USAID
FROM THE AMERICAN PEOPLE

OPERATIONS RESEARCH RESULTS

THE ZAMBIA ACCREDITATION PROGRAM EVALUATION

QUALITY ASSURANCE PROJECT

JUNE 2005
This publication was produced for review by the United States Agency for International Development by the Quality Assurance Project.

OPERATIONS RESEARCH RESULTS

THE ZAMBIA ACCREDITATION PROGRAM EVALUATION

Quality Assurance Project

June 2005

The Quality Assurance Project (QAP) is funded by the U.S. Agency for International Development (USAID) under Contract Number GPH-C-00-02-0004-00. The project serves developing countries eligible for USAID assistance, USAID Missions and Bureaus, and other agencies and nongovernmental organizations that cooperate with USAID. QAP offers technical assistance in the management of quality assurance and workforce development in healthcare, helping develop feasible, affordable approaches to comprehensive change in health service delivery. The project team includes prime contractor University Research Co., LLC (URC), Initiatives Inc., and Joint Commission Resources, Inc.

Recommended citation: Quality Assurance Project (QAP). 2005. The Zambia Accreditation Program Evaluation. *Operations Research Results*. Published for the U.S. Agency for International Development Agency (USAID) by QAP.

About this series: The *Operations Research Results* series presents the results of country or area research that the Quality Assurance Project (QAP) is circulating to encourage discussion and comment within the international development community. Please visit www.qaproject.org for more information on other QAP operations research studies.

Acknowledgments: This report was prepared by the Quality Assurance Project (QAP) on the basis of documents and a presentation prepared by Paula Tavrow, Alasford Ngwengwe, Beatrice Yeta, and others.

Several organizations contributed to the study. Its steering committee included representatives from QAP, including both the University Research Co. (URC) and Joint Commission Resources, Inc. (JCR) as implementing organizations of QAP; the Zambia Health Accreditation Council (ZHAC); the Zambian affiliate of the Biomedical Research and Training Institute (BRTI); and the Zambia Central Board of Health (CBoH). Other Zambian organizations that provided various types of support to the project are described in a previous study report (Bukonda et al. 2000).

QAP appreciates the cooperation and effort these parties contributed to this endeavor.

CONTENTS

ABBREVIATIONS

BRTI	Biomedical Research and Training Institute
CBoH	Central Board of Health
C-section	Cesarean section
JCR	Joint Commission Resources, Inc.
NGO	Nongovernmental organization
QAP	Quality Assurance Project
URC	University Research Co., LLC
USAID	United States Agency for International Development
ZHAC	Zambia Health Accreditation Council

I. BACKGROUND

Zambia began to develop a national hospital accreditation program in 1997 and was one of the first countries in sub-Saharan Africa to do so. This development was under the auspices and leadership of the Zambian Central Board of Health (CBoH), with primary funding from the U.S. Agency of International Development (USAID). The CBoH decision to launch the program followed the 1996 release of a study that revealed numerous deficiencies in Zambian health facilities, including long waiting times, high costs, favoritism, rude behavior, health worker misuse and pilferage of medicines, and irregular availability of medicines (Foltz 1996). Also, health workers were not given continuing education to update their skills.

The accreditation program started within the context of comprehensive health sector reform that the Government of Zambia had begun in 1993. Reform was thought to be particularly important for hospitals, which were experiencing failing infrastructures, labor strikes, and pressure to treat increasing epidemics of various diseases. Accreditation was seen as a way to address these problems that could link funding to performance by defining and measuring acceptable hospital standards at the national level and by helping hospitals improve their performance in relation to the standards: Accreditation would provide consultation and education rather than punitive inspections.

When the program started, two studies were planned to examine it. One was funded by USAID, performed by the Quality Assurance Project (QAP), and published in 2000. It documented the program's implementation (that is, described the intervention) during its first three years (Bukonda et al. 2000). The second, reported here, was also performed by QAP and funded by USAID. It evaluated the impact of the intervention (i.e., the Zambia accreditation program) on various indicators of the quality of healthcare and health outcomes in the participating hospitals.

The first study report identifies ten milestones in building an accreditation program:

1. Recognizing the need to improve quality and choosing accreditation as an approach to address the need;
2. Choosing the appropriate accreditation model to implement and making minor adaptations;
3. Setting up the formal structure to advise, operate, and manage the accreditation program;
4. Developing and testing standards to be used and the survey process;
5. Recruiting, hiring, and training surveyors;
6. Conducting educational campaigns and consultative surveys;
7. Refining rules, policies, and procedures for accreditation;
8. Developing the accreditation database format;
9. Conducting accreditation decision surveys; and
10. Interpreting survey data and making accreditation decisions.

The first report describes the extent to which these milestones were reached in the first three years of the program. It also cites a definition of hospital accreditation from Rooney and vanOstenberg (1999) that applies to the Zambian program:

> ***Accreditation*** *is a formal process by which a recognized body, usually a non-governmental organization (NGO), assesses and recognizes that a health care*

> *organization meets applicable pre-determined and published standards. Accreditation standards are usually regarded as optimal and achievable, and are designed to encourage continuous improvement efforts within accredited organizations. An accreditation decision about a specific health care organization is made following a periodic on-site evaluation by a team of peer reviewers, typically conducted every two to three years. Accreditation is often a voluntary process in which organizations choose to participate, rather than one required by law and regulation* (Page 6).

Further, the first study report notes that several different accreditation models fall within this definition and that the Zambia program is an "integrated model" in which existing governmental assets are used to build a functional program for hospitals:

> *Government agencies pool their resources together to enhance the quality of health service provision and to avoid supporting professional colonies. This integrated approach endorses the creation of an accreditation council to govern the hospital accreditation program and provide overall direction, structure, and guidelines for the hospital accreditation program. Broad support for accreditation is achieved by addressing the interests of regulatory agencies, professional organizations, medical practitioners, and the public* (Page 4).

II. THE ACCREDITATION PROGRAM

The Zambia Hospital Accreditation Program aims to help hospitals improve their quality of care and the health outcomes of their patients by defining standards and indicators of quality, measuring the performance of each hospital in meeting the standards, and providing educational and technical assistance to the hospitals. To accomplish these, the program undertakes an initial consultative survey and several subsequent accreditation surveys in participating hospitals. Both types of surveys assess a hospital's performance against structure and process standards developed by the program and approved by the Zambia Health Accreditation Council (ZHAC).

A. SURVEYS

A "consultative survey" is initially performed at each participating hospital. When fed back to the hospital, the results inform the hospital about its performance. The Zambia program does not take any formal actions on the basis of the survey results, although the hospital certainly can.

About a year after its consultative survey, the hospital undergoes its first "accreditation survey." This survey measures the same indicators as the consultative survey and determines whether the hospital has improved since the earlier survey. The results are again fed back, this time with advice and technical assistance. The program may also declare that the hospital is accredited, partially accredited, or neither and in what "functional areas" (defined below) it was fully or partially accredited. (During its early years, the Zambia program tested different categories and levels of accreditation and different ways of categorizing hospitals in order to learn which categories, levels, and ways were most useful.) Two years after the first accreditation survey, a second is scheduled.

The program initially anticipated performing 20 surveys in 1998 and 40 each year thereafter; the schedule is presented in Table 1.

Table 1. Planned Schedule of Surveys: 1998–2003

Hospital Cohort Number	Year					
	1998	1999	2000	2001	2002	2003
1 (20 hospitals)	Consultative survey (20)	1st accreditation survey (20)	--	2nd accreditation survey (20)	--	--
2 (20 hospitals)	--	Consultative survey (20)	1st accreditation survey (20)	--	2nd accreditation survey (20)	--
3 (20 hospitals)	--	--	Consultative survey (20)	1st accreditation survey (20)	--	2nd accreditation survey (20)
4 (20 hospitals)	--	--	--	--	Consultative survey (20)	1st accreditation survey (20)
Total planned hospital surveys	20	40	40	40	40	40

However, in the first year, the schedule unraveled due to several unforeseen problems: questions about the program's legal authority, an office roof collapse that caused the loss of survey data, and a reduction in and eventual termination of program funding. As a result, the number of surveys was far less than planned, and delays occurred. Of the first 20 hospitals, 19 consultative surveys were completed in 1998 and the 20th in 1999. Twelve of these hospitals received their first accreditation survey an average of 18 months later. Of the second 20 hospitals, only 19 received the consultative survey, and none received the accreditation survey. Table 2 shows the number and type of surveys actually completed and their times of occurrence.

Table 2. Actual Schedule of Surveys: 1998–2000

Hospital Cohort Number	Year	
	1998–1999	2000
1 (20 hospitals)	Consultative survey (20 hospitals)[a]	1st accreditation survey (12 hospitals)
2 (20 hospitals)	--	Consultative survey (19 hospitals)[b]

Notes: a. One consultative survey in cohort 1 was completed in early 1999.
b. A few consultative surveys in cohort 2 were completed in late 1999.

B. STANDARDS

Approximately 250 measurable characteristics reflecting some 50 standards (structure and process) were defined for 13 different hospital functional areas. "Patient Care," for instance, is one functional area. It has three functional sub-areas: One is "There are standardized clinical practices that guide care in all areas of the hospital." Each functional sub-area asks whether the hospital met, partially met, or did not meet several characteristics (if applicable). For this sub-area, the characteristics were: handling of emergencies (e.g., cardiac arrest, uterine rupture, hemorrhage); pre-operative procedures including anesthesia; post-operative procedures; post-anesthesia monitoring; invasive procedures; special diets, etc.

The consultative and accreditation surveys assessed hospital performance against 35 standards, reflecting performance in seven functional areas: patient care, admission and assessment,

pharmaceutical services, care environment, human resources, infection control, and quality assurance. Trained "accreditation survey" teams performed data collection; no individual collector was associated with the hospital he or she surveyed. Data were entered into a computer database developed especially for the program, and the results for each hospital were fed back to the hospital some months later, with the interval varying from hospital to hospital. Additional information on the accreditation program is in Bukonda et al. 2000 and 2002.

III. RESEARCH METHODOLOGY

The research team—comprising a different group than the accreditation survey team discussed above—originally planned to collect and analyze data from 40 hospitals (cohorts 1 and 2) to measure the impact of the accreditation program. Trends in the hospitals' accreditation performance would be indicated by the results of the consultative and accreditation surveys, and the impact of the accreditation program on patient outcomes and downstream process indicators would be indicated by the trend in research indicators. The term "patient outcomes" refers to the most significant indicators of healthcare, such as survival and infection rates. "Downstream process indicators" are those thought to be closely connected to outcomes, such as availability of medications and infection prevention efforts. "Upstream process indicators" are less immediate, but they can influence both outcomes and downstream indicators. An example of upstream indicators is short waiting times, which are thought to attract more patients and thereby, ultimately, increase survival rates and other healthcare outcomes. Respect given to patients and staff work satisfaction are also examples of upstream indicators. These issues are given further treatment below in the Discussion section.

The research team selected eight research indictors comprising patient outcomes and downstream and upstream indicators: hospital death rate within two days of admission divided by rate of all hospital deaths, cesarean section (C-section) infection rate, availability of emergency drugs, availability of essential drugs, availability of lab tests, hygiene and sanitation, nurse satisfaction, and patient satisfaction.

The initial plan was to measure the eight research indicators for three years, once a year, at each of the 40 hospitals. Table 3 provides the planned schedule for measuring the research indicators in the first two cohorts. A comparison group of hospitals that did not participate in the accreditation program, but did have measurements taken (although not fed back to them), was also envisioned.

Table 3. Planned Schedule of Data Collection: 1998–2001

Hospital Cohort Number	Year			
	1998	1999	2000	2001
1 (20 hospitals)	Consultative survey (20)	1st accreditation survey (20)	--	2nd accreditation survey (20)
	--	1st research indicator measurement (20)	2nd research indicator measurement (20)	3rd research indicator measurement (20)
2 (20 hospitals)		Consultative survey (20)	1st accreditation survey (20)	--
		1st research indicator measurement (20)	2nd research indicator measurement (20)	3rd research indicator measurement (20)

However, implementing the research plan relied on the accreditation program rollout: If fewer than 20 hospitals in either cohort were surveyed, then the number of hospitals in the research would also decline. As discussed above (Table 2), 20 hospitals in the first cohort received the consultative survey, but only 12 received the first accreditation survey. In the second cohort, 19 received the consultative survey. No surveys were performed thereafter.

These changes in the accreditation program rollout necessitated changes in the research design. The final design used the completed pre- (1998–99) and post- (2000–01) intervention measurements from the 20 first cohort hospitals. When the research began, these 20 hospitals had been in the accreditation program for about two years; they are referred to here as the "exposed" hospitals. Six hospitals that had not been in the program ("unexposed" hospitals) served as the research comparison group.

The exposed hospitals received the consultative survey and feedback by the accreditation program in 1998–1999. Of these, only 12 received the first accreditation survey and its feedback (in 2000, on average about 18 months after the consultative survey). The other eight hospitals in this cohort received the equivalent of a first accreditation survey and feedback of results in 2001, but the work was done not by the accreditation survey team but by the research team. This team used the same methodology as the accreditation survey team. Another difference was that the results of the eight 2001 surveys were not used by the accreditation program to assign accreditation to functional areas as had been the case with the first 12. In summary, all 20 hospitals in the exposed cohort received the consultative survey and, some 18 months later, the first accreditation survey; the results were fed back to the respective hospitals both times, although some of the accreditation surveys were done by the research team. Table 4 shows the research design for the 20 exposed hospitals and the comparison group of six unexposed hospitals.

Table 4. Actual Schedule of Data Collection: 1998–2001

Type of Survey or Measurement	Exposed or Unexposed	Year		
		1998-99[a]	2000[a]	2001[b]
Consultative	Exposed	20		
First accreditation	Exposed		12	8
Consultative	Unexposed			6
Research indicators	Exposed			20
Research indicators	Unexposed			6

Notes: a = Surveys done by accreditation survey team.
b = Data collection done by research data collection team.

The six unexposed hospitals, the comparison group, all received a consultative survey and a research indicator measurement in 2001, both performed by the research team, but they were not given the results of either or any other technical support from the accreditation program.

The sample included three types of hospitals: district, mission, and general hospitals. Table 5 shows the number of hospitals of each type among the 20 exposed and six unexposed ones.

Table 5. Number of District, Mission, and General Hospitals: Exposed and Unexposed

Hospital Type	Exposed Hospitals			Unexposed Hospitals
	Both Surveys by Accreditation Program	Second Survey by Research Team	Total	
District	4	2	6	3
Mission	5	4	9	3
General	3	2	5	0
TOTAL	12	8	20	6

These data allow us to compute 1) whether the exposed hospitals improved their performance in either the accreditation standards or the research indicators between the 1998–99 pre-measurement and the 2000–01 post-measurement and 2) whether a significant difference existed between the performance of exposed and unexposed hospitals in 2000–01 in either accreditation or research indicators.

To measure staff and patient satisfaction, the program data collection team conducted pre-structured interviews during the consultative survey phase (1999–2000), and the research team did so during the first accreditation survey phase (2001). Fifteen exposed and six unexposed hospitals served as sites for both staff and patient interviews. Staff interviews numbered 265 in the first phase and 315 in the second; patient interviews numbered 722 in the first phase and 840 in the second. Satisfaction scores were obtained for ten items, but due to inconsistencies of interpretation, we analyzed here for only six: drug availability, nursing quality, cleanliness, general state of hospital, growth opportunities, and night staff adequacy. Each item received a score between 1 and 10; scores were weighted equally to produce a percentage score.

IV. RESULTS

A. EXPOSED HOSPITALS: COMPLIANCE WITH ACCREDITATION STANDARDS

Performance data: Every hospital survey produces a score for compliance with accreditation standards for each functional area. The compliance score is a percentage that reflects the degree of compliance, with 100% being a perfect score. These individual scores can be averaged across all hospitals (or any subset of hospitals) to obtain an average score for a functional area; then these average scores can be averaged across all functional areas to obtain an overall compliance score for any subset of hospitals.

For the 20 exposed hospitals, the overall average compliance score for all seven measured functional areas increased from 36% in 1998–99 to 48% in 2000–01. Figure 1 shows that the mean accreditation score increased in all functional areas except quality assurance. The highest mean score in both the consultative and accreditation surveys was in patient care (57%, 75%), with admissions second in both surveys (53%, 64%). The largest percentage improvements were in infection control (86%) and human resources (70%).

Figure 1. Exposed Hospital Compliance with Accreditation Standards (1998-99 versus 2000-01)

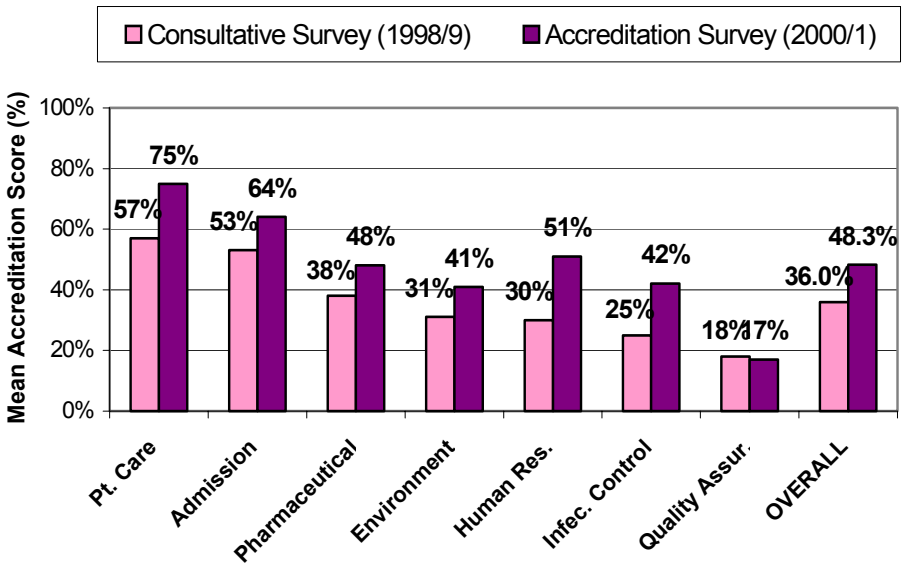


Table 6 summarizes these data by hospital type: district, mission, and general. The general hospitals showed much greater improvement overall (up from 29% to 61%) than the district (32% to 43%) and mission hospitals (42% to 47%). All types improved in all functional areas except quality assurance, which declined in district and mission hospitals, but gained impressively in general hospitals. However, when the data are broken out by hospital type, the sample sizes are too small to impute statistical significance.

Table 6. Exposed Hospital Improvements in Mean Accreditation Scores by Hospital Category (Percentage of Perfect Score)

Hospital Type	Survey	Functional Area							Overall Mean
		Patient Care	Admiss.	Pharm.	Environ.	Human Res.	Infec. Control	Quality Assur.	
District (6)	Consult.	51	50	32	31	24	21	18	32.4
	Accred.	76	64	35	34	48	34	10	43.0
Mission (9)	Consult.	59	56	47	35	40	34	25	42.3
	Accred.	72	63	51	46	47	40	10	47.0
General (5)	Consult.	58	51	29	23	19	17	8	29.3
	Accred.	82	68	66	38	68	59	44	60.7

Note. Scores for functional areas are means of scores of hospitals of that type. Overall mean is the average of the seven functional area scores.

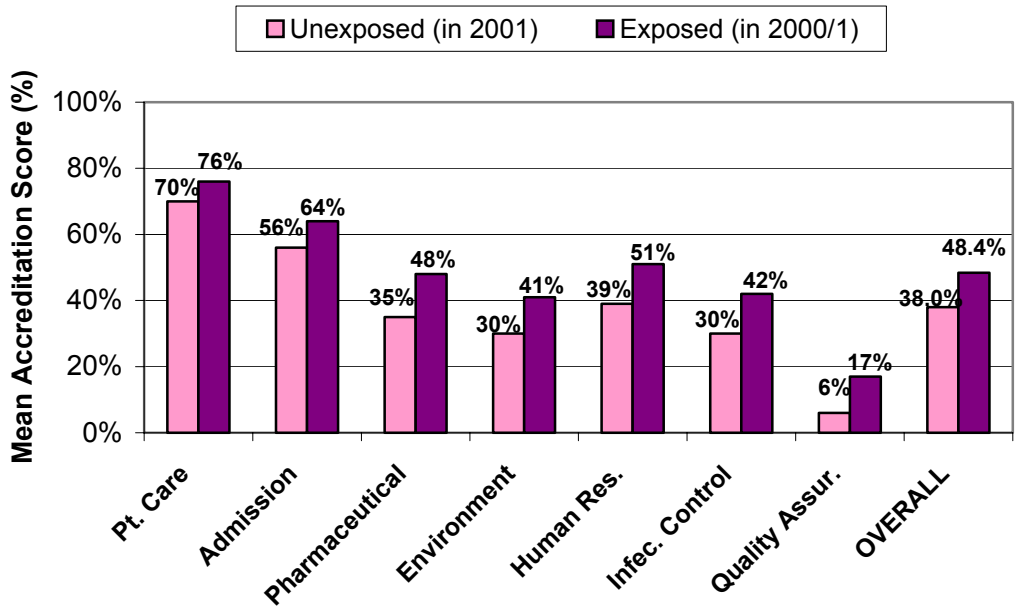
Only hospitals scoring at least four points in all functional areas received accreditation; of the 12 hospitals that underwent an accreditation survey in 2000, only two were accredited.

Patient satisfaction data: The patient interviews indicated that patient satisfaction increased very slightly in the exposed hospitals between the consultative and first accreditation surveys: from 58.6% to 61.6%. The five district hospitals (49.6% to 58.3%) and six general hospitals (56.2% to 63.1%) improved in patients' views, but the nine mission hospitals lost ground (65.0% to 61.9%). The differences in scores of the three categories of hospital and overall mean are significant at the $p < 0.05$ level.

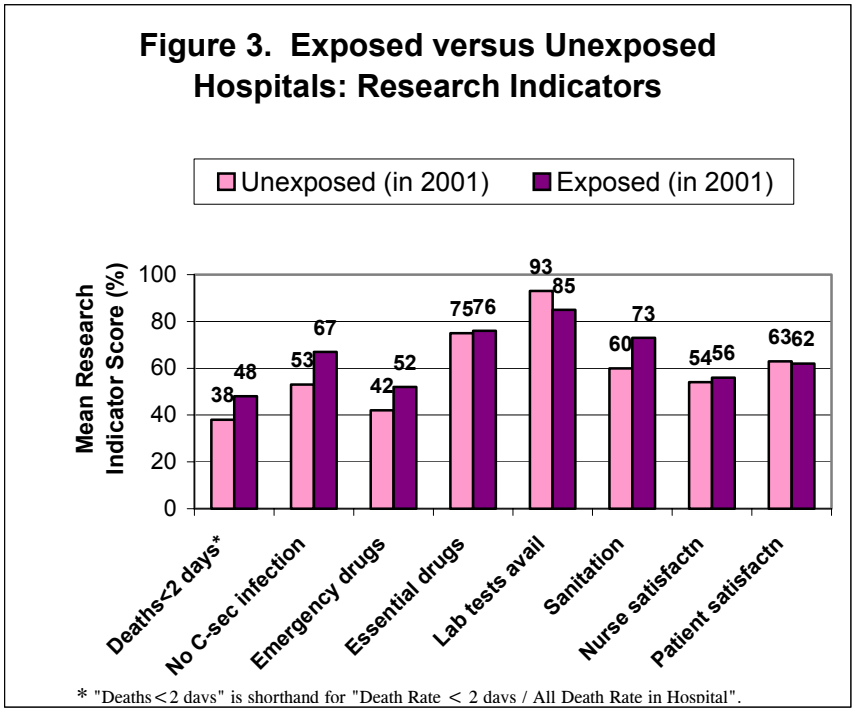
B. EXPOSED VERSUS UNEXPOSED HOSPITALS

Accreditation standards: Figure 2 shows that compliance was substantially higher in the exposed hospitals in all seven functional areas. Their average overall accreditation score was 48.4% compared to 38.0% in the unexposed hospitals. This difference was significant at the 0.018 level.

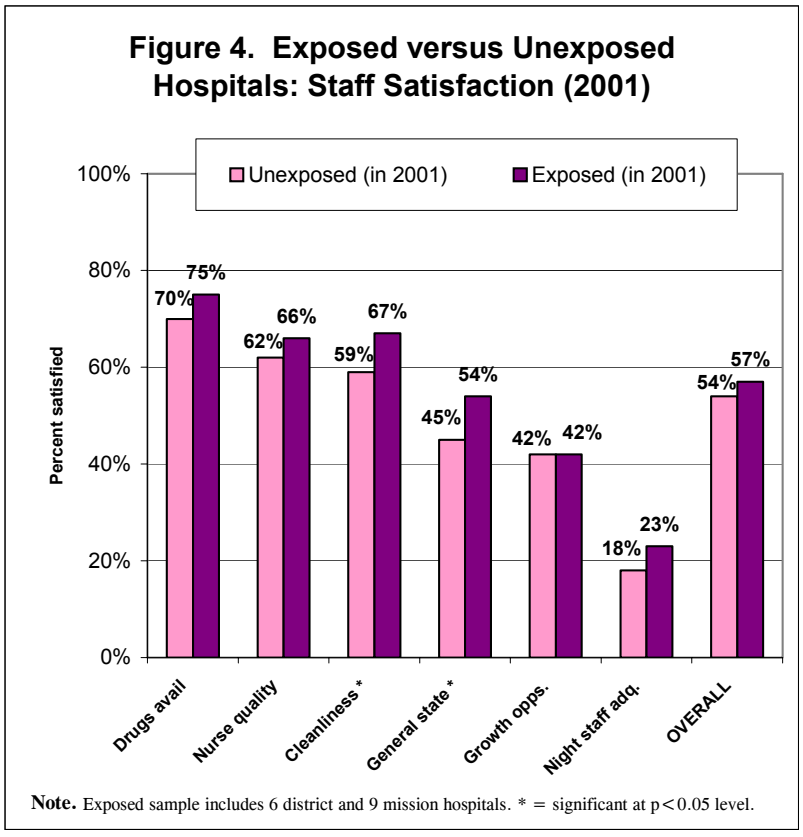
Figure 2. Exposed versus Unexposed Hospitals: Compliance with Accreditation Standards (2000-01)



Research indicators: Figure 3 compares the research indicator scores of the exposed and unexposed hospitals in 2001. Although the exposed hospitals scored higher than the unexposed ones in the seven of eight research indicators, the difference was statistically significant (at the 0.05 level) in only one, availability of essential drugs.



Staff satisfaction: Staff interviews found that satisfaction was slightly higher for every indicator at exposed hospitals than for unexposed ones: overall, from 57% compared to 54%. Figure 4 indicates this and shows the differences for each of the six satisfaction indicators.



C. HIGH- VERSUS LOW-PERFORMING HOSPITALS

We divided the 20 exposed hospitals into three groups on the basis of their scores in the seven functional areas of the first accreditation survey (2000–01): patient care, admission, pharmacy, environment, human resources, infection control, and quality assurance. Hospitals with a score of 60% or higher were assigned to the high-performing group, those with a score of 46–59% to the middle-performing group, and those below 46% to the low-performing group. Twelve hospitals were assigned to the middle group, and four each to the high and low groups. All six unexposed hospitals, which had scores ranging from 33% to 43%, would have been assigned to the low group. This analysis compares the difference between high- and low-performing exposed hospitals.

Table 7 shows some key characteristics of the high- and low-performing exposed hospitals. The measured attributes of a hospital's director do not seem to differ between these two groups, but the high-performing hospitals are substantially larger, measured in terms of number of beds, than low performers: 341 beds versus 89. High performers also have proportionately more nurses, but while they have more doctors and clinical officers, they don't have proportionately more in terms of number of beds. All general hospitals were high performers, and all district hospitals were low performers: Mission hospitals split between high and low.

Table 7. Characteristics of High- and Low-Performing Exposed Hospitals

Characteristic	High (n = 4)	Low (n = 4)
Hospital director is female	0 / 4	0 / 4
Hospital director is Zambian	3 / 4	3 / 4
Average years hospital director worked here	3.0 years	2.5 years
Average number of beds	341	89
Number of admissions in FY 2000	8550	2650
Staff at hospital:		
Doctors	7	2
Clinical officers	9	4
Nurses	110	20
Hospital category:		
District	0	2
Mission	2	2
General	2	0

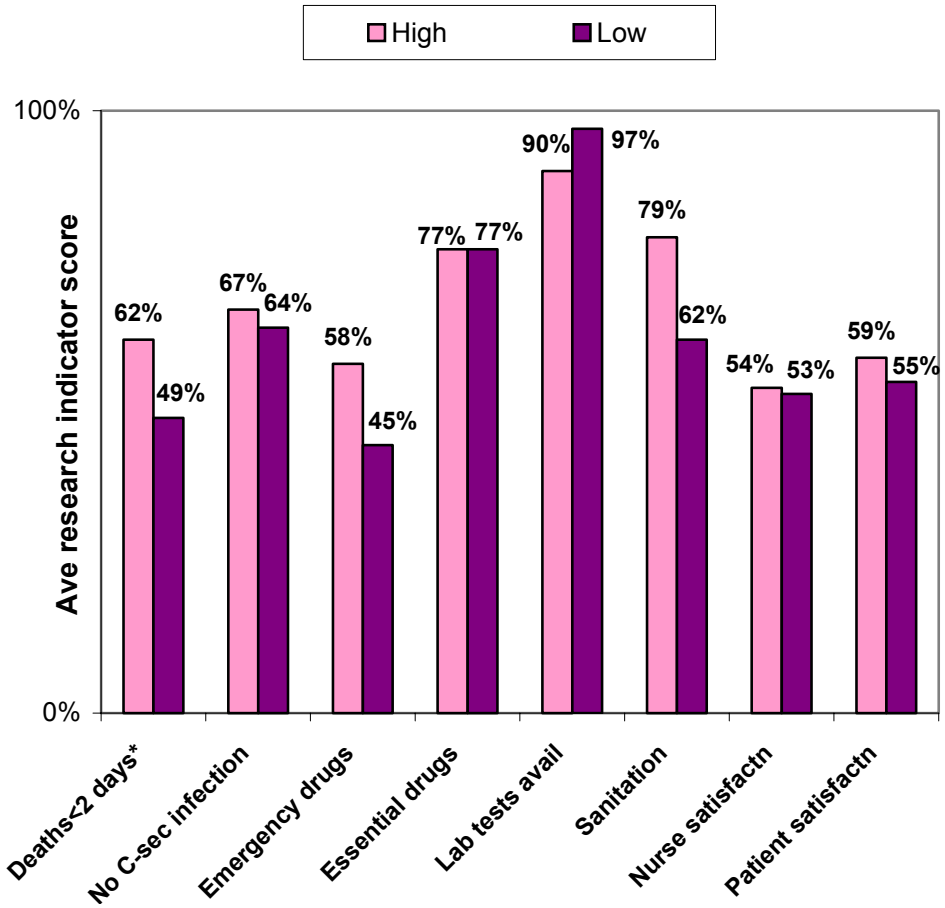
Table 8 shows how much higher the high-performing group was in each of the seven functional areas.

Table 8. Mean Accreditation Scores by Functional Area: Averages of High- versus Low-Performing Hospitals

Functional Area	High Performing (n = 4)	Low Performing (n = 4)
Patient care	87	66
Admission	73	51
Pharmacy	76	26
Environment	59	23
Human resources	73	59
Infection control	66	29
Quality assurance	43	12
Average	68	34

Do the accreditation scores correlate with the research indicator scores? If so, the indicators of the four high-performing accreditation hospitals should be significantly larger than the indicators

Figure 5. Research Indicators in High- and Low-Performing Zambian Hospitals



*"Deaths<2 days" is shorthand for "Death Rate < 2 days / All Death Rate in Hospital"

of the four low-performing ones. Figure 5 indicates that the research indicator scores are substantially higher in the high-accreditation score hospitals for some research indicators (deaths within two days of admission, emergency drugs, and sanitation), but not for others (C-section infections, essential drugs, availability of lab tests, and nurse satisfaction). The high-accreditation score hospitals were better than the low-accreditation score hospitals in six of the eight research indicators. The meaning of this result is unclear, in that it does not provide a basis for claiming that accreditation performance is causally related to the research indicators, as discussed below.

V. DISCUSSION

Twenty Zambian hospitals substantially improved their performance in achieving accreditation standards in one to two years after joining a facilitative accreditation program. Furthermore, the improvements were fairly consistent across hospitals and across different functional areas, although there was considerable variability. Although all types of hospital (district, mission, and general) started the accreditation program at about the same level of performance, general hospitals improved far more than either other type. With regard to variability, performance in patient care started high and went higher; the environment area started low and remained relatively low, while the human resources and infection control areas started low but nearly doubled.

At the time of the second measurement, compliance with accreditation standards was also measured in (but not fed back to) six comparison hospitals that did not participate in the accreditation program. The 20 hospitals exposed to the accreditation program substantially outperformed these six unexposed ones in all functional areas.

In addition to the measurements of accreditation standards, eight indicators of health outcomes and of healthcare quality were measured in the exposed and unexposed hospitals at about the same time as the second accreditation survey. Although the results favored the exposed hospitals, the findings were not so clear cut as with the accreditation standards. The health outcomes of deaths occurring within two days of admission and C-section infections were clearly lower in the exposed hospitals, but little difference was found in patient and nurse satisfaction between the exposed and unexposed hospitals. With regard to healthcare quality, availability of emergency drugs and sanitation were substantially higher in the exposed hospitals, but availability of lab tests was clearly higher in the unexposed ones, and the availability of essential drugs was the same in both.

Although these findings suggest that the accreditation program was having a positive impact, they do not provide incontrovertible evidence that it was. The study was plagued with methodological problems: First, the exposed hospitals were the first to enroll in the accreditation program, perhaps indicating that these hospitals were biased towards improvement. Second, factors other than the accreditation program could have accounted for improvements, although interviews with administrators suggest that the accreditation program was an important factor driving the improvements. Third, exposed and unexposed hospitals were different in some important ways. None of the unexposed hospitals were general hospitals, while five exposed hospitals were, and the general hospitals' compliance with the accreditation standards in the second survey was twice that of all other hospitals. Thus, the exposed hospitals' higher scores were due in part to the high-performing general hospitals in the exposed group.

In fact, compliance with the accreditation standards was still very low at the time of the second survey: Only two of the 12 participating hospitals received accreditation. In the second accreditation survey, the exposed hospitals only complied with about 48% of the accreditation standards on average. Thus, although improvement was substantial (from 36% to 48% compliance), performance remained low.

Did the accreditation program and improvement in compliance with accreditation standards (whether caused by the accreditation program or not) improve health outcomes and quality of care in the exposed hospitals? This relationship is complex. Many factors may influence the attainment of downstream process indicators of the quality of care and outcomes, and it may take a considerable time for these linkages to manifest in improvements of quality or outcome. Changes may become apparent only after a threshold of upstream achievement is reached (such as the requirements to achieve accreditation status) or after several years of improvements in compliance with accreditation standards. One to two years may not have been sufficient to reach such a threshold, and even more time might be necessary to demonstrate improvement. Many of the accreditation standards in the Zambia program (like other hospital accreditation programs) are not evidence based, and may not be causally linked to outcomes or even downstream process quality. To the extent that this is true, we would not expect compliance with accreditation standards to cause improvements in quality or outcomes.

This study highlights the importance of having a reasonably stable environment for research. In fact, the program was unable to achieve its original, ambitious goals. Many of the problems, such as a firm legal basis in Zambia that spelled out authority and responsibilities, are documented elsewhere (Bukonda et al. 2000). By rapidly adjusting itself to changes in the program, the research study was able to continue in fruitful ways. For example, when it became clear that the accreditation program would not roll out as rapidly as originally planned, the research team used unexposed hospitals for comparison and agreed to perform second accreditation surveys in eight hospitals. It also had to analyze around the loss of survey data due to the roof collapse. When the termination of all funding for the accreditation program brought the research study to a premature end, the research team worked with available data.

Interviews with exposed hospital managers suggest that the feedback of information about the performance of their hospital motivated them to find solutions. The fact that this was part of a facilitated but formal government program enhanced the use of the information. However, managers were not able to take improvement actions if those actions required funds (which they didn't generally have) or expertise that was not available to them.

We conclude from this study and the report by Salmon et al. (2003) that hospital accreditation programs in Africa can have a positive impact on hospital compliance with such programs. We believe this is especially true if they are facilitated programs that provide education, consultation, and technical assistance to the hospitals and offer a gradual and graduated sequence of steps towards accreditation. However, the impact of such programs on health outcomes is not clear from these studies, and more investigation into this issue is needed.

VI. REFERENCES

Bukonda N, Abdallah H, Tembo J, and Jay K. 2000. Setting up a National Hospital Accreditation Program: The Zambian Experience. *Operations Research Results* (1)8. Bethesda, MD: Published for the U.S. Agency for International Development (USAID) by the Quality Assurance Project (QAP).

Bukonda N, Tavrow P, Abdallah H, Hoffner K, and Tembo J. 2002. Implementing a national hospital accreditation program: The Zambian experience. *International Journal for Quality in Health Care* 14 (suppl 1):7–16.

Foltz AM. 1996. Policy analysis for the Zambian Ministry of Health, Independent review of the Zambian health reforms, Volume II, Technical report, Document No. 6724.

Rooney A and vanOstenberg P. 1999. Licensure, Accreditation and Certification: Approaches to Health Services Quality Evaluation and Management. *Quality Assurance Methodology Refinement Series.* Bethesda, MD: Published for USAID by QAP.

Salmon JW, Heavens J, Lombard C, and Tavrow P with foreword by Heiby JR and commentaries by Whittaker S, Muller M, Keegan M, and Rooney AL. 2003. The impact of accreditation on the quality of hospital care: KwaZulu-Natal Province, Republic of South Africa. *Operations Research Results* 2(17). Bethesda, MD: Published for USAID by QAP.

QUALITY ASSURANCE PROJECT
University Research Co., LLC
7200 Wisconsin Avenue, Suite 600
Bethesda, MD 20814

Tel: (301) 654-8338
Fax: (301) 941-8427
www.qaproject.org