the pitfalls encountered when clinical standards were developed without the assistance of the QAP or healthcare providers.

Lastly, the report provides extensive recommendations for strengthening Zambia’s QAP, particularly calling for leadership from the central level in developing policy, management structures, and resources for the QAP. While the lower levels of the system have improved significantly in providing quality healthcare, the recommendations suggest numerous changes to raise that quality to the next level.

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Abbreviations and Acronyms

BASICS	Basic Support for Institutionalizing Child Survival
CBoH	Central Board of Health
CHESSORE	Centre for Health, Science & Social Research
CHS	Center for Human Services
CMAZ	Churches Medical Association of Zambia
DHB	District Health Board
DHMT	District Health Management Team
DHO	District Health Office
DySSSy	Dynamic Standards Setting System
GNC	General Nursing Council
HIV/AIDS	Human Immuno-Deficiency Virus/Acquired Immuno-Deficiency Syndrome
HMIS	Health Management Information System
HRIT	Health Reform Implementation Team
IMCI	Integrated Management of Childhood Illnesses
ITG	"Integrated Technical Guidelines for Frontline Health Workers"
MCZ	Medical Council of Zambia
MOH	Ministry of Health
NGO	Nongovernmental Organization
NHC	Neighborhood Health Committee
OPD	Outpatient Department
QA	Quality Assurance
QAP	Quality Assurance Program
STD	Sexually Transmitted Disease
TB	Tuberculosis
UNICEF	United Nations Children's Fund
URC-CHS	University Research Co., LLC,-Center for Human Services
USAID	United States Agency for International Development
UTH	University Teaching Hospital
WHO	World Health Organization
ZHAC	Zambia Health Accreditation Council

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Foreword

An evaluation of this nature could be threatening to the stakeholders of the Quality Assurance Program (QAP) in Zambia, but the findings should mitigate their concerns. The intention of the evaluation team was to draw lessons that could benefit both Zambia and other countries. In doing so, achievements are recognized and remaining challenges identified.

Despite its efforts to validate findings and their interpretation, the evaluation team is aware of the risk of reporting inaccurate data and missing relevant information. The team takes full responsibility for such omissions and inaccuracies; the views expressed in this report reflect the opinion of the evaluation team only.

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About this series

The *Technical Report Summary* series provides concise descriptions and background information on the Quality Assurance Project's technical intervention results, evaluation results, and other project activities. This summary is derived from a longer report that was presented to Zambian and U.S. officials after the evaluation. For a copy of the longer report, write to qapdissem@urc-chs.com or call 301-941-8532. For more information on the evaluation of Zambia's QAP, please contact bbouchet@urc-chs.com.

The Zambia Quality Assurance Program

Bruno Bouchet

The richness of the QA experience in Zambia provides lessons that will benefit not only health sector reform in Zambia, but also other QA programs.

I. Introduction

This summary presents the results of an evaluation of Zambia's Quality Assurance Program (QAP). A developing country of nine million people, Zambia is located in southern Africa. Its infant mortality rate is estimated at 109 deaths per 1,000 births, and maternal mortality accounts for approximately 13 percent of all deaths of women between the ages of 15 and 49. Zambia has many serious health challenges coupled with limited resources, widespread poverty, and rising unemployment.

The evaluation occurred from September 14 to October 2, 1998. Its main objective was to provide information and guidance for the Ministry of Health (MOH) to design the next steps for improving the quality of healthcare in Zambia. Secondary objectives were to: (a) review previous achievements, (b) identify problems and challenges, and (c) make recommendations to overcome challenges. This information would guide discussions on this topic during a November 1998 meeting between the Zambian MOH and its partners.

A. Methodology

The quality assurance (QA) evaluation covered nine of Zambia's 67 districts and included visits to 24 health facilities. Districts were chosen to include health centers with active QA teams and/or staff who had received QA training. Districts and facilities that were easily accessible to the evaluation team were given priority, though an attempt was made to find representative sites, both rural and urban. Because the choice of facilities was not entirely random, the evaluation team cautions that the sample may not be representative of the entire country.

The evaluation team worked in three subteams: one each on standards, problem solving, and support systems. This composition corresponds with the Quality Assurance Project's[1] strategy to build QA capacity at the district and health center levels by training staff to: (a) set standards for health services, (b) monitor indicators of achievement, and (c) use team-based problem solving. The evaluation team collected information primarily through semi-structured interviews with relevant staff at the central, regional, district, and health center levels.[2] The evaluation team presented preliminary findings to the Central Board of Health (CBoH: part

[1] Headquartered in Bethesda, MD, the Quality Assurance Project provides technical assistance for the design, management, improvement, and monitoring of healthcare systems and service delivery in over 30 countries, including Zambia. While the Quality Assurance Project is often identified by its acronym, "QAP," that designation is reserved here for Zambia's Quality Assurance Program.

[2] The data collection guides used by the subteams are available in "The Zambia Quality Assurance Program: Evaluation Report." Ordering information is provided on the previous page under "About this series."

of the MOH) and its partners at the end of the mission and incorporated their thoughts into the report.

The original scope of work included estimating costs for various QA support systems, but the local expert identified for this component was unable to join the team at the last minute.

B. Quality Assurance in Zambia

There are good clinical and financial reasons for QA, especially where resources are scarce. For example, an immunization program may achieve a high coverage rate, but vaccines may be ineffective if staff cannot ensure proper storage. QA can prioritize and address these problems close to the source.

In addition, patients in Zambia and elsewhere who have begun making co-payments for health services are demanding that these services be attractive and valuable. Health providers need help in responding to these new demands, which include cultural and gender factors. Quality methods enable providers to work with the community to assess its needs while providing high-quality medical services.

There is no national, specific QA program in Zambia, and the evaluation team found no specific policy or strategy to evaluate in terms of objectives and outcomes. It was not entirely clear to the team whether one CBoH unit was in charge of QA activities or if all CBoH units were involved. Quality activities in Zambia occur in two broad categories: (a) the work of the national QA Unit, with its national network of coaches and link facilitators, and (b) various quality activities that have occurred since 1993.

The QA Unit

The Zambian QAP was the responsibility of the QA Unit of the Health Reform Implementation Team of the MOH from 1993 to 1996. With the creation of the CBoH in 1996, QA activities became the responsibility of the Directorate of Monitoring and Evaluation. From the outset, the QA Unit chose to concentrate on developing standards and their indicators, monitoring standards, and problem-solving teams. The QA Unit defined quality assurance as "the measurement of the actual level of the service provided plus the efforts to modify, when necessary, the provision of these services in the light of the measurement."

The QA Unit coordinated QA training; supported the development of QA activities at the local and district level; helped create a quality laboratory policy; issued a leaflet titled, "Patient's (Client's) Entitlements and Responsibilities"; and worked to integrate QA into other activities and sensitize personnel to quality concepts and issues. Training proceeded as follows:

- The QA Unit's national training program first piloted QA training and implementation in 1994–95 in three districts. Sensitization workshops (to introduce QA concepts), training in DySSSy,[3] and indicator development were presented to each district office and its health centers.
- Next, in 1996, district training and pilot testing of a problem-solving and peer review system—where one officer-in-charge would visit another health center and assess it using a UNICEF-based checklist—occurred in six Livingstone health centers.
- Third, sensitization and DySSSy training were given to three provincial office personnel in all nine provinces.
- Fourth, DySSSy training was provided to certain personnel from all districts. About 300 people were trained, including 60 physicians, all district directors and their deputies, and two other District Health Management Team (DHMT) members from each district. This training lasted 10 days: one day on sensitization, four on DySSSy, and five on indicator development.
- Last, starting in 1996, the QA Unit coordinated training in team problem solving, using a five-step cycle advocated by the Quality Assurance Project. This training covered all districts except those in North-Western Province. Approximately 230 people were trained, including 10 physicians. Each trainee was expected to become a district coach and to train staff at their own health center. This process would extend understanding of QA concepts and methods beyond the original trainees. Provincial (later termed "regional") link facilitators were identified to help with the training. The training lasted 14 days and included three days on QA team building

[3] The Dynamic Standard Setting System (DySSSy) is a step-by-step method for developing standards. It provides that those who will follow, implement, and/or achieve certain standards should participate in their development.

and nine on coaching and problem solving. Coaches were then validated through practice. Three to six months later, each regional link was to visit the coach who would give a one-day training session to staff at another health center in order to be validated.

National QA Structure of Coaches and Links

The Zambia QAP's structure and process of quality supervision and coaching includes supervisory staff of two to three at the QA Unit, 30 or more regional links, and about 200 district coaches (two to four per district). The QA Unit established and trained quality committees in provinces, districts, and hospitals, but did not create formal reporting links between them (although there were national meetings). It changed its approach in 1996 to focus on districts and health centers. The QA Unit was dissolved in 1997 after the creation of the CBoH.

Regular meetings, including national quarterly meetings for all regional links to report activities in districts, began in 1996, but ceased in 1998 when workshops were banned. Regional links visit and support coaches and lead local training with coaches for some staff from all facilities in a district. In certain cases, coaches are expected to run the training themselves. These district training events usually last three to five days and often involve the officer-in-charge of the health center. Participants who come to these events are expected to become trainers; they can then train colleagues at their own facility and start problem-solving teams. Coaches are expected to do follow-up visits to trainers to provide support to them and the problem-solving teams. Some coaches train staff only at their own or another health center, rather than covering the whole district.

Problem-solving teams: A team of two to 15 people was expected to form in each facility to identify and work on problems (one at a time) using the five-step, problem-solving cycle. Approximately three to six such teams have been formed in most districts: a total of 150–300 teams. In addition, some hospitals formed "quality committees," which may function as problem-solving teams. Standard setting and indicator development have occurred in some health centers, and some districts have developed and disseminated protocols.

Local activities with a quality component: Quarterly supervision visits of health centers by district personnel can involve assessment and feedback about the facility, clinical practice, and patient relations, but often the last two are not covered. Neighborhood, health center, and area committees present consumer views to health centers and districts, and can work with staff to resolve quality problems. Routine systems for the collection and use of information include some quality indicators, including the HMIS[4] self-assessment forms, quarterly progress reports, IMCI[5] monitoring surveys, and Safe Motherhood. In addition, the performance audit by regions was intended to include a quality component.

Another significant QA activity: In 1998 the Zambia Health Accreditation Council (ZHAC) worked in collaboration with the Joint Commission International (now the Joint Commission Resources, Inc.) to pilot test the accreditation of hospitals.

II. Achievements and Challenges

This section describes the achievements made by and challenges still facing the QAP in: (a) the development of standards of care, (b) the communication of standards to health providers, (c) mechanisms to monitor compliance with standards, (d) the productivity of the problem-solving teams, and (e) the establishment of support systems.

A. Developing Standards of Quality

Standards are statements of expected quality. They are essential to quality because they facilitate the objective assessment of performance. By making an organization's expectation for quality explicit, standards provide guidance for actions and decisions in delivering care. If quality is "doing the right thing right, right away," then standards indicate who should be doing what, in what way, and when.

[4] The Health Management Information System (HMIS) provides a mechanism for collecting data on health statistics and sets goals for certain health indicators.

[5] The Integrated Management of Childhood Illness (IMCI) algorithm is a set of clinical practice guidelines developed by the World Health Organization (WHO). IMCI guides healthcare providers in the delivery of healthcare to children (and includes instruments to gather data on childhood illness).

Case Study Number 1:
Kabwe District Health Office Develops Its Own Protocols

During supervisory visits, the link facilitator of the Kabwe DHMT noticed that the referral of women in labor to the hospital was inappropriate, resulting in maternal deaths before or just after arrival. Once women arrived, admissions procedures were incomplete and the gravity of their condition was not correctly assessed. The supervisors also noticed that the management of a patient at the outpatient department of the hospital consisted mainly of a drug prescription for the relief of the main symptom without any physical examination. In fact, the procedures for clinical management of both situations varied considerably among health providers.

The DHMT concluded that health providers needed a clear protocol for the referral and admission of women in labor and for the screening of patients consulting at the outpatient department. The link facilitator had been trained by the Zambian QAP in a participatory method to set standards (DySSSy) and used his skills to improve the work of the health providers. Two separate groups, one of midwives and the other of clinical officers, met three times in one month for two to three hours each time. The only costs were minimal transportation expenditures. The midwives used some medical textbooks to adapt standards for referral and admission of women in labor; the clinical officers brainstormed the screening procedures at the outpatient department. Both groups quickly reached a consensus, but encountered some difficulties at the beginning of implementation. Health providers said that they do not like lengthy checklists because they are too time-consuming and because they felt detailed procedures were a way to control their practice. As a result, they take shortcuts. Their involvement in the development of the protocols helped lift the resistance. (The main constraint was to be able to get the people together because of time limitations.)

The Kabwe DHMT learned some lessons from this experience. First, the providers that most resisted the application of the new protocols were the ones not involved in their development. Second, the staff gained confidence by setting realistic standards for their working environment. Third, the staff perceived that its work was made easier because the protocols were posted on the walls as a reminder. The district is following up on the compliance of health workers with the new protocols through supervision visits. Motivated by its success, the Kabwe team is setting standards for the packaging and prescription of antibiotics. The protocols developed by the Kabwe District Health Officer are presented in Appendix B of *The Zambia Quality Assurance Program: Final Evaluation.*

Standards are usually adapted by local experts from already-existing material. In practice, locally recognized experts are usually asked to develop standards, using either existing standards or standards from other healthcare systems as a starting point. When standards must be scientifically sound, their validity should be ensured by a review of evidence-based medical literature. When expert consensus is inappropriate for developing standards, the DySSSy method guides a health facility team in developing its own standards (see Case Study 1).

There is no official policy for the development and revision of national standards of healthcare in Zambia, although the QAP indicated that the Systems Development Directorate is in charge of this kind of work. Numerous clinical care standards have been developed, covering all activities of the essential package of services that first-level health facilities provide. They mainly fall into four categories:

Guidelines that focus either on one health condition or on a set of special issues: These efforts have resulted in guidelines for malaria case management, maternal health, tuberculosis (TB), and HIV/AIDS.

Guidelines by international health agencies: These guidelines promote an integrated approach targeting a special population. They include: (a) the syndromic case management of sexually transmitted diseases (STDs), and (b) IMCI.

The "Integrated Technical Guidelines for Frontline Health Workers" (ITG): This manual of standards identifies the six health thrusts that address Zambia's priority public health problems—malaria, reproductive health and family planning, HIV/AIDS and STDs, child health and nutrition, TB, and water and sanitation—and prescribes their management. The development of the ITG is described below.

Standards for accreditation of hospitals: The accreditation standards will cover all hospitals in Zambia. A document from the MOH on certification of hospitals describes minimum standards for hospital levels 1, 2, 3, and 4. Adoption of the policy was pending during the evaluation.

The QAP approached the development of standards by training healthcare providers and their managers to use the DySSSy. Staff used this method to develop a manual of standards for clinical and nursing care. The manual served as a training document for setting local target standards aimed at initiating action plans for the improvement of health services by trainees. Trainees were expected to involve their peers in developing standards adapted to their specific situation. DySSSy both involves health providers in the development of the standards they will use and exposes staff to the concept of a systems view and its input, process, and outcome components. Although the results of this effort were uneven—with some teams more advanced than others—it helped build staff capacity to develop action plans and monitor their progress.

The evaluation team found that despite the DySSSy training, the development of clinical guidelines remains centralized, with little involvement of the QAP. The team determined that numerous difficulties prevented the trainees from developing standards; no one reason seemed to predominate.

One possible reason is that if only one person per health facility is trained, the absence of a sense of ownership of the process might limit their commitment to implement standards. A sense of team authority may also be necessary: trainees who participated in successful teams tended to be facility in-charges, older than other team members, and/or female. Having sufficient staff with these characteristics on the team may not be achievable for some facilities. Also, when a health facility's staff is too small (fewer than 10), it might be more difficult to initiate and sustain the team dynamic. Another contributing factor might be that trainees are unable to transfer their knowledge to their peers after being exposed to a new concept they have not entirely mastered.

At the central level, the Systems Development Directorate noted a lack of ownership and coordination by the CBoH in the development of clinical guidelines by different programs. Because the various existing guidelines may have been causing confusion among health staff, the CBoH developed the ITG mentioned above. To create this manual/reference book, a task force on integration of vertical programs assembled all existing guidelines, and experts from the MOH, CBoH, University Teaching Hospital (UTH), and other institutions collaborated to finalize the document.

The evaluation team did not identify regional directorates or health center staff who had been involved in the development of any standards of care, including the ITG. Most of the DHMTs had received the ITG draft and were asked to suggest changes, but they largely felt that by the time they received the draft, it was too advanced for their input to be useful.

The evaluation team was unable to document some aspects of the development of the ITG, which involved the collaboration of many public health and medical experts. It would have been useful to evaluate the use of evidence-based medical literature, the cost of the ITG's development, and how it could be produced in only five months.

The evaluation team also learned that the role of the private sector in the development of clinical standards is limited to the irregular participation of local experts in the writing of medical textbooks or guidelines for health providers.

B. Communicating Standards

After clinical standards have been set, the health providers expected to comply with such standards must know them, understand them, have the skills to apply them, and accept them. Success in achieving acceptance requires going beyond the use of traditional channels and calls for activities that will induce and sustain a behavioral change in clinical practice. This is complex since practitioners accustomed to managing a health condition in a certain way are unlikely to change their practice solely on the basis of the training. Substantial research in this area has been done in industrialized countries and has established principles of behavior change—for example, the fact that involving users in developing the standards facilitates change. However, there is little research on this issue in developing countries.

In-service training might be essential in communicating standards, but it should be supplemented with other, cost-effective ways, such as:

- The involvement of regulatory bodies and professional associations
- Distance-learning programs (computer, radio)
- Distribution of user-friendly leaflets
- Inclusion of the new standards in the preservice curriculums of training institutions

Case Study Number 2: Communicating Integrated Technical Guidelines

The CBoH published the ITG in May 1997. This 216-page document was intended to help providers manage the six most important health thrusts by reminding them of the protocols. It explicitly delineates standards for quality care and services and was the first attempt to compile quality standards for the delivery of the essential package of health services.

Eighteen months after its release, the use of the ITG by the target population remained limited for two reasons: a delay in its dissemination and its format. None of the regional directorates that the evaluation team met participated in the distribution of the ITG to its target audience. In fact, one regional directorate was not even aware that they had a copy in their library. All the DHMTs visited had received it, but only one or a few copies and not enough for all health centers. Most DHMTs did not know how to distribute it and were reluctant to make copies because of the amount of paper it would consume. Only one DHMT reported writing a summary and photocopying it for the health centers. All regional directorates and DHMTs reported that they found the ITG "bulky, not user-friendly, and too complicated for some staff." Consequently, the vast majority of the frontline health workers that the evaluation team met did not have it. Some had heard about it, and the few who had it did not know how to make the best use of it. Some district officers, however, discussed the ITG content with health center staff during technical meetings. Although the evaluation team did not further explore the issue by testing users' knowledge of the standards, the main lesson drawn is that any attempt to develop standards must be accompanied by a clear and thoroughly thought-out communication strategy. Just sending guidelines without explaining how to use or communicate them is not enough to induce change.

The CBoH is currently providing ITG training combined with the training of the districts in the HMIS. Classroom type in-service training seems to be a mandatory step but might not be enough to ensure compliance with standards if user-friendly job aids are not developed in a way that involves the health workers. More operations research on this specific issue is required. The influence of guidelines on clinical practice must draw on behavioral change theories. This also requires a needs assessment for practical job aids that health workers will be willing to use.

- Observation of clinical practice to ensure that health providers are complying and, if not, to affect correction

The plan to communicate standards in Zambia relies entirely on classroom training, which the CBoH is using for combined ITG and HMIS training. If only one staff member per clinic is trained, in-facility dissemination might be unreliable and perhaps ineffective.

Most of the regional directorates and DHMTs met by the evaluation team did not have a specific strategy for communicating the ITG to staff. Distributing it was a problem, since photocopying resources were limited, so few health centers had received it. The communication method has not been fully successful: District Health Officers (DHOs) were familiar with the ITG, but few health practitioners were. It had not been given to private practitioners and other institutions (see Case Study 2).

District health staff perceive the ITG format not to be useful as part of their clinical practices, although they welcome it as a reference book. For instance, different chapters have different structures—some are organized as flowcharts, others have lists of instructions, and others are narrative only.

Health providers had difficulty articulating what kind of job aids they need and would use during a consultation to remind them of the steps in the management of a specific health condition. In addition, district staff do not use the other guidelines. In the districts trained only in IMCI, a minority of health workers mentioned using the IMCI guidelines. Others said that following the guidelines takes too much time.

Lusaka District has developed some protocols—and trained staff in their use—for common causes of consultation. The documents look user-friendly, providing both an algorithm and a narrative explanation of the case management steps, but staff did not appear to be using them. The evaluation team concluded that the main constraints to an effective communication strategy are: (a) the absence of an integrated policy for the communication of standards that relies on principles for behavior change, and (b) the complexity of the factors that influence a clinical practice change in a specific society or context. The most cost-effective strategy to communicate standards should be determined.

C. Quality Performance of Health Facilities

The evaluation investigated mechanisms to assess quality performance: the degree of compliance with structural standards for health facilities, with standard operating procedures by managers, and with clinical care standards by health providers. The team looked mainly at the technical quality of the healthcare delivery process, trying to answer the questions, Are health providers doing what they should? How can we know? And how can service be improved?

Many health system stakeholders are involved in monitoring performance. Each level of the health system monitors the performance of the level directly below. Regional directorates audit the district teams who, in turn, supervise the health centers.

All cost centers (every unit that manages a budget) are involved in some sort of self-assessment, since they report on their performance toward achieving their action plans (quarterly progress reports) and soon will report on the national health outcome targets that are part of the HMIS. The regulatory bodies—the Medical Council of Zambia (MCZ) and the General Nursing Council (GNC)—monitor the private clinics and hospitals.

The involvement of the users in monitoring health services and providers is not formalized through well-defined mechanisms. Some health facilities have suggestion boxes; however, only literate patients can use them and they usually do not. The Neighborhood Health Committees (NHCs) present a way to involve the community in monitoring quality while educating users on what to expect. In at least one instance, NHC members were actively involved in a problem solving.

The districts have four main mechanisms to monitor performance:

Performance audits: Each regional directorate is expected to perform a quarterly performance audit, consisting of an inspection of DHMTs and facilities in their regions. In practice, the regional team inspects the district team, and together the regional team and district team inspect one or two facilities per district. These audits mainly collect information on facility structural standards and management. Progress according to action plan is monitored through output and outcome measures for all cost centers, using record reviews, observation, and interviews with staff. Few indicators collect information on process standards, and there is no direct observation of care. This means that the clinical performance of health workers remains unknown.

Supervision visits: All DHMTs indicated that they supervise all health centers monthly or quarterly, but this was not always confirmed by the health centers or the supervision reports. Formal supervision visits usually occur in teams of three or four and last one to two hours.

The evaluation team identified four different checklists that can be used during supervisory visits; all have serious shortcomings to assess the quality of clinical care. An attempt by the CBoH to develop an integrated checklist involving direct observation of care had been started but not completed.

The evaluation team found that DHMT staff avoid observing clinical performance of health workers. Consequently, supervision reports emphasize the importance of managerial functions (record keeping) and structural criteria (a painted wall or a well-kept garden), signaling that compliance with clinical standards is unimportant.

The Health Management Information System: This system collects and analyzes statistics. It includes quarterly self-assessment forms that are completed by health centers and then by districts to monitor their performance against national and local targets. Information is collected on 15 input and output indicators related to utilization of services and coverage. The indicators are designed to help teams identify the areas of low performance and then take action. The only indicator that measures performance is the "daily staff load for curative and preventive care."

The quarterly progress reports: Each district sends quarterly progress reports to the CBoH. This self-reporting of the achievements toward district action plan targets is used to disburse grant money. All areas of administration (e.g., number of meetings held), service activities (e.g., coverage and utilization rates), and purchase of supplies and equipment are included. This mechanism will be replaced by HMIS procedures. Here again, the focus is input and outcome data rather than data that would measure health providers' compliance with clinical care standards.

District-specific activities: The evaluation team found examples of innovative district-specific activities to both monitor quality of care and improve it. For instance, DHMTs organize and perform unannounced

spot-check visits of health centers as needed. These activities and their impact cannot be known without additional documentation.

Documentation of Changes in Quality Performance

While the results of special surveys are limited and do not allow comparison over time, most information on the technical quality of care comes from such surveys or other research. The evaluation team identified the following:

A 1993 survey by the MOH Health Systems Research Unit revealed that "Standard WHO/Control of Diarrheal Diseases guidelines for case management were adhered to by prescribers in 51.7 percent of patients with acute diarrhea and 42.3 percent of patients with dysentery." As a result, in 77 percent of cases, oral rehydration solution and antibiotics were incorrectly prescribed, and in 58 percent, incorrectly dispensed.

A 1996 review by the Participatory Assessment Group raised concern that diseases are diagnosed simply by talking with patients and that even the use of a thermometer is rare.

The 1997 Zambia Situation Analysis of Reproductive and Child Health Services found several low-performance areas: 1 percent of health providers test for pregnancy, 21 percent perform a clinical exam, and 2 percent look for symptoms of STD. It also revealed serious gaps in the case management of sick children under the age of five according to IMCI standards.

A 1997 review of the HMIS cascade training noted that "health workers have difficulties in diagnostic skills, which affects not only quality of care, but consistency and quality of data as well." It also states that the HMIS is hampered by a tremendous load of insufficient diagnostic and curative skills.

The 1997 review of the Extended Program on Immunization in Zambia revealed numerous performance gaps that could prevent the high-coverage levels needed to reduce disease-specific morbidity and mortality in children. Among those gaps, 54 percent of refrigerators had their temperature checked daily, 50 percent of sterile techniques met standards, and 44 percent of the mothers knew when to return.

A survey by the Centre for Health, Science & Social Research (CHESSORE) on quality of care indicated that physical examination was performed on only 39 percent of patients with malaria at rural health centers.

IMCI Documentation

The only results that the team found on monitoring compliance with process standards over time come from repeated facility-based surveys by the BASICS (Basic Support for Institutionalizing Child Survival) program for the implementation of IMCI. The main results are presented in Case Study Number 3. Results in other IMCI provinces are consistent with these findings.

A strong QAP creates an opportunity to establish a quality performance monitoring system. Although monitoring compliance using input and outcome standards is important, any change in output or outcome measures (such as coverage rates) is very difficult to interpret without knowing the specific intervention or structural change. The paucity of performance data was a serious constraint to the evaluation.

How Performance Information Is Used to Improve Quality

Performance information is used in an ad hoc manner. DMHTs have no formal process to review and analyze performance information collected during supervision, so the compilation of results is not systematic.

All supervisors remarked that they give some feedback on their findings to the health center staff. Most write recommendations in the health center visitor book and/or a report kept at the district health office. The evaluation team reviewed some of these documents and found little focus on clinical care delivery.

Health providers' competency is almost never tested. No district asserted that they test the knowledge and skills of health providers to determine the causes of poor performance. The supervisors mentioned asking providers about reasons for their findings, but they asked no questions on the case management of a specific health condition.

The HMIS attempts to integrate performance measurement with quality improvement methods, but its indicators do not capture information on the process of care. The development of a link between the results from the HMIS and the problem-solving teams through the "Triple A"[6] approach is a positive development. The way health output and outcome data will be used to make decisions

[6] "Triple A" stands for assessment, analysis, and action. It is an adaptation of the problem-solving methodology taught by the Quality Assurance Project.

and solve problems should be monitored.

The evaluation team is concerned with supervisors' apparent unwillingness to observe the delivery of care. The team hypothesizes that supervisors: (a) do not feel competent to assess the technical service they would observe, (b) are uncomfortable observing a peer, (c) are aware of the performance gap but do not know how to address it, or (d) think that staff is competent and poor quality is caused only by a lack of resources.

With regard to the costs of supervision, the team found enormous differences within the region. The main cost elements are transportation and personnel. Thus, the differences correlate with the distances to health centers. The managers' ability to answer cost questions impressed the team, a probable result of the emphasis on financial accountability by the health sector reform.

D. Evaluation of Problem-Solving Teams

A problem-solving team is two or more people meeting to identify and solve a quality problem by working through a series of steps (the problem-solving cycle) and using simple QA methods. The evaluation team investigated 25 such teams at health centers in eight districts.

There were reports that out of 127 health centers in the eight districts visited, 34 teams (27 percent) formed between 1996 and 1998. Among the 34 teams, 8 (23 percent) had stopped meeting before the evaluation. Among the 26 active teams, eight (35 percent) did not

Case Study Number 3: Monitoring in Lusaka Improves Outcomes

After the introduction of IMCI, four health facility-based surveys documented change in health worker performance over a two-year period in Lusaka District. The compliance of health workers with IMCI was measured through direct observation of provider/patient encounters three months before the IMCI training, and then repeated at several month intervals. The results in Table 1 show that performance was very poor before training, improved dramatically after, and then started declining.

The DHMT was concerned about this trend and decided to include observation of the sick child in the supervision visits. Supervisors were trained in IMCI and a one-page checklist was designed to serve as a job aid and was added to the supervision checklist. During their visits, supervisors identified tasks not performed correctly by the health workers and provided on-the-job feedback and training. This strategy produced improvements, as shown by the results in Table 2.

This case illustrates the influence of regularly reminding health providers about the standards of care after identifying shortcomings through direct observation of their performance. When supervisors pay attention to the important aspects of care, the impact of making a correct diagnosis, prescribing a correct treatment, and the health outcome are better. While not unique, the Lusaka case represents a best practice for Zambia that should be disseminated to other districts. Its lessons should not be limited to the IMCI standards but expanded to encompass the standards for the other health thrusts.

Table 1
Changes in Provider Performance with Training over Time

The Health Worker: (Percentage of Times)	Before Training	Two Months after Training	Eight Months after Training
Counted respiratory rate for cough	2	70	67
Checked dehydration by pinching skin	34	55	60
Prescribed antibiotics for a common cold	47	15	28
Explained the treatment	25	69	40

Table 2
Changes in Provider Performance with Clinical Supervision

The Health Worker: (Percentage of Times)	Before Clinical Supervision	After Four Rounds of Clinical Supervision
Counted respiratory rate for cough	67	84
Checked dehydration by pinching skin	60	61
Prescribed antibiotics for a common cold	28	17
Explained the treatment	40	79

finish their first cycle, and three had completed more than two cycles. The team is not sure that its findings can be generalized, but if these figures represent all of Zambia, there may have been 150 problem-solving teams between 1996 and 1998.

The evaluation team tried to determine why teams sometimes do not form. In the districts visited approximately 60 people had received problem-solving training, ranging from one to 14 days. Afterwards, many trainees still lacked the motivation, confidence, and skills to form a team and perform the cycle. The team found that centers with at least 10 staff were the most successful in forming and lasting.

Other important factors in team formation and success include: (a) having regular coaching, (b) having an officer-in-charge trained and actively supporting the team's work, (c) having more than three people on the team, (d) having at least five days' training represented on the team, and (e) having reasonable morale and a culture of professionalism.

Several factors were found to be necessary for teams—once formed—to successfully complete a cycle: (a) a 50 percent retention rate of team members, (b) meeting at least monthly, (c) the team choice of a problem that was not broad or complex, (d) the ability to define a problem statement, (e) not spending over four months on one step, and (f) following the cycle steps.

To finish a second cycle, it appears that all the above factors had to exist and the team had to have achieved perceptible or measurable results. For a team to follow the cycle steps and use the methods correctly, all these conditions would have to exist. In addition, the everyday workload of team members could not have increased considerably for over two months.

With regard to working on meaningful problems, the evaluation team assessed the list of possible problems and how they were prioritized by examining documentation or by asking team members how they chose problems. For districts not visited, they assessed storybooks. Some teams did not have documentation, making it difficult to determine how well they had followed the steps. The relevance and importance of the chosen problems for patients, community, and staff varied. About 50 percent chose physical and facility problems, and about 40 percent chose clinical problems.

The QA training influenced the choice of the problems, which typically included long waiting times, the careless disposal of sharps, an increase in malaria cases, low patient-fee collection, congestion at tea time, staff reporting late, and low immunization rates.

Reducing waiting times was a problem chosen by many teams, probably because it was used as an example in training. The clinical problems (e.g., malaria, late antenatal booking) were relevant and important for the health of patients and/or the community. They were usually chosen because staff noticed a rise in cases, rather than because they studied statistical trends for the center. Approximately 5 percent of the problems were identified by soliciting the views of the users or neighborhood.

Following the Steps of the Cycle and Choosing and Using Methods

Most teams correctly used the QA tools and methods, such as problem prioritizing and cause-and-effect diagrams. The use of methods for listing data sources and for gathering and interpreting data could have been better and more frequent. The most serious divergences were not following the steps of the cycle and failing to use the conclusions of one step as the basis for the next. Teams were better at following the steps when the officer-in-charge had taken coach training or where the team had been a coach's training site.

The evaluation team scored each team on how well they followed each step and used the method within it, generating average scores for each step for 25 centers. The team used criteria to give a score of between 0 (did not do it) and 5 (could not imagine how to do it better).[7]

Step 1: Identifying the Problem—Score 3/Range 3–5

1) *Listing—Score: 3* Most teams scored fairly well on this step, having considered a reasonable number of problems (four to eight). However, only four teams consciously included problems of concern to the NHC, and only two conducted user surveys.

2) *Prioritizing matrix and using criteria—Score: 4* Most teams used the matrix to prioritize problems and used the prioritizing criteria reasonably well. However, about 30 percent chose problems that were not the highest priority on their list. It might be that the team rightly chose a problem perceived as

[7] Although the teams were trained to follow the five-step cycle, six steps are described here. To simplify the model, step 5 of the original model is divided into two steps, identified here as steps 5 and 6.

Case Study Number 4: The Nakoli Health Center (Kabwe District) Problem Solving

Nakoli health center is a semi-urban clinic with a staff of 15, all women. It seemed cheerful and well organized to the evaluation team. In June 1996, the sister in charge took part in a local five-day training run by the regional link. The training was on the quality problem-solving cycle and teamwork, with one day on standard setting. The sister used notes from the course to teach all health center staff for two hours for 16 weeks.

From the start she decided that all the staff would take the training, and she decided that the training meetings would become team problem-solving meetings. They started on the first problem in late June 1996, and by September 1998 had worked on five problems and were starting on a sixth. They worked on the first problem—a rise in malaria cases—for 15 months. The QA notebook documentation was not available to the evaluation team for any of the problems because they had only one copy, but the problems and steps were documented in exercise books. When they first met, they identified five problems: a rise in the incidence of malaria (which they scored 25), upper respiratory tract infection (24), diarrhea (23), eye infections (21), and skin diseases (17). They used the criteria for scoring each problem correctly and decided to work on the problem with the highest score: malaria. They stated the problem as, "Nakoli health center recorded increases in the number of malaria cases, with the lowest figure in 1995 being 163, to 242 in 1996. A rise in new cases has been noticed since 1995 and has resulted in increasing morbidity. The improvement should result in morbidity rates reduced to at least 100 new cases." The statement used measures, had a target, and chose to focus on treatment rather than prevention because the team had more influence over treatment than prevention.

In common with many other teams, Nakoli did not change the membership of the team in step 3, "Identifying who needs to work on the problem." The complex step 4, "Analyzing and studying the problem to identify major causes," consumed time and was where the team encountered problems. They used the bubble chart to show possible causes of the problem. They decided to focus on why people appeared to be coming back to the clinic with symptoms after being seen only a few days before. They did a high-level flow chart of the treatment process and then identified data they needed to find the main causes of "malaria morbidity." They interviewed 43 patients who came back within five days with the same symptoms, and the data showed that most had not completed their full course of chloroquine. They did not question the data further to understand why, but went straight to step 5, "Developing and choosing solutions." Like many other teams, they used brainstorming to list solutions and then choose among them, and chose to ask patients to come back every day for a supervised drug treatment. They set up a monitoring system and set standards for return treatments.

The team had established a treatment supervision system that monitored the number of people monitored and the number with symptoms. The data show that 80 percent in June and 90 percent in July completed treatment, indicating that the intervention did have some effect, and that 13 percent in June and 7 percent in July returned within five days with same complaint.

While looking at solutions to the treatment problem, they decided to broaden the work to include prevention and went straight to brainstorming ways to reduce the incidence of malaria cases. They worked with the community to find stagnant pools and increase the use of impregnated bed nets. The statistical data showed that the six-month mean cases for January to June 1996 were 496 and for January to June 1997, after the preventative efforts, the case rate was 370. However, at the time of the evaluation, they had discontinued monitoring the malaria rates, and the evaluation team calculated that the mean case rates for January to June 1998 was 726, a significant rise.

This team was unusual in continuing to work on other problems: scabies (four months), low fee collection (one month to solve), congestion at tea time (two weeks without using the problem-solving cycle), staff reporting late (one week without using the problem-solving cycle), and low immunization rates. They were also unusual in deciding appropriately when to use the problem-solving cycle and when not to. These problems were congestion at clinic at 11:00 am because all staff were going for tea at the same time (solution: some staff going for a 10:30 break and some for an 11:00 break), and reporting late for work (solution: reporting-in book). The evaluation team asked why they had not stopped the quality work at the time of "de-linkage," like many other teams. They admitted that some staff was unmotivated, but they had decided to start another problem cycle to "show what women can do."

solvable, rather than one with a higher score that was perceived as too difficult. In some cases the team chose a lower-priority problem because it was more important to members.

Four teams inappropriately chose to work on more than one problem simultaneously. Two teams became stuck in later steps and started on their second problem before finishing the first.

Step 2: Problem Statement—Score 2/Range 0–4

3) *Method for writing a precise statement with measures and a specific target:* Most of the problem statements followed the guidelines reasonably well, although about 50 percent did not quantify objectives.

Step 3: Identifying Who Needs to Work on the Problem—Score 2/Range 0–3

4) *Method for selecting the right people for the team or for involving them in other ways:* The evaluation team found only two teams that had changed their roster after choosing a problem. Most had involved others outside the team in data gathering or solution identification and implementation.

Step 4: Analyzing and Studying the Problem to Identify Major Causes—Score 1/Range 0–3

This step is the most complex and was the least well followed. Most teams did not use the methods correctly. In general, the cause-and-effect listing was done well, but most teams either did not gather data or did not correctly decide what data to gather. When they did correctly decide which data to gather, they did not use it to find the real cause.

Step 5: Developing and Choosing Solution—Score 2/Range 0–3

This step first requires listing and assessing possible solutions, which most teams did, although not systematically. It then requires identifying the link between solutions and the use of data, but most teams failed to gather data that they could have used to determine the real cause. Last, it requires choosing a solution. Most teams used objective criteria to choose possible solutions and did follow the methods taught in training.

Step 6: Implementation and Evaluation of Quality Improvement Work—Score 2/Range 0–3

Most teams did not fully plan the implementation of a solution, and the evaluation team saw only five records of the Plan-Develop-Check-Act cycle used for this purpose. Few teams measured indicators before and after interventions. Many teams did not systematically evaluate their work. Last, the evaluation team found no problem-solving team that performed follow-up; however, a few set standards and quality indicators and monitored them routinely.

Difficulties the Teams Met in Following the Steps and Using the Methods

Teams experienced the most difficulty collecting and using data to identify root causes of problems. Teams of four or more, in centers with over 10 staff with an able coach on the team (or regularly available) and with reference and training materials, did not encounter serious problems. This was especially true if a link facilitator visited. Other teams experienced the most difficulties in accessing a coach, having quality reference materials, and using certain methods. Many teams had problems implementing solutions, usually due to lack of resources.

The evaluation team asked team members and coaches about difficulties they had in using the steps and methods. Of the teams that started using the problem-solving cycle, about half followed each step in the correct sequence. Of those that did not follow the steps, most missed data gathering, often because of difficulties creating the data matrix and then gathering data.

Teams frequently failed to use the list of possible causes to decide what data to collect. The most common and serious linking oversight was the failure to use the data interpretation to create a list of solutions. For the few teams that reached this stage, most would brainstorm solutions without considering their data. Many may not have realized that the purpose of data collection is to confirm the real root causes. Nearly all of these difficulties could be overcome by frequent visits by capable and trained coaches.

Team Performance in Gathering and Using Data

About 50 percent of the teams that collected data encountered problems, making it difficult for them to select a solution on the basis of findings from their data. Most did not have reference material on data gathering. Those teams that tried collecting data had difficulties completing the data matrix. There were problems in using routine statistics, often because there was no full-time set, or because census data were inaccurate.

Not collecting data made it difficult for teams to identify the real root

causes, so objectively evaluating their interventions was difficult for the evaluation team.

Results and Progress of the Teams

Five teams achieved measurable changes in quality. About eight teams reported that they had achieved significant quality improvements but did not have data to demonstrate it. Around 60 percent of the problem-solving cycles did not produce results perceivable within six months or that could be attributed solely to the team's intervention. In some cases the problems chosen could be only partially solved by the team.

The evaluation team could not document many results, but this does not mean that the teams were ineffective. Ancillary benefits included team building, improving skills to set action plans and budgets, and gaining practical management skills. The evaluation also found:

- Measurable improvements to community health (e.g., lower malaria incidence), clinical care processes (e.g., increased immunization), and patient quality (e.g., reduced waiting times)
- Reported improvements to facility and professional quality
- Adapting the problem-solving methods for setting standards and measuring compliance
- Dissemination of quality concepts beyond a team's immediate area and into the everyday work of others
- Increases in the competence and confidence of staff, enabling them to systematically approach a wide array of problems
- Providing an outlet for frustrated and unrecognized staff potential

The main constraints to teamwork included: (a) the loss of team members and coaches due to promotion and transfers and no system to ensure sustainability; (b) an inability to follow the methods and steps, usually because of inadequate training and/or coach support; (c) an inability to use data, quantify indicators, and follow up after the solution intervention to check the results and hold the gains; (d) taking too long to complete a cycle; (e) not developing the skills to decide whether a problem needs team problem solving; and (f) teams' failure to form, finish a cycle, and continue on to other problems.

E. Evaluation of the QA Support Systems

In the context of the Zambian health sector reforms, QA activities are being implemented within an integrated framework for service delivery. Training, supervision, monitoring, and other systems that support the delivery of essential health services have a QA component. The QA coaches and link facilitators support these systems by providing training and technical assistance to the districts and health centers. This section reviews QA training, the QA coaches/link facilitators network, documentation and reporting of QA activities, and supervision of quality assurance activities.

Training in Quality Assurance

Training was given to key provincial level staff in all provinces[8] and then at the district and facility levels in three pilot districts. Training in the target districts focused on setting and monitoring standards and problem solving. Training varied by district, but generally consisted of one day on the concepts of quality assurance, a week on DySSSy, five days on the development of monitoring indicators, and 14 days on QA tools and techniques. Many staff have had training, but they are unevenly distributed.

QA Training Capacity and Experience at Various Levels of the System

At the central level, the Directorate of Monitoring and Evaluation is responsible for ensuring that staff from all levels of the system are sensitized to the concept of QA. This unit provides training and technical oversight in QA to the DHMTs and their health centers.

At the regional level, no special training has been given to staff since the formation of the regional directorates. The CBoH had intended to provide training to the regional office, but circumstances beyond its control prevented this. Though training appears to be a function of the regional office, the position of training specialist was unfilled. Regional staff reportedly would plan for training in 1999.

At the district level, staff received varying degrees of training. Though few directors, if any, were formally trained, several DHMT staff became QA coaches or facilitators or otherwise participated in some form of QA training.

[8] QA concepts and methods were introduced in some form throughout all provinces before the evaluation; only North Western Province had not received the problem-solving training.

In one instance, administrative staff were given specific training in standards setting in order to improve record keeping. Lusaka staff reported receiving some introduction to QA as part of general district-level, capacity-building training. Capacity-building sessions were conducted to create effective leadership, accountability (including financial management and QA systems), and community partnership. When asked about the types of QA training received, only the Lusaka DHMT noted that QA was introduced during the capacity-building training.

There is no formal system for identifying QA training needs. At the district office, responsibility for coordination of training activities varied according to the composition of the DHMT. Though each district is supposed to form a staff development committee to identify training needs, reportedly few have been formed. It is unclear how training needs in general would be identified, though QA would presumably be given some priority. Identifying training needs is further complicated by staff turnover that results in losing someone who has had QA training and replacing that person with someone who has not.

Concern for quality at the district offices is such that QA training activities were budgeted in 1998 action plans, but some were dropped due to funding problems and/or the suspension of workshops. Most interviewed district teams hoped to include QA in their 1999 plans.

At the health center level, the extent of QA training varied by district, ranging from one to seven days and from one staff person to several. Training needs at this level are reportedly determined through supervision and on-the-job performance, but it seems that no uniform approach to training was adopted at this level. Interviewed health center staff recommended refresher QA training.

Main Constraints to QA Training

Funding and limited link facilitators' time are the main factors limiting QA training. Other factors are: (a) frequent and recurring shortages of drugs and other resources that take priority over training, (b) inadequate transportation, (c) staff turnover, and (d) the need for a QA training approach appropriate for health centers with too few staff and/or at more remote locations.

Coaches and Facilitators

A typical QA training sequence for coaches and link facilitators is Phase I: five days of basic QA concepts, indicator development, and basic standards setting; Phase II: five days of DySSSy; and Phase III: 11 days of problem solving and coaching, including practice.

To strengthen linkages between the regions, districts, and centers, the "best" training participants are chosen to act as link facilitators and coaches after Phase II training. After Phase III problem-solving training, they are expected to develop a roll-out strategy for QA in their districts, including the training and coaching of problem-solving teams. After the initial training, participants undergo "validation" where facilitators train staff in other districts or health centers or coaches train two other health centers. CBoH QA staff evaluate and re-evaluate participants to gauge their willingness and ability to serve at the next level. Links and coaches reported that this somewhat rigorous validation was effective in ensuring adequate QA technical skills.

Roles and Constraints

The coaches/links play an important role in the success of the QA teams. Coaches visit the health centers to provide just-in-time training or technical guidance to the teams. Coaches should take this opportunity to review the team's work, correct or rework it if needed, and plan the next steps. However, most coaching visits were not regularly performed. Some teams reported never having been visited by a coach after initial training; others reported being visited only once or twice. Others reported quarterly or more frequent contacts by coaches/facilitators as part of the integrated supervisory DHMT visit. It remained unclear how often coaching visits coincided with the team meetings and how helpful the visits were.

Coaches and links have many constraints in providing support to teams, but most see QA as important and necessary. However, several could not provide adequate support to the teams because of shortages of time, funding, or transportation.

Facilitators' suggestions for improving the support to QA coaches include: (a) regular meetings to improve QA skills, (b) having districts sponsor their coaches, (c) integrating QA meetings with HMIS quarterly meetings (if held) at the district level, (d) integrating QA meetings with managerial skills workshops (if held), (e) performing QA activities during supervisory visits, (f) encouraging regions to support QA links in supporting

Case Study Number 5: Supporting QA Teams: The Work of a Link Facilitator

The link facilitator ("link") has played an integral role in the development and success of the Zambia QAP. To strengthen communications and teamwork between the QA structures at the central, provincial, district, and facility levels, QA coaching participants who demonstrated the best aptitude and enthusiasm were selected to be links. These health staff were expected to develop a strategy for QA in their respective districts that would include the sensitization of district-level staff as well as the coaching of problem-solving teams at the health centers. Despite the many difficulties faced as a result of the health sector reforms (i.e., the de-linkage of staff, recurrent drug shortages, and severe funding constraints), several links were undeterred in their efforts to implement QA activities. In Kitwe District, for example, a link not only managed to create and support several QA teams, but has also infused QA concepts into all aspects of his work as well as that of his many colleagues. He experienced the following training regimen:

Phase I: Five days' sensitization, including basic QA concepts, indicator development, and standard setting

Phase II: Five days' standards setting (DySSSy)

Phase III: 11 days' problem solving and coaching, including practice

As a "best" participant, he was chosen to be a link after the Phase II training and invited back for Phase III problem-solving training. After that training, he underwent a series of validation checks where he was observed and evaluated while training staff in other locations. He joined other link facilitators at three different provincial sites (Luapula, Copperbelt, and Eastern Provinces) to train selected individuals from the DHMTs and health centers. In Kitwe, he worked primarily as a Clinical Officer at a health center, but also served as health centers' representative on the Kitwe DHMT. He was well regarded within many professional circles and thus well placed to introduce QA into district as well as facility organizational structures. Within Kitwe, he provided QA training to nine clinics, including eight that were reported to have active teams. Some examples of the problems he coached them to address were:

Table 3
Sample Link Facilitator Results

Location	Topic	Actions Taken
Chemwemwe health center	Long waiting time in OPD	Flowchart, patient-flow analysis
Itimpi maternity	Low delivery rates at facility	Redefine problem, confirm causes
Kamfinsa clinic	Low delivery rates at facility	Compare antenatal visits and deliveries

Besides his work with the teams, caring for patients at the clinic, and activities with the DHMT, the link was also working to create other supportive mechanisms to ensure that QA activities (and quality of care, generally) could be effectively monitored. He provided training to IMCI supervisors who were required to monitor (and be monitored by) other IMCI health centers. Staffs were given a three-day basic training in QA and later instructed to check the teams' storybooks during supervisory visits. Elsewhere, he worked to develop a supervision checklist that could be used by staff charged with monitoring health centers as part of "weekend coverage" visits. Despite the constraints on his time and the economic and other extreme difficulties being faced by the district, the link has made an admirable start with regard to QA. Although it remains to be seen what the ultimate outcome of this work will be, at the very least, the enthusiasm and support for QA are ensured under vigil of the Kitwe link facilitator.

coaches, and (g) including link and coaching activities in action plans.

Skills transfer and coaching support seem to depend on: (a) the ability and willingness of district staff to plan for QA, (b) the resources committed to training and coaching, and (c) the motivation of coaches and facilitators.

Supervision and Skill Maintenance

Supervision of the link facilitators by the CBoH is reportedly done through training activities, visits to the district, feedback after observations,

and quarterly meetings for link facilitators. The manner and frequency of supervising coaches differ from place to place. Some links are quite active in contacting coaches. Coaches can also be monitored as part of their meetings.

Coaching skills are maintained through "learning by doing," validation courses in other districts, quarterly meetings of link facilitators, and random checks of coaches and teams by central staff. In Kabwe, the link facilitator gives coaches a test before their quarterly meeting to detect problems that should be discussed.

Reporting/Feedback Mechanisms

Information on QA activities is unevenly shared among different levels of the health system. At the regional level, specific knowledge regarding the work of the teams, coaches, and facilitators is limited. Reports of QA activities are not submitted to the regional office, and existing reporting forms do not capture information on the QA teams.

At the district level, a summary report of health center activities is completed by the link facilitator and forwarded to the QA staff at the CBoH. The reports list the active teams and describe the status and results of their efforts. Quarterly meetings of all link facilitators are held to disseminate results and share experiences. The CBoH uses the results of these meetings to identify opportunities for improvement and track team activity.

Health centers do not formally exchange information about QA. The storybook is recommended to assure efficient and complete documentation of the team activities, but many are incomplete or irregularly updated. Moreover, storybooks were in short supply.

Communities learn of quality improvements at their health centers through their NHCs. Posters or storyboards are sometimes displayed at health centers to communicate commitment to quality, call attention to the need for similar improvements in other departments, and advocate for QA throughout the health center and in the community.

Supervision of QA Activities

Zambia has called for a more empowering approach to improving performance than can be provided through traditional, authoritarian supervision, and much work has been done to improve supervision. Formal supervision occurs as a team activity with the goal of assessing performance and ensuring collective responsibility for resolving problems. Guidelines for supportive supervisory visits have been integrated into the HMIS, and staff know that supervision can be strengthened, not just by increasing the number of supervisory contacts, but also by improving the focus and quality of the visits.

Supervision by the Regional and District Offices

At the regional level, the quarterly performance audit is the main mechanism for supervising the DHMT and certain health centers. Discussions with regional staff convinced the evaluation team that the regions can influence quality of care at the health centers by including DHMT clinical staff in the performance audit visit, and then delegating responsibility for solving problems to district-level staff. Supervisory staff reported that the focus of visits often goes beyond the performance audit to technical areas. For example, the clinical care specialist might look more closely at maternal health services and thus help to identify opportunities for problem solving. Since many quality indicators (such as "patient satisfaction") are in the hospital subsection of the audit form, the audit could similarly contribute to QA activities.

Health centers that reported receiving formal visits from the regional office generally felt it was done infrequently and was largely nontechnical (though one performance audit report listed a series of "clinical problems"). In addition to the performance audit, regional staff reported unplanned or informal visits at health centers, which could also help in addressing quality problems.

Though districts reported having performed supervision visits, health centers often reported less frequent visits. Formal, integrated team visits of health centers to monitor and otherwise support QA activities do occur if one or more DHMT staff have had QA training. In general, health center staff appreciate the need for frequent, supportive visits from their DHMT; many want more, especially to help with technical issues.

Supervisory visits facilitate routine monitoring of service quality. Six of seven DHMTs interviewed said all health centers were visited every quarter. If the IMCI checklist was used during the visit, Outpatient Department (OPD) cards were reportedly reviewed to check for treatment, diagnosis, and direct observation of patient care (the last seemed not to be done routinely). These visits contributed to the QA teams' work, helping identify problems, such as clients' bypassing the health center to seek care at

the hospital and problems with user-fee collection.

Most feedback from the DHMT visit was reportedly given immediately, so individual clinical problems could be corrected quickly. In Kitwe, problems found at all health centers were discussed at meetings with all in-charges. Sometimes, feedback would be given during a general meeting at the end of the formal DHMT visit and would include all clinical staff and often NHC members.

Other planned and unplanned visits to health centers occurred between formal quarterly visits; these interim visits often addressed problems identified during the quarterly visit. District staff reported that they felt such visits were beneficial. In Kitwe, supervisors reportedly observed patient flow and checked patient records. In Kalulushi, supervisors identified and discussed the need to correct and monitor the use of a new chloroquine regime.

Apart from the supervision given primarily by the director through daily interaction with other DHMT staff, internal supervision at the district office is done through the HMIS self-assessment form. This form was encountered in only one district, though it was said that the data generated had been used to "address problems such as malaria treatment." The region was also said to have reviewed and discussed the form during the performance audit; however, this was not confirmed.

Supervision within and between Health Centers

Within the health centers, routine supervision by the responsible staff in various units was found to contribute to team problem-solving activities. In larger urban health centers, in-charges routinely supervise various departments. One maternal and child health supervisor identified the problem of late antenatal visit, which was resolved through a problem-solving cycle. At another clinic, supervisors reportedly checked OPD cards and medical records routinely and discovered low monthly postnatal attendance, also resolved through problem solving.

Supervision between health centers occurs when IMCI-trained staff from one health center monitor and are monitored by another IMCI health center. Weekend supervisory visits by a team of health center staff also occur, reportedly contributing to problem-solving activities.

F. Other Structures

Neighborhood Health Committees

A 1997 CHESSORE survey describes the participation of the NHCs in improving health services. Most such activities relate to the rehabilitation of health centers, information and mobilization of the community, expression of community dissatisfaction with health services, and community surveys.

Since they represent the communities and express patients' perspectives on quality of care, the NHCs should be involved in some QA activities (e.g., problem solving). However, it is not clear how much they can contribute without formal QA training. Some problem-solving teams have included trained members of NHCs in their work.

The evaluation team found anecdotal evidence of public involvement. In Kabwe patients complained about the shortage of drugs. The NHC and clinic staff determined that many patients were coming from outside the clinic's catchment area and received NHC help in resolving the problem. Problems discussed in a meeting with the NHC, health center staff, and DHMT included long waiting times, availability of drugs, nonsupportive attitudes of supervisors and staff, and clinic maintenance.

The District Health Boards

Some health center committees were involved in the development of the 1999 district action plan by a district health board (DHB). The team met with the Kabwe DHB to discuss its role in improving quality of care. Most board members are not health professionals, but they influence the quality of care through decision making related to budgets, staffing, and training. They participate in technical meetings with the DHMT and facility inspections. The DHB members noted that they helped build an extension for deliveries upon learning of an area with a high rate of pregnancy-related deaths resulting from home deliveries. They also helped distribute the patients' rights booklet.

The Private Sector

The Churches Medical Association of Zambia (CMAZ) coordinates activities between different church-owned health facilities (31 hospitals, 60 health centers), trains managers, helps its members secure financing, and liaises between these services and the government. Most mission health facilities have mission doctors and nurses, though they are mainly staffed by church-selected government employees.

CMAZ confirmed the evaluation team's findings that many of its members participated in the QA

training and that districts usually include mission health centers in their quarterly supervisory visits. The team was told that QA training by the association is a three-hour session on a regular management course. CMAZ was interested in taking a full part in national and district training and quality activities, but emphasized its limited resources. The association will shortly serve as an agent for USAID to channel funds for specific health programs to districts and evaluate the results, which will include a quality evaluation component.

The Faculty of Private Practitioners has 300 registered members, medical officers who see about 1 to 2 percent of outpatients in Zambia. Although the faculty has no official QA policy, its members are required to attend clinical meetings (continuing medical education). The association does not monitor or evaluate the quality of clinical care.

The Regulatory Bodies

The General Nursing Council sets, monitors, and evaluates performance standards for nursing/midwifery education, clinical practice, management, and research. It: (a) inspects health institutions and schools of nursing and midwifery; (b) develops curriculums for nursing and midwifery training; (c) sets entry standards for nursing and midwifery basic training; (d) certifies qualified nurses and midwives; (e) approves training institutions for nursing and midwifery; and (f) disciplines students, nurses, and midwives. The GNC inspection guidelines focus on the structure of the facilities, standard operating procedures, and policies. Most of the judgement criteria are not explicit.

Monitoring the quality of care is a problem because of financial and material constraints. The GNC can: (a) meet with management; (b) check for compliance with medical, nursing, and administrative standards; (c) observe clinical care; (d) interview clients and staff; (e) inspect nursing and medical records; (f) note whether resources (equipment and time) are available for providing nursing care; (g) ensure valid licenses; and (h) correct malpractice on the spot.

The Medical Council of Zambia inspects private hospitals and clinics, using an inspection certificate that focuses exclusively on the structural aspects and not on the assessment of the care. It also approves the curriculums for certain paramedical training institutions.

The Patients

Several surveys informed the evaluation team about the patients' perspectives. Patients believe the most important features are the availability of drugs, the politeness of staff, a short waiting time, and a physical examination. One survey revealed that only 38.7 percent of patients believed they were properly examined, while 67 percent thought that staff had poor clinical skills. Another looked at urban/rural differences and found that in rural areas the basic minimum level of resources was lacking, especially staff and drugs, and that in urban areas, mismanagement and drug shortages were the main problems.

The patients' rights booklet, describing the level of quality that people should expect, was distributed to all hospitals, districts, health centers, and consumer associations. How well patients know their rights is undocumented.

The Training Institutions

The University Teaching Hospital (UTH) graduates about 60 registered nurses a year. Tutors reported that the nursing curriculum had not been revised or reviewed since 1990. Overall, new knowledge is imparted to students informally and irregularly. Tutors participate in programs such as Safe Motherhood and IMCI, or go to periodic training, and then disseminate technical knowledge from their notes and material in these courses.

Another way new knowledge is shared is through field practicums. To acquire skills in delivery of primary healthcare, nursing students may be sent to the field and have the costs paid by the nursing school. (The district gains temporary—but free and highly trained—labor.)

Action plans for 1996 included activities like internships, but they were never implemented due to funding problems. The GNC reportedly monitors nursing standards through their periodic evaluation of hospitals and nursing school accreditation activities.

Tutors were interested in including QA in their management curriculum. Since MOH or other specialists are invited to speak as part of a two-week management course given separately from basic nurses training, this might be a way to introduce students to QA. The expressed need, however, was to integrate QA as part of preservice and post-basic training curriculums.

The evaluation did not determine whether the School of Medicine teaches clinical quality standards to medical and other post-qualification students. QA did not seem to be taught, but quality was beginning to

be addressed by faculty in academic journals. Formal links do exist between the School of Medicine and the CBoH: the Dean is on the CBOH Board. Increasing and improving the links between the health system and the school would help ensure that students become familiar with the standards of clinical care. Also, the school could develop its own input for formulating and revising care standards and protocols to ensure that they conform to the latest research. The school expressed interest in developing a Masters-level program in Health Service Quality and introducing QA programs and faculty; this could complement the CBoH QA training and contribute to long-term QA capability.

III. Recommendations for Strengthening the QAP

This chapter presents recommendations, detailing the most important ones and listing some options for their implementation when appropriate. The team notes that its long list of recommendations results from its methodology: no suggestion of weaknesses in the QAP is intended, but activities are suggested that would take the Zambian QAP to the next level of institutionalization.

A. General Recommendations

The evaluation team feels that a program as important as the Zambian QAP justifies more frequent reviews, perhaps every two years. Also, regular monitoring of QA activities and their effects would help in collecting the documentation necessary to continuously improve the program. QA is more than tools and methods. It is a spirit that comes only from a mentality change, where clients make demands and express their expectations, where health providers question their own performance, and where managers make client-oriented, data-based decisions to constantly improve healthcare systems. It cannot happen overnight. It took five years to initiate change and the emergence of a quality culture in Zambia.

A national QA policy describing the vision, strategy, and objectives of Zambia's QAP should be created. This would facilitate an action plan for implementing, monitoring, and evaluating QA activities. The design of such a policy should cover actions by both CBoH and the nongovernmental institutions that have a role in QA. Such a policy would help define the QA roles and responsibilities of various stakeholders in the health system.

The vertical integration of QA into all levels of the health system should be strengthened by creating or reinforcing the links between the QAP and:

- The regions (or provinces), by building QA capacity in the regional team and adapting the performance audit instruments; this requires sensitizing and training the regional teams
- The districts, by building QA capacity in the DHMT and adapting the performance monitoring instruments for supervision; this means that DHMTs should be at least sensitized in QA and some members trained
- The hospitals, by bringing QA into their management board and services

The horizontal integration of QA into other directorates of the CBoH should be strengthened by creating or reinforcing the links between the QAP and:

- The Directorate of Health Services Commissioning, which should provide technical assistance to the hospital boards and measure the impact of accreditation on the quality of inpatient care
- The Directorate of Systems Development, which should coordinate the development of clinical guidelines and job aids
- The Information and Health Systems Research Unit (Directorate of Monitoring and Evaluation), which should develop operations research on QA and quality of care, as well as monitor the impact of the HMIS on the work of the QA teams

The integration of QA within the private health sector and parastatal institutions should be strengthened by creating or reinforcing the links between the QAP and:

- The regulatory bodies, which should develop and communicate standards and the quality performance monitoring system. These entities already inspect training institutions and would benefit from the QAP approach to monitoring clinical performance.
- The medical, nursing, and paramedical training institutions, which should help develop standards and ensure their inclusion in preservice and post-basic curriculums
- The private associations, which should help develop and communicate standards and assess quality in the private sector

B. Standards of Care

Development of Standards

The development, adaptation, and revision of clinical care standards should be defined in an official policy. This requires that one structure coordinate the work of technical experts, providers, and users. The involvement of health providers from all levels of the system ensures that standards are realistic and accepted by users, while experts' involvement guarantees scientific validity. Evidence-based medical literature is key in developing standards.

These standards should be based on research into, and an assessment of, health providers' needs for guidance through job aids, which have enormous potential to improve quality. Research should determine the factors that influence the use of job aids.

The development/adaptation of standards should be consistent with the development of other materials, including training materials and instruments to measure compliance. In other words, the development of new standards should trigger changes in the other mechanisms used to communicate the standards, such as preservice and in-service training. Similarly, the criteria on which performance is assessed and the instruments used to assess performance (supervision checklists, etc.) should change.

Communication of Standards

A national strategy to communicate standards that does not rely solely on classroom training should be developed. It should draw on principles for behavior change that would improve clinical practice and should include a combination of interventions based on behavioral science. (This is a topic for research since little is known about the factors that cause health providers to adopt standards.)

The QAP did not participate in communicating the ITG, but could have contributed significantly to this effort, especially with regard to developing job aids, writing standards, and developing tools to measure compliance. Medical reference books are needed, and the initiative to develop one consistent with the essential package of health services is relevant. However, the ITG is only a starting point for various activities to strengthen the communications strategy for standards.

Clinical guidelines should be designed to reflect the type of job aids health providers need and would willingly use during their practice.

The continuous reinforcement of standards is key: when regularly reminded of the standards, health providers do better. Districts and officers-in-charge should be encouraged to use all opportunities (supervisory visits and technical meetings) to reinforce standards of care and encourage their use.

Preservice training is often overlooked in strategies to introduce new standards, leading to a paradoxical situation where young graduates need retraining as soon as they start work. Medical textbooks should be used as reference material for preservice curriculums, and nursing and medical curriculums should include up-to-date standards. These practices would both ensure better knowledge and reduce in-service training costs.

Performance Monitoring

The assessment of quality performance should include measuring health workers' compliance with process standards through the direct observation of the delivery of care. Performance audits and supervision visits provide opportunities for this, but the entire strategy of these processes will have to be reworked, from identifying the skills needed and understanding the constraints to redesigning the forms.

A specific strategy is needed to explore poor performance and determine whether it is caused by lack of competency or something else. In-service training is often identified—sometimes erroneously—as the solution to poor performance. Problem-solving teams should determine whether training or problem solving is the better approach for improving competency.

A formal recognition and reward system based on quality performance would create incentives to improve quality. Rewards should be based on their effectiveness and acceptability to DHBs. The staff appraisal system should be redesigned to assure that quality performance is linked with career promotion and that the measurement is objective and fair.

C. Quality Improvement Activities

The evaluation team recommends an investigation into the methods for improving quality in health centers with five staff or fewer. If the CBoH wants problem-solving teams in these health centers, it will be necessary to identify the conditions that would allow these teams to succeed.

Zambian healthcare providers should continue using the problem-solving model, but with simplifications and changes to training. The team problem-solving method can be effective in health centers with more than 10 staff under certain conditions. However, the last step of the model should be divided into two parts: "implementation" and "evaluation." Step four could be broken into two steps: "initial problem analysis" and "data gathering and root cause location." This would emphasize the importance of data collection.

Each trainee should have a copy of simple guidelines for team problem solving and use a storybook. The training materials and sessions should recommend choosing a simple problem for the first cycle, involving users or NHCs, following steps in succession and linking them, and gathering and interpreting data.

A simpler, modular five-day training package for district training should be developed (incorporating the above simplifications) for those who will not be coaches. Its developers should draw on the experience of links and coaches who have designed five-day or 20-hour courses.

Teams with little training should use their first problem-solving cycle as a training exercise. A coach should attend each meeting to help the team and to show good practices in documentation, how to use the methods, and how to link the steps. Identification of the priority problems could be done during the QA training.

The evaluation system created by the evaluating team should be used to help teams learn how to be more effective, assessing teams and giving them feedback. Teams should be taught how to use this system for self-assessment and to guide a peer review of the work of other teams.

Links and coaches should develop skills to decide whether to use a team problem-solving cycle. They should then train and advise teams on how to make this decision.

NHCs and healthcare consumers should be involved in QA problem solving, and patients should drive the quality program. Pilot efforts should be evaluated to generate recommendations for increasing NHC and client involvement.

All teams should document their work in storybooks, and the documentation should be available, with at least one copy at the health facility. Coaches should use the storybook to monitor team progress when they cannot attend meetings.

Health centers should formally exchange information about the work of their teams at meetings of in-charges and among health centers that share a coach.

Other methods to improve quality for different circumstances should be investigated. While the approach taken by CBoH has achieved a great deal, different QA methods are needed for different settings, such as small facilities. The QA Unit should become more familiar with other methods and assess which ones might be appropriate in different facilities and for different types of services. An assessment should be made of the value of training and problem-solving teams compared to other quality improvement methods (clinical training; patient education and counseling skills; on-the-job training; supervision of clinical skills; protocol and guidelines development; standard setting, indicator development, and monitoring; and clinical case review and clinical audit).

D. QA Support Systems

QA Training

CBoH should develop enough QA trainers and experts at the national level to provide adequate technical support to all levels of the system. Two trainers per regional or provincial level team could suffice. The objective is to have the capacity to ensure responsive, consistent training support.

A training needs assessment should be done as part of the yearly action plans. In reviewing these plans, the CBoH or regional office should ensure that QA training activities have been adequately planned and budgeted, and district plans should include coaching or link facilitator visits to health centers.

The DHMT should identify candidates for QA training, in particular staff at the health center level who could become coaches or facilitators. At least two people per health center should be trained (including the in-charge). Each district should have trained coaches to cover as many facilities as possible. All professional staff at the regional and district offices should take some QA training. QA could also be incorporated into other management training. Relevant professional regulatory boards should take QA training and incorporate QA concepts into preservice and post-basic training curriculums.

Coaches and Link Facilitators

At least one staff on the DHMT (i.e., a district-level coach or link facilitator) should have responsibility for QA activities in the district. This person should participate in supervision visits to the health centers and include QA in the integrated supervisory approach.

Better coach support would improve teams' ability to use the QA methods and data. Competence levels should be improved in following and linking the steps of the cycle. This involves fully understanding why the steps should be followed and knowing when to diverge from them. Learning by doing is the best way to reach this kind of understanding.

QA training should further strengthen capacity in QA planning, effective communication and teaching, and supportive supervision. Furthermore, support visits by the central level to coaches and link facilitators should be intensified (at least early on) to further ensure that training efforts actually do result in QA activities.

District offices and coaches should take advantage of existing opportunities (e.g., meetings and workshops) to update their QA training and share information on QA activities and issues.

QA Documentation and Feedback

Existing reporting systems should include reports of QA activities; timely feedback should be given to the appropriate levels; and information should be shared between and within levels. QA staff at the CBoH should determine what information on QA activities would be useful and how it should be reported.

QA staff should ensure complete documentation (e.g., in storybooks) of QA activities and effective use of the documentation in order to monitor the work of teams. Sufficient storybooks should be available for this.

Supervision of QA Activities

Regional offices should ensure that DHMTs are providing adequate and frequent supervision to the health centers. Frequent review of achievements could evaluate supervision problems (e.g., quarterly visits not occurring, incomplete supervisory reports).

Each district should plan and budget for an adequate number of supervisory visits and ensure that they occur. Staff suggested that the minimum number of visits would include quarterly visits plus four others per health center per year. Visits should initiate and support QA problem-solving activities, solicit feedback, and advocate local resolution of problems.

Those responsible for QA activities at the DHMT should participate in quarterly supervisory visits to health centers. Many QA facilitators/coaches were found to be DHMT staff, which appeared to facilitate the integration of QA into their technical supervisory duties. Quarterly visits could be followed by visits in support of teams and their problem-solving processes.

Regional staff want to improve their interpersonal skills for interacting with district and health center staff. Some also requested observation checklists for relevant technical areas to help structure supervisory visits.

E. Prioritizing the Recommendations

The evaluation found that the lack of QA expertise in most of the DHMTs hampered the work of the facility teams. When no DHMT member has had QA training, no one at the district level takes responsibility for quality improvement in the district, and no one coaches the teams. The teams have a hard time implementing QA methods, and they may not have time to teach and coach others. At least two DHMT members per district (one being the District Medical Officer) should be trained in QA and take responsibility for QA activities.

Despite its tremendous efforts and remarkable success in covering the whole country with a network of coaches and trainers, the CBoH is unable to sustain and expand the QA program, because only two people at the central level are in charge of QA. While "quality is everybody's business," if there are insufficient people to do the job, it cannot be done fully. The dedication of the two QA staff is remarkable, but the central QA team must be strengthened.

A national QA policy would boost the interest in QA and health sector reform and enable progress on the larger problems that hamper the health system. Milestones covering the next five years with a clear strategy to institutionalize QA would make it easier for the CBoH partners to design their roles.

Currently, the focus of supervision is not quality of care, and changing supervisory processes could have a tremendous impact on quality. Supervision should focus on quality monitoring and improvement through

the definition of standards for supervision. Supervisory visits should facilitate the direct observation of the delivery of care, feedback the results, and help teams solve quality problems or improve healthcare processes.

A capacity for QA training must be built through a network of certified QA trainers and the introduction of QA into preservice curriculums. This would build self-reliance and ensure QA's sustainability.

The evaluation team is puzzled by the reluctance of supervisors to observe the delivery of care and of health workers to use job aids. Research into these areas should be undertaken as soon as possible. Other research topics are: (a) ways to increase the cost-effectiveness of QA training; (b) standards development and the best communication strategy for improving clinical practices; (c) workers' perceptions of the scientific validity, feasibility, reliability, and clarity of the ITG standards; and (d) factors that influence the productivity of the problem-solving teams.

IV. Conclusion

There is growing evidence of the impact of QA methods on the quality of care in resource-constrained environments, where simple solutions such as re-training of staff or the supply of additional resources have failed. The richness of the QA experience in Zambia provides lessons that will benefit not only health sector reform there, but also other QA programs. While much remains to be done, the enormous number of discrete changes resulting from the work of the QA Unit and the Directorate of Monitoring and Evaluation has had a tremendous impact on the way patients interact with their health system and demand quality. Health providers' behavior is also changing under the positive influence of the attention districts are paying to their work and the empowerment mechanisms that have been established through decentralization.

The key lessons learned from Zambia can be summarized as follows:

- Support systems, such as coaching and QA training capacity, must be well established at the district level in order to assist the teams. In a decentralized system, the QA program should first target the districts so that team ownership for QA activities will develop.
- Numerous factors influence the productivity of the problem-solving teams. The tools developed for this evaluation proved useful, and coaches could use similar materials to assist teams.
- The health workers' resistance to job aids that would improve their compliance with standards and supervisors' reluctance to directly observe the delivery of care are barriers to better healthcare quality. More research would determine the causes of these behaviors and assist in their improvement.
- A detailed documentation system of the QA program would help in monitoring the QAP's impact and making adaptations.
- Such a program should be regularly evaluated (every two years).