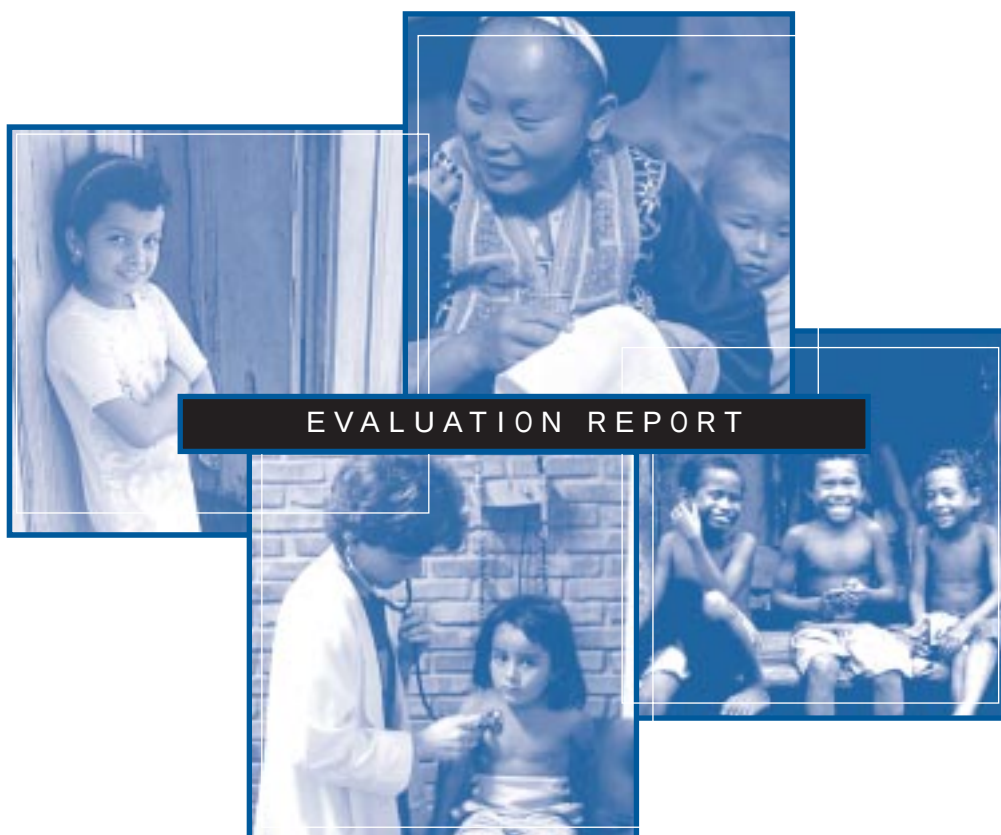


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The Niger QAP/BASICS Joint Project Final Evaluation



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The Niger QAP/BASICS Joint Project Final Evaluation

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About this series

The *Evaluation Report* series presents the findings, recommendations, and lessons learned of completed quality assurance (QA) evaluations in countries with long-term QA programs. An electronic copy of this publication may be found at qapdissem@urc-chs.com.

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Abbreviations and Acronyms

Acronym	Abbreviation	Translation (where appropriate)
ASV	Agent de Santé Villageois	Village Health Worker
BASICS	Basic Support for Institutionalizing Child Survival	
CCM	Combined Case Management	
CHD*	Centres Hospitalier Départementaux	Departmental Hospital Centers
CimeFor	Circonscription Médicale de Formation et de Recherche	Medical Division for Training and Research
CN	Consultation Nourrisson	Infant Consultation
CNSF*	Centre National de Santé Familiale	National Family Health Center
CPN	Consultation Prénatale	Prenatal Consultation
CRENA	Centre de Récupération et d'Education Nutritionnelle Ambulatoire	Nutritional Training and Rehabilitation Center
CRQ	Conseil Régional de Qualité	Regional Quality Council
CSI*	Centre de Soins Intégrés	Integrated Healthcare Center
DDS*	Direction Départementale de la Santé	Regional Health Directorate
DS*	District Sanitaire	Health Care District
EAQ	Equipe d'Assurance Qualité	Quality Assurance Team
ECD	Equipe Cadre de District	District Supervision Team
ENSP*	Ecole Nationale de Santé Publique	National School of Public Health
EPS	Education pour la Santé	Health Education/Training
ERPA	Evaluation Rapide de la Performance des Agents	Rapid Performance Assessment of Health Workers
ESV*	Equipe de Santé Villageoise	Village Health Care Team
IMCI	Integrated Management of Childhood Illnesses	
LANSPEX*	Laboratoire National de Santé Publique d'Expertise	National Public Health Laboratory
MEG	Médicaments Essentiels Génériques	Essential Generic Drugs
MPH*	Ministry of Public Health	
ONPPC*	Office National des Produits Pharmaceutiques et Chimiques	National Office for Pharmaceutical and Chemical Products
PEV	Programme Elargi de Vaccination	Extended Immunization Coverage
PF	Planning Familial	Family Planning
PMA	Paquet Minimum d'Activités	Basic Package of Services
PSF	Pharmaciens Sans Frontières	Pharmacists Without Borders

Acronym	Abbreviation	Translation (where appropriate)
QA	Quality Assurance	
QAP	Quality Assurance Project	
SMI	Santé Maternelle-Infantile	Mother and Child Health
SNIS*	Système National d'Information Sanitaire	National Health Information System
SPT	Stratégies Plainte-Traitement	Complaint/Treatment Strategies
SRO	Traitement de Réhydratation par Voie Orale	Oral Rehydration Solution
STD	Sexually Transmitted Disease	
VAD	Visite à Domicile	House Call
VAT	Vaccin Antitétanique	Antitetanus Vaccine
WHO	World Health Organization	

* These entities are described more fully in Appendix 1, Section 2

Abstract

This document reports on the final evaluation of the joint Quality Assurance/Basic Support for Institutionalizing Child Survival (QAP/BASICS) project in Niger, West Africa. The evaluation took place from October 25 to November 18, 1998.

The Quality Assurance Project (QAP) began introducing methods and tools for quality monitoring and quality improvement of district healthcare services in the Tahoua Department of Niger in 1993. In 1996 quality assurance was extended to the Boboye District in the Dosso Department to support the introduction of Integrated Management of Childhood Illnesses (IMCI: a program supported by the World Health Organization [WHO] to improve and standardize healthcare services for children). QAP and BASICS merged in Niger in 1997, and the resulting joint project supported the introduction of IMCI in the Konni District in Tahoua.

The evaluation team consisted of an expert from QAP, Center for Human Services; a specialist from BASICS; two from the Niger Ministry of Public Health, Niamey; and one from the U.S. Agency for International Development (USAID)/Niamey. The team visited two regional health headquarters, six district health headquarters, and 13 integrated health centers (CSIs). The team interviewed health officials and international partners, reviewed all relevant documents, and attended the October 1998 International QA Conference in Niamey, where the joint project's outcomes were presented.

The goals of the evaluation were to: (a) assess the degree of QA institutionalization and project achievements against anticipated results and (b) summarize lessons learned from introducing IMCI in a QA environment. The team found that:

- The joint project achieved over 90 percent of its objectives as detailed in its Technical Action Plan (TAP) and, in some cases, even exceeded expectations
- By taking advantage of the presence of QAP and BASICS in Niger, a unique opportunity was realized for USAID and its national partners. The merger reduced costs, and benefits were also realized locally, regionally, nationally, and internationally by applying QA measures to support the introduction of IMCI
- The QAP/BASICS project has trained 400 health workers in quality assurance skills. At the time of the evaluation, over 77 quality improvement teams had formed and had worked on about 120 problem-solving cycles in areas such as prenatal care, family planning, immunization coverage, and nutritional rehabilitation
- The project introduced a number of management tools that contribute to the support of IMCI. The new management framework used by healthcare workers and their managers provides indicators and a new environment for managing health organizations by allowing health workers to change their behavior and improve their performance. Staff motivation and interest increased through team activities and the task follow-up process

Executive Summary

This document reports on the final evaluation of the joint Quality Assurance/Basic Support for Institutionalizing Child Survival (QAP/BASICS) project in Niger, West Africa. The evaluation took place from October 25 to November 18, 1998.

The evaluation occurred after several changes in Niger's healthcare system were implemented: From 1993 to 1998, the Quality Assurance Project (QAP) worked in the Tahoua Department of Niger to improve the quality of healthcare. This included the introduction of methods and tools for quality monitoring and quality improvement of district healthcare services.

In 1995, an independent program called BASICS (Basic Support for Institutionalizing Child Survival) supported the Ministry of Public Health (MPH) in introducing Combined Case Management (CCM) for children in primary healthcare facilities. CCM contributed to the revision of national policies for diarrheal diseases, acute respiratory infection, and malaria, and assisted in reducing missed opportunities to identify sick children.

In 1996, QAP extended quality assurance (QA) methodologies to the Boboye District in the Dosso Department to support the introduction of the Integrated Management of Childhood Illness (IMCI), a program developed by the World Health Organization (WHO). In 1997, the U.S. Agency for International Development (USAID) merged QAP and BASICS activities in Niger to support the introduction of IMCI in a QA environment, beginning in the Konni District in the Tahoua Department.

The evaluation team consisted of an expert from QAP, Center for Human Services; a specialist from BASICS; two from the MPH; and one from the USAID/Niamey.

The goals of the evaluation were to: (a) assess the degree of QA institutionalization and QAP/BASICS project achievements against anticipated results and (b) summarize lessons learned from introducing IMCI in a QA environment.

At the start of the evaluation, the team attended the USAID-funded International QA Conference in Niamey, where the results of the QAP project were presented. Afterwards, they reviewed all relevant documents from the project; visited two departmental healthcare centers, six healthcare districts, and 13 integrated healthcare centers, interviewing individuals from all the centers, as well as QAP, BASICS, and other

international staff. The team also conducted two focus groups of women who used the healthcare facilities.

The following summarizes some of the joint project's most significant achievements. Greater detail is in the report.

Development of Standards

Various and numerous standards have been implemented in Niger since the early 1990s, some with QAP/BASICS support. The evaluation team discovered that it was difficult for health workers to manage the high number of clinical standards, which include child healthcare; family planning; clinical procedures for tuberculosis, malaria, and malnutrition; Complaint/Treatment Strategies; and, later, IMCI.

Some of the clinical protocols that were being used had different recommendations for the management of illnesses, depending on which organization created them and how. This caused confusion and lack of comprehension on the part of practitioners. QAP assisted the Nigerien healthcare system in developing a standard management procedures manual for the integrated healthcare centers (CSIs).

While CCM was controversial when it was first introduced in 1995, three years before IMCI, the evaluation team concluded that CCM had paved the way for IMCI.

Supervision

The project created trained supervision teams that can provide technical support to health facility staff. There has been limited success in achieving regular supervisory visits of district staff by the department-level Health Directorate (DDS).

QAP/BASICS also created a comprehensive supervision checklist. While this tool needs to be streamlined, it helps in conducting all-day supervisory visits. It brought about an important behavior change among supervisors: They accepted the checklist despite its weightiness, and its use improves health worker performance.

The concept of coaching facilitated the transformation of supervision from the traditional authoritarian style to a supportive problem-solving approach.

Quarterly Meetings

Quarterly meetings of two to three days' duration were established to permit a regular exchange of information between different levels in the department or district. This allows the teams to regularly present their work and results. The quarterly meetings facilitate: (a) good communication between department staff and the District Health Management Team (DHMT, staff who have taken oversight of QA activities as part of their regular responsibilities), (b) benchmarking¹ by the problem-solving teams, and (c) ongoing training through feedback provided at the meetings. The meetings also increase health workers' motivation.

Problem Solving

Though the problem-solving technique is rarely focused on clinical skills, it has increased the ability to identify problems and find solutions within healthcare staff in Tahoua and Dosso. Collecting, using, and analyzing data and brainstorming became common practices at the health facility and district levels. The problem-solving approach and specific QA tools (such as the selection matrix and flowchart) are now well known. The project encourages health workers to address problems at the local level first, using available means.

The focus on the patient/client changed many habits. Problem-solving sessions now target users' needs, requests, and satisfaction levels. However, provider satisfaction is not truly considered in attempts to improve quality.

An improvement made possible through the joint project was the development of a management framework with appropriate tools and indicators. This provides a new environment for managing health structures and facilitates improvements in health worker behavior. The motivation and consideration of staff have increased both from team problem-solving activities and from the sense that their ideas and efforts will receive follow-up. QAP/BASICS has created or contributed to teamwork, morale, and motivation in Niger's health system.

Process Design/Redesign

The team observed tentative success in process design/redesign, particularly with regard to offering all healthcare services during a single visit and in the implementation of postnatal consultations. However, this is an area where opportunities for improvement

abound, and strengthening this aspect of QA in Niger would significantly and positively impact the delivery of healthcare.

Cost Recovery

Cost recovery has clearly succeeded in improving the availability of essential drugs at health facilities. Since its introduction, there is ample evidence of fewer stock-outs and higher average monthly consumption rates. However, cost recovery has been associated with at least temporary drops in health facility utilization rates, including visits by children less than five years old.

Implementation of IMCI and Related Issues

The team found many areas that need improvement for IMCI to succeed. It learned that the IMCI working group had decided not to provide chronometers or routinely use IMCI forms (because of inadequate financial resources). The evaluation team suggests that the working group reconsider this decision, because the lack of these essential items, especially IMCI forms, could be detrimental to IMCI's success.

In addition to the IMCI form, health workers have to complete four other records for each sick child: the National Health Information System (SNIS) daily tally notebook, the Daily Register Book, the Cost Recovery Register and the Card of Care. These multiple records contribute to health workers' inability to complete the IMCI form for each child.

The team also learned that health workers and caretakers have difficulty complying with IMCI standards regarding the referral of very sick children and the need for patients to return to the health facility for follow-up visits. In addition, both the Konni and Boboye district hospitals are not prepared to act as effective referral centers due to a lack of equipment.

Furthermore, limited exit interviews with mothers suggested the need for improvements in the explanations they receive regarding the use of prescribed medicine and nutritional counseling.

Problems in the cold chain are eroding IMCI's benefits. While health staff are capable of checking children's vaccination status, children identified as needing vaccinations are not being vaccinated immediately in many health facilities.

The Rapid Assessment of Health Worker Performance (ERPA), implemented by the QAP/BASICS project, was designed to monitor healthcare worker performance with IMCI. It proved valuable in improving performance through the timely feedback of results. However, using it is time-consuming, and sustaining routine supervisory visits will be challenging, let alone this additional evaluation activity.

Cost Analysis

The evaluation team conducted an analysis of the project activities' recurrent costs. The joint QAP/BASICS project in Niger presented an opportunity to estimate and understand—at a programmatic level—the resources required to launch and operate a quality management system throughout an entire regional healthcare system. The team conducted a cost analysis to determine the cost of operating and sustaining various QAP/BASICS activities essential to a QA and IMCI program. These activities include:

- Training in QA and IMCI methodologies
- QA training of a local cadre of trainers
- Implementation of team-based problem solving at health facilities
- Supervision and coaching, including the implementation of a supervision checklist
- District and regional QA meetings

On average, the annual cost of sustaining these essential QA and IMCI activities for a district the size of Tahoua was projected to be approximately 3.1 cents per capita in direct costs. The team also determined estimates of individual essential QA/IMCI activities.

Findings and Recommendations

Assessing the degree of QA institutionalization and lessons learned from introducing IMCI in a QA environment, the team found that:

- The joint project achieved over 90 percent of its objectives as detailed in its Technical Action Plan (TAP) and, in some cases, even exceeded expectations
- By taking advantage of the presence of QAP and BASICS in Niger, a unique opportunity was realized for USAID and its national partners. The merger reduced costs, and benefits were also realized locally,

regionally, nationally, and internationally by applying QA measures to support the introduction of IMCI

- The QAP/BASICS project has trained 400 health workers in quality assurance skills. At the time of the evaluation, over 77 quality improvement teams had formed and had worked on about 120 problem-solving cycles in areas such as prenatal care, family planning, immunization coverage, and nutritional rehabilitation
- The project introduced a number of management tools that contribute to the support of IMCI. The management framework provides indicators and a new environment for managing health organizations by allowing health workers to change their behavior and improve their performance. Staff motivation and interest increased through team activities and the task follow-up process

The evaluation team developed 56 recommendations and organized them according to government level—ministry, department, and district—and further organized them according to area, such as IMCI, coaching, and sustainability. They appear in Table 7-1 at the conclusion of the report. (Some recommendations are repeated in the table because they affect more than one level.) To highlight some recommendations relating to specific areas of study by the evaluation team (such as improving IMCI and reducing training costs), several recommendations also appear in the discussions of those specific areas.

The Niger QAP/BASICS Joint Project Final Evaluation

I. Introduction

1. QAP/BASICS Project Activities

Quality assurance (QA) has gained widespread acceptance as a necessary goal of healthcare systems, particularly in the context of health sector reforms that seek to deliver cost-effective, equitable, high-quality services to priority populations. While many countries have articulated goals relating to healthcare quality, the development of structures and processes to support QA activities at the service delivery level is often limited.

1.1 QAP Scope and Objectives

The U.S. Agency for International Development (USAID) created the Quality Assurance Project (QAP) in 1990 to improve the quality of health, population, and nutrition services in developing countries through technical support to service provider institutions, USAID Missions, and field-based cooperating agencies. The Center for Human Services (CHS), the non-profit affiliate of the University Research Co., LLC (URC), has operated QAP since its inception.

In its first five years, QAP developed national and provincial quality assurance programs and stimulated QA interventions at the national, regional, and local levels in 16 countries and conducted training activities in another eight. During its second five-year phase, QAP is demonstrating the cost-effectiveness of QA interventions by establishing sustainable QA programs at the country level, undertaking operations research, and establishing accreditation programs and other regulatory mechanisms.

1.2 Tahoua QA Project

The Tahoua QA project began in April 1993. Through this project, USAID/Niger² sought to provide the government of Niger with both technical and operational assistance to improve the delivery of critical primary healthcare services in one demonstration region by institutionalizing and integrating a QA system. A QAP resident advisor directed in-country activities and worked directly with the Tahoua Health Director, his staff, and district healthcare personnel to accomplish project objectives.

The Tahoua project was designed with four main objectives:

- Identifying priority programs and determining the resources necessary to deliver a basic package of services (PMA)
- Introducing a QA system of management to healthcare delivery through QA training, clarifying and communicating clinical and management standards, and monitoring and implementing a process for preventing and correcting problems
- Improving the quality of family healthcare services by strengthening core support services, increasing effective coverage of the population with preventive services, and improving case management of the most prevalent conditions threatening the well-being of women and children
- Demonstrating the effectiveness and feasibility of quality management strategies by assessing the application of QA interventions, analyzing their impact, and disseminating findings

¹ For background information on Niger, see Appendix A.

1.3 The BASICS Project

The Basic Support for Institutionalizing Child Survival (BASICS) project is an international public health project started in 1993 and ending in 1999. USAID funded BASICS with the purpose of providing technical leadership to reduce child mortality and illness worldwide. The project applies cost-effective child survival interventions in six programmatic areas:

- Sustaining immunization programs
- Integrated Management of Childhood Illness (IMCI)
- Strengthening the link between nutrition and health
- Promoting and sustaining healthy behaviors
- Improving techniques for monitoring and evaluation
- Establishing public/private partnerships

The BASICS technical agenda is driven by a model—the Pathway to Child Survival—that identifies a wide range of factors, inside and outside the home, that play a critical role in a child’s well being. The Pathway recognizes the essential role of mothers as a primary source of disease prevention and early disease recognition. It reveals that the child’s survival depends on a number of factors, including the mother’s ability to adopt certain behaviors, such as breast-feeding and the vaccination of their children. It highlights the mother’s key role in the early detection of child sickness and care seeking. It emphasizes the importance of the quality of care received and health workers’ ability to detect danger signs and take correct and quick action.

BASICS-supported programs in over 30 countries use the Pathway to Child Survival to support policies and interventions aiming at improving mothers’ and community behaviors, improving the quality of care provided by public and private health providers, and building the capacity of health systems and local communities to sustain child survival interventions.

BASICS supported the Niger’s Ministry of Public Health (MPH) in applying Combined Case Management (CCM) for children in primary healthcare facilities. CCM contributed to updating national policies for diarrheal disease, acute respiratory infection, and malaria. It assisted in reducing missed opportunities to identify sick children and was a prelude to the introduction of IMCI.

1.4 Description of QAP/BASICS Activities in Niger

Since early 1997, the joint QAP/BASICS project interventions in Niger focused on the possibility of revising the approach to the improvement of child healthcare services at the district level. The Konni District (Tahoua) and the Boboye District (Dosso) were selected for QA/IMCI project interventions on the basis of the availability of essential drugs and the interest shown by District Supervision Teams (ECDs).

To reinforce the institutionalization of the QA concept and develop and test a model plan to improve the integrated management of childhood illnesses, the following activities were implemented:

- Strengthening district-level management capacity
- Implementing cost-recovery systems in both districts
- Training in basic QA
- Developing methods and tools for quality, training, supervision, and handbook evaluations
- Adapting and communicating standards
- Monitoring and evaluating progress

2. Pre-Project Assessment

There was no baseline assessment of the Tahoua or Boboye healthcare systems before QA activities began, but it is known that even minimal thresholds of appropriate standards were not in place. Norms and standards were unknown to the health workers. Regional supervisory competence was lacking, and there were no ECDs in most districts. Healthcare workers could receive training only along vertical programs—there were no regular meetings for the exchange of information and problem solving. In addition, many of the health centers did not have the essential equipment to implement the PMA, and cleanliness in most facilities was largely unsatisfactory. Table 1-1 presents several baseline indicators that were used to measure improvements in outcomes during the QA interventions.

3. Results Summary

The global results expected by USAID for this program are that the “child survival research project be completed and the results provided to the other African countries.” The QAP/BASICS project has therefore concentrated its efforts on reaching the following two objectives:

3.1 TAP Objective Number 1

Institutionalize quality assurance in two districts in Tahoua and one in Dosso. Strengthen the ECDs' management capabilities; revitalize problem-solving teams; support and strengthen cost-recovery activities in the Konni, Illéla and Boboye Districts.

The objective was reached or exceeded in every case:

- ECDs and health committees are in place and operating in two districts
- There is a qualified trainer in each of the nine ECDs
- All the target districts have monitoring and evaluation plans that are reviewed every six months
- Health workers and the community use the QA concept and tools for planning and problem solving in the rural health centers in all target districts
- The QA concepts manual of standards and tools has been tested and implemented in other African Francophone countries
- Supervisory and quarterly meetings are held in the target districts
- A management system has been implemented to organize the MEG (essential generic drugs) inventory and routine support activities

3.2 TAP Objective Number 2

Review, test, and distribute in Niger and the surrounding countries a model to improve the management of childhood illnesses (IMCI) at the district level. Improve the health workers' skills in IMCI. Disseminate in Niger and the surrounding region the materials produced and lessons learned from the QA/IMCI approach.

This objective was also reached or exceeded in every case:

- Performance standards for IMCI are communicated and implemented by district supervisors and health workers
- Tools and rapid evaluation methods are available to ensure quality of medical care and identify problems in child survival services
- ECDs trained in supervisory techniques have improved their supervision skills
- Health workers in the target districts are familiar with QA lessons learned and IMCI

Table 1-1
Baseline Indicators: Tahoua Department (SNIS 1993)
versus Year 200 National Objectives

Baseline Indicators	Tahoua (%)	National Objectives (%)
Health Care Coverage	26	45
Curative services utilization rate	30	50 urban, 30 rural
Immunization coverage for measles	24	100
Immunization coverage for BCG	35	100
Fixed return rate for DTCP3/DTCP1	63	100
Family planning services utilization rate	5	7
CN coverage rate (0 to 5 km)	58	75
CPN coverage rate (0 to 5 km)	63	75
Recovery rate—CRENA	14	Not provided
Withdrawal rate—CRENA	15	Not provided

BCG and DTCP3/DTCP1 are immunizations recognized as essential to child health
CN: Infant Consultation
CPN: Prenatal Consultation
CRENA: Nutritional Testing and Rehabilitation Center

- The case studies, lessons learned, development of standards, procedural improvements, activity analyses, and all other QA documentation can be duplicated in Niger and other African Francophone countries
- The national protocols for IMCI include lessons learned and procedures from the QAP/BASICS project
- An international conference was held in the project's second year to disseminate lessons learned from the approach that combined QA and CCM techniques in the field

The evaluation team established that the joint project contributed to the development of several elements that support quality healthcare in Niger. These are presented in Table 1-2.

4. Cost Recovery

Cost recovery in primary healthcare was implemented in the Boboye District in 1993. A prepayment system (a mix of revenues from local taxes and consultation fees) was initially implemented. In late 1997, this system was changed, having been found to be insufficient and inefficient, to a system where patient fees are the

Table 1–2
Key Data from the QAP/BASICS Project

Elements Supporting Quality Healthcare	Quantity or Percentage
People trained in basic QA techniques	400, including 10 qualified trainers
People trained in IMCI	39, including 7 trainers
Health Centers with at least 2 IMCI-trained agents	14 out of a total of 18
Problem-solving teams formed	77
Completed or active problem-solving cycles	120
Regional quality council	1
Subregional quality councils in place	9
Quarterly meetings held at the Regional Health Directorate	17
Quarterly meetings held at the district level	108
Supervisory teams formed	9
Department and district supervision operations held	116
Health centers fully equipped in conformity with standards	85%
Participation in International Society for Quality Assurance in Healthcare (ISQuA) meetings, 1993–98	4 times
QA conferences held	2 (1995, 1998)
Cost of a basic QA training session	\$US 230 per worker
Cost of an IMCI training session	\$US 430 per worker
Cost of supervision	\$US 28 per visit
Cost of coaching	\$US 18 per visit

only source for cost recovery. The Konni District implementation began early in 1998 under the new system. Fees for services were set based on the average cost of visits and people's ability to pay. The intent of cost recovery is to replace essential drugs, including IMCI-designated drugs, and minor supplies such as forms and other documents. In addition, revenues are to be used to cover the salary of a stockkeeper, who is selected with community involvement.

Revenue that each integrated healthcare center (CSI) collects is sent to the district level and deposited in a common bank account. CSIs obtain their drug supply from a district level pharmacy through a monthly order. The pharmacy then charges the cost of the monthly order to the cost recovery account. District stocks at the pharmacy are replenished from a central stock at the National Office for Pharmaceutical and Chemical Products. (Initial stock was provided to districts through a grant from different donors.)

The National Program of Support for Primary Healthcare established a data collection system on cost recovery activities. With this system, the facilities can calculate the average cost of a prescription and the recovery rate, among other indicators.

II. Final Evaluation: Objectives of the QAP/BASICS Project

1. Evaluation Background

The goals of the joint QAP/BASICS project final evaluation were to:

- Evaluate the level of success with respect to the anticipated results as detailed in the Technical Action Plan (TAP)
- Interpret these results to determine lessons learned from this experience
- Make recommendations that will help the project expand into other departments in Niger and neighboring countries that are interested in introducing IMCI in a QA environment

Development of the QAP/BASICS project 1997–98 TAP was guided by the USAID/Niger's objectives, which are to:

- Increase the use of healthcare services for mother and child health
- Reduce infectious diseases and medical hazards
- Improve control measures for HIV/AIDS

QAP/BASICS aspects that were evaluated included:

- Communication of standards and compliance with procedures of clinical and nonclinical standards
- Use of QA methods
- Efficiency, coverage, and increase of local efforts for QA
- Assessment of health worker skills
- Cost analysis of the main activities
- Results observed and lessons learned from the healthcare viewpoint
- Program monitoring and management

2. Evaluation Summary

The QAP/BASICS project's TAP was used as a foundation for the evaluation. Table 2-1 highlights the activities that met and often exceeded the objectives and subobjectives in the TAP.

3. Evaluation Method

The evaluation team consisted of five members, including four doctors who specialize in public health (two from the United States and two from Niger who were appointed by the MPH) and a health program assistant from USAID. The team worked for three weeks following this schedule (Details are in the Schedule of Visits, Appendix B):

First week in Niamey:

- Participation in an international conference on QA and the management of childhood illnesses
- Prepare for field visits

Second week in Tahoua:

- Field trips and visits in the Tahoua Department: DDS, Tahoua, Abalak, Illéla, Konni, Madaoua Districts

Third week in Dosso:

- Field trips and visits in the Dosso Department: DDS, Dosso and Boboye Districts
- Complete final report
- Deliver draft report and debrief the Secretary General of the MPH

At the beginning, the team had access to all documentation and reports produced by the project. The team also received communications/proceedings from the International QA Conference.

The team divided into two smaller teams to interview all personnel involved in the QAP/BASICS project

Table 2-1
TAP Expectations Compared to Activities

Objective 1	Subobjectives	Activity and Status
Institutionalize the QA concept in 2 districts in Tahoua and 1 district in Dosso	Reinforce the ECD's management capabilities	Three ECDs were trained in QA/IMCI in Konni and Illéla (Tahoua) and in Boboye (Dosso). Community health management committees were established and are operational in these districts. There are at least 4 qualified QA trainers in each of the 9 ECDs; for example, there are 5 QA trainers in Konni, and 4 each in Illéla and Boboye. For IMCI, there are 3 trainers in Boboye and 4 in Tahoua. The target districts have 3-month supervision plans and monthly coaching plans for the CSIs. However, department-level supervision of the districts is conducted every 3 months in Dosso and only twice a year, at best, in Tahoua.
	Revitalize the problem-solving teams	The health workers and community use QA concepts and tools for planning and solving problems at the CSIs in 2 target districts. However, the evaluation team observed the community's irregular involvement in certain places. There were 120 active problem-solving cycles relating to the PMA. Another 27 cycles were started but ceased before resolving the problem. The QA concept standards manual and tools were tested and released in Mali, the Ivory Coast, and Burkina Faso but have not yet been implemented.
	Support and reinforce cost recovery activities in Konni, Illéla and Boboye	Management committees were established in all the CSIs in Konni, Illéla, and Boboye, with a stockkeeper recruited by the community and paid through cost recovery. Once a month, the management committee inventories the essential generic drug stock at the CSI level and prepares purchase orders. Each month, the stockkeeper deposits the funds collected in a community bank account. The supervisory visits and quarterly meetings are conducted and organized every 3 months in the 3 target districts.
Objective 2	Subobjectives	Activity and Status
Review, test, and disseminate in Niger and West Africa a model to improve the management of childhood illnesses (IMCI) at the district level	Improve health workers' performance in IMCI evaluation, treatment, and counseling techniques in the target area	Workers from 18 CSIs in Konni and Boboye were trained in IMCI. IMCI forms are available to help them understand comprehensive care management for sick children. Standards were communicated and implemented through training modules by national and district supervisors. ERPAs were conducted in October 1997 in Konni and Illéla and in June 1998 in Konni, Illéla and Boboye. Feedback from the ERPAs was systematically provided to workers. Three ECDs trained in supervisory techniques were able to effectively improve their performance with the introduction of new tools, such as the supervision checklist. It has been tested and is being validated.
	Disseminate in Niger and the region the materials produced and lessons learned from the QA/IMCI approach	The health workers in Konni and Boboye are familiar with the QA lessons learned and were recently trained in IMCI. Staff in Illéla have not yet received this training. The case studies, lessons learned, development of standards, improved procedures, activity analyses, and all other QA documentation are being duplicated in Niger in the (nonproject) departments of Zinder, Diffa and Tillabéry and in eight Francophone African countries. The system to implement national protocols for IMCI includes lessons learned and beneficial procedures from the QAP/BASICS project, such as supervisory and problem-solving systems, data analysis and processing, the ERPA, and cost recovery management techniques. An international conference on QA was held in Niamey from October 26–28, 1998, and brought together more than 200 participants from 8 countries in the region: Benin, Burkina Faso, Burundi, Ivory Coast, Guinea-Conakry, Mali, Senegal, and Togo.

Table 2-2
Timetable of Major Healthcare Developments

QA	Year	BASICS and Other
QA introduced in Tahoua at the CSI and district levels	1993	Cost recovery introduced in limited areas
QA training begins	1994	
QA training of CSI supervisors QA conference in Tahoua	1995	BASICS introduced
QA training continues QA introduced in Boboye	1996	CCM introduced in Boboye and Say Districts
Training of trainers Start of joint QAP/BASICS project Introduction of supervisory checklist 1 st ERPA	1997	Cost recovery starts to be introduced in Konni, Illéla and Boboye
2 nd ERPA International QA conference in Niamey Evaluation 3 rd ERPA	1998	Cost recovery continues to be introduced in Konni, Illéla, and Boboye IMCI introduced in Konni and Boboye

at the QAP, BASICS, and department levels and at the districts and CSIs. This included:

- Two DDSs: Tahoua and Dosso
- Six districts: Tahoua, Abalak, Illéla, Konni, Madaoua and Boboye
- 13 CSIs

The team interviewed approximately 60 people, covering all levels of the healthcare system, using a, multi-level questionnaire of about 110 questions covering different aspects of QA (see Appendix E). The team designed the questionnaire at the beginning of the mission and revised it with use.

In Illéla and Konni the team organized two focus groups of women who had used health services (Chapter III, Section 9). Case studies were also prepared (Chapter III, Section 8). To validate overall results and proposed recommendations, the team presented a preliminary report to the MPH General Secretary and other partners on the last day of the evaluation.

The evaluation team focused on:

- Documenting the benefits of QA institutionalization and integrated aspects of the joint project
- Documenting the aspects that helped strengthen health worker qualifications and increase their motivation

- Evaluating how the different tools and standards were introduced and how they have helped integrate the QA and IMCI approaches

4. Evaluation Report Structure

This report opens with an introduction that focuses on the health system in Niger as it has been impacted by QAP, BASICS, and IMCI. This chapter, Chapter II, more specifically views the two QAP/BASICS objectives and other issues that were studied by the evaluation team. It also outlines the team's methodology.

Chapter III focuses on QA institutionalization (TAP Objective 1) in general in the Tahoua and Dosso Departments, taking into consideration all technical aspects, including problem solving, tools, teamwork and productivity, and recommended and implemented solutions. It presents an analysis of results observed from QAP/BASICS in 1997–98; compares two CSIs (one with QA and one without); and provides tables showing changes in service utilization rates, three case studies, and the results of two focus groups.

Chapter IV focuses on QA and IMCI operational research (TAP Objective 2) that began in 1997 in Konni and Boboye. It responds to two important questions: Did IMCI achieve its objectives using QA tools such as problem-solving methods? How did the QA methods make the IMCI training more effective?

Chapter V presents the dissemination of QA activities throughout Niger and in West Africa and beyond. Chapter VI details the costs of QAP/BASICS activities in Niger; this work asked two main questions: What is the cost for each intervention, such as QA and IMCI training, supervision and coaching? And how can continued financial support be assured? (Cost details are in Appendix H.) Finally, Chapter VII has the evaluation team's conclusions and recommendations.

5. Limits of the Project Evaluation

Considering the time allotted to the team (two weeks in the field), the total duration of the QA project (five years), and the QAP/BASICS project (two years), the evaluation does not claim to have made an exhaustive analysis of project performance and results. Rather, the evaluation first gives a broad view of QA accomplishments and then highlights the joint QA/IMCI experience in the Konni and Boboye districts. The results analysis is made cautiously because of the interaction of many factors and other projects that may have influenced the results.

III. Institutionalization of the QA Concept (TAP Objective Number 1)

1. Standards: Background

Achieving customer satisfaction regarding service quality requires compliance with standards and eligibility criteria, yet the evaluation team discovered that Nigerien health workers had difficulty managing all the clinical standards in place (see Table 3-1). In addition, some of the clinical protocols differ depending on the model, which leads to confusion and lack of comprehension on the part of practitioners.

1.1 Development of Standards

At the national level, the MPH developed a document that specifies Mother and Child Healthcare/Family Planning (SMI/PF) standards.

At the Tahoua Department level, a team established an annual SMI/PF action plan, ensured follow-up of the different SMI/PF programs, helped the DDS elaborate and implement its action plans, ensured ongoing staff training, and collected and analyzed district-level data.

Handbooks that stressed the correct clinical procedures were developed for the case management of malaria, malnutrition, and tuberculosis, and to help correctly determine a child's age. Refresher training needs were identified to strengthen health workers' capabilities to comply with standards.

Since 1993, there have been guides on Complaint/Treatment Strategies (SPT) of the algorithmic type that are used in all health facilities. These guides help not only to standardize treatment but also to streamline the use of drugs. They are periodically reviewed, taking into account instructions from vertical programs and the users' viewpoints. The last SPT review took place in late 1998. Its effectiveness is easy to understand: It is an older model and many health workers are still using it.

The DDS and the districts in Tahoua Department prepared and distributed a document, "Standardized Management Procedures Manual," for the CSIs, coaches, and supervisors at all the department's health facilities. This simple and practical summary guide covers several essential aspects of healthcare service delivery, such as administration, finance, standards, relationships with the

**Table 3-1
Existing Standards for Patient Management and
CSI Administration**

Department Unit	Available Standards and Guidelines	Source	Year
Child Health and Development	Child Health Care/ Family Planning (SMI/PF)	MPH	1993
	Handbook of Clinical Procedures for TB, malaria and malnutrition cases	MPH	1995
	Complaint/Treatment Strategies (SPT)	MPH	1993, revised in 1998
	Combined Case Management	BASICS/MPH	1995
	IMCI	WHO/MPH/BASICS	Mid-1998
CSI Management	Standard management procedures manual (administration, finance organization and health policy)	QAP/MPH	1996, revised in 1998

WHO: World Health Organization

community, healthcare organization, and health policy in Niger. QAP contributed to its production and, by training health workers, to distribution to the CSI level. It was revised in 1998 when IMCI was being introduced, which added to some existing confusion.

1.2 Communication of Standards

Standards are usually communicated during quarterly meetings and supervisory visits. Initially, QAP had no plan to establish specific training for the implementation of national standards. The IMCI training that began in August 1998 was based on WHO guidelines and was an eleven-day, full-time course. BASICS-Niger financed IMCI training sessions in Niger.

1.3 Recommendations on Developing and Communicating Standards

The evaluation teams recommends that at the national level, Niger should:

- Develop an official list of existing and compatible standards and guides for SMI and CSI management
- Determine which types of standards and protocols should be replaced with more adaptable models
- Release this list for use as a reference

2. Implementing and Monitoring Standards

In 1993, the DDS decided to develop a set of follow-up indicators based on data provided by the SNIS, the PMA, and Niger's healthcare priorities. QAP participated actively in the development and regular systematic use of these indicators by health workers.

2.1 Supervision

Before QAP began in 1993, supervisory activities were either nonexistent on the regional level or conducted through MPH vertical programs. Six months after the project began, the newly established Regional Quality Council (CRQ) identified supervision as the main vehicle to introduce and strengthen QA and improve the quality of healthcare.

A survey brought to light problems hindering supervision in the Tahoua Department, including:

- Insufficient standards and procedures for supervisory activities
- Lack of supervisory skills and lack of task delegation by the chief doctor
- Inadequate logistics
- Lack of coordination between the different hierarchy levels
- Lack of qualified personnel
- Insufficient activity planning
- Inadequate time on the part of the chief doctor who was the only supervisor

Faced with this situation, QAP asked the DDS in Tahoua to improve the supervisory system. The first quarterly department meeting took place in Konni October 9–11, 1993, and a supervisory policy was established. A document was developed listing the following essential elements:

- Definition of supervision
- Objectives of supervision
- Methodology
- Supervisory organization and planning
- Supervisor's profile and functions

- Composition of the supervisory team at each level
- Frequency and duration
- Activities to supervise
- Writing standards for the supervisor's report

Once the supervisory policy was established, QAP encouraged the DDS to create a supervision system. Some measures taken to reach this objective were:

- Staff was trained in supervisory techniques. The project now includes trainers as well as supervisors. Each healthcare district (DS) has at least four supervisors who are ECD members
- A local management team was organized in each district. These teams formed the basis of the ECDs. Out of the eight DSs in Tahoua, six complete teams are now in place with two doctors, a manager, a communicator, and an epidemiologist. Only the DSs in Abalak and Illéla (both in Tahoua Department) and Boboye (Dosso) have incomplete teams. All the ECDs have been trained in QA, coaching, and supervisory techniques
- Health worker training in technical equipment and inventory management was begun. QAP first established an inventory of the entire existing equipment in the CSI, and then compared it with technical requirements before ordering necessary supplies. A stock management system for the equipment was developed and includes inventory and distribution. The team found a complete technical inventory in all the healthcare facilities it inspected
- The car pool management system was strengthened. (However, it remains limited because of logistical problems that are hindering the supervisory system in both Tahoua Department and Boboye District.)
- Management standards and a PMA have been drafted, adopted, and disseminated. In all the health training centers inspected (in Tahoua Department and Boboye District), the team found a large stock of documents on standards (SMI/PF, SPT, IMCI, etc.)

"I believe that supervision is an excellent opportunity for personnel improvement."

A District Health Management Team Member

2.1.1 The Supervisory System

The project has worked collaboratively with MPH staff at the departmental and district levels to establish a structure for the supervision system. The department is expected to make supervisory visits to the districts every six months, and the districts are expected to make such visits to the CSIs every three months. While department staff have not been successful in fully implementing their supervisory visits, the district staff have. In addition, several information collection visits by both levels have occurred and may well be functioning at least partly as supervisory visits.

Interviews with CSI health staff revealed improvements from supervisory visits. They reported that the visits have helped them acquire the needed technical and financial support from the district staff, which contributed to improved operations and greater staff confidence and motivation.

2.1.2 Challenges Facing the Supervisory System

The most obvious challenge to the supervisory system is its sustainability after the project ends. The project has financed supervisory training and transportation costs. Unless this responsibility is transferred to other health partners, it is unlikely the system can continue. The project has started a dialogue with the MPH and its international partners to facilitate transferring the financial responsibility to other donors. While a number of donors have expressed interest, a specific plan has not yet emerged.

The evaluation team solicited health workers' ideas on how to ensure the supervision system's financial sustainability after the project ends. A number suggested using some cost recovery funds for transportation costs. This idea is worth exploring, but the evaluation team recommends caution because the goal of cost recovery is to fund the cost of essential drugs. Adding other costs could overburden the system, generate pressure to raise consultation fees, and thereby cause reductions in the use of health services.

The other aspect of the supervision system's sustainability is its technical sustainability: the staff's capacity to maintain the system after the project ends. The evaluation team found the staff's technical capacity reassuring at the district level, especially in Konni. However, there is always the risk that trained staff will transfer to other posts, leaving gaps in the supervision system. The MPH's commitment to QA could be crucial in ensuring that trained health staff are not transferred into districts without a QA system in place, which would likely result in loss of effectiveness. Also,

QA training must continue both to maintain the skills and motivation of trained staff and to train new staff.

2.1.3 Strengths and Weaknesses of the Supervisory System

Table 3-2
Supervisory System Strengths and Weaknesses

Strengths	Weaknesses
High health worker motivation	Insufficient strategic support from the head office
Frequent identification of problems and problem solving at the local level	Frequent breakdown of supervisory vehicles
Better communication between the different levels of the health care system	Lack of response to some requests expressed at the CSI level
Adequate frequency of supervision of CSI by the ECD	Irregular frequency of supervision of DS by the DDS
ECD's involvement	Insufficient feedback from the DDS to the DS
Timely correction of practices	Insufficient archiving and documentation system
Having a specific tool: the checklist	

2.1.4 Recommendations for Improving the Supervisory System

To improve the supervisory system:

- The frequency of supervision must be followed closely at each level of the healthcare system. The institutionalization of a follow-up system for recommendations and solutions during supervision at the CSIs must be quickly implemented at the departmental level. A debate on continuous supervision, in general, and possible co-financing by cost recovery must begin soon.
- All ECD members must receive supervisory training
- Regular evaluation of completed supervisions must be organized
- The DS must have well-maintained vehicles at its disposal to be able to complete all planned supervisory activities. (These vehicles need not be used exclusively for this work.)

2.1.5 Supervision Checklist

Following recommendations from the November 1997 evaluation of the supervisory system in the Tahoua Department, a supervision checklist was developed, modified, and tested for six months in the DS. The idea for the checklist came from one that a BASICS consultant had designed for the Madagascar health system.

This tool includes numerous sections that help assess the overall PMA services. It includes sections on IMCI, prenatal consultation, maternity, postnatal consultation, infant consultation and the Nutritional Training and Rehabilitation Center, extended immunization coverage, family planning, STD/AIDS consultations, and an exit interview to use with women clients. Cost recovery, QA, community participation, equipment, supplies and procurement, log books, monthly reports, and posters are covered.

The checklist was to be evaluated in December 1998 (after the end of the QAP/BASICS project); however, it applies only to the DS supervision of the CSIs. Another two-page checklist is being developed for supervision of the districts by the DDS. Users at various health training centers provided the comments presented in Table 3-3.

Table 3-3
Strengths and Weaknesses of the Supervision Checklist

Strengths	Weaknesses
The checklist is easy to archive.	The present checklist is too long.
Supervision is made easier with the checklist, even by a supervisor who is not trained in supervisory techniques.	It takes too long to complete, especially the section on the patient interview. It requires at least 2 supervisors to conduct a complete supervision of a center in a single day.
The QA section is simple to use and helps follow the teams' work.	The cost recovery section does not match the cost recovery systems in place in the Tahoua Department (initiative taken by Bamako in Madaoua, Pharmacists Without Borders system in Abalak).
The most important sections apply to IMCI and community participation.	It can be tested only for on-going activities on the day of supervision; using the entire document would require more than a day.

"The checklist is a good guide but it is not easy to use."

A Project Supervisor

3. Quarterly Meetings

3.1 Purpose

Quarterly meetings were established to provide opportunities to reflect on and exchange information between the different health training centers within one department or district. Before QAP started in 1993, meetings were irregular or nonexistent. Starting in August 1993, with the DDS agreement of Tahoua, QAP decided to focus on the quarterly meeting system as previously established for supervision.

Quarterly meetings are held at two levels:

- Department coordination meetings of all district head doctors and department-level staff
- District coordination meetings of the CSI managers of a given district with their ECD

A record of each meeting, including important resolutions and recommendations, is forwarded to the external health facilities and the head office. Problems discussed during these meetings pertain to all aspects of the PMA, health center administration, and management. Solutions to a number of problems show how important these meetings are for the problem-solving process to work. Table 3-4 provides an overview of identified problems in two districts by activity and suggested solutions.

3.2 Main Accomplishments

Quarterly meetings facilitate communication and cooperation between the department and district supervisory staff. Specifically, they generate the following benefits:

- Systematic review of changes in the PMA and SNIS follow-up indicators, which helped develop a database on PMA activities and QA cycles, which fostered a better exchange of information and data collection
- Communicating the positive experiences from one district or CSI to another within the same department or district
- Disseminating the Tahoua and Dosso Departments' experiences to other Nigerien departments when representatives from other departments attended
- Adoption and communication of standards
- Health worker training and self-evaluation

4. QA Cycles and Process Improvement

4.1 Review

The QA cycle includes ten steps that focus on three essential elements: quality design (steps 1 through 3), quality control (step 4), and quality improvement (steps 5 through 10), as shown in Figure 3-1.

The Quality Assurance cycle consists of ten steps that can be characterized as having three components: quality design (steps 1 through 3), quality control (step 4), and quality improvement (steps 5 through 10).

4.2 QA Training at the DDS, ECD, and CSI Levels

The objectives for training seem to have been reached at the ECD and CSI levels. At each district that the team visited, all ECD staff members had received at least QA training (i.e., basic training, coaching, and supervision). A considerable effort had been made by the entire QAP team to create a critical QA mass at the department level. The high number of trained staff partly explains the quality of teamwork and why less-than-optimal worker mobility did not impair problem-solving results. An intensive, ongoing training activity proved to be both worthwhile and necessary. The length of the basic QA training course was increased from five to seven days in 1997, which was appreciated by all individuals surveyed. The basic QA training manual (especially the 1997 version) is viewed as clear and easy to read.

Overall, 520 health workers were trained. From 1993 to 1996, 320 workers received training in QA, coaching, and supervision. From 1997 to 1998, 200 workers were trained in the joint project: 110 health workers (including 10 qualified QA trainers) were trained in fundamental QA techniques; 43 were trained in checklist techniques; and 39 health providers (including 6 trainers) received IMCI training (see Table 3-5).

- In the Tahoua Department, training conducted since 1993 led to the creation of 68 problem-solving teams (over 98 percent of CSIs with trained staff had teams)
- In Boboye (Dosso), eight problem-solving teams were trained and formed since 1996 (CSI coverage of 80 percent)

More information on QA training by year and by entity is shown in Table 3-6.

Table 3-4
Examples of Problem-Solving Activities

District	Activity	Problem	Solution	Meeting Date
Abalak	PMA Completing a form	Lack of integration Incomplete reports and forms	Integrated activities CSI sessions for form completion	April 1997 July 1997
Madaoua	Curative activities CPN	Low utilization rate Low consultation rate at 9 months	Raising awareness, availability of MEG Operational research	First quarter 1997 Second quarter 1997

Figure 3-1
Review of the Quality Assurance Cycle

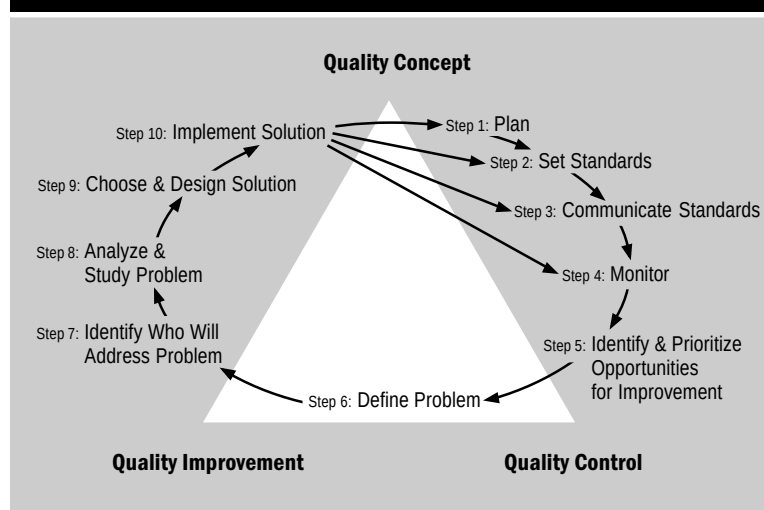


Table 3-5
Workers Trained in All QA Techniques (1993-1998)

Year	Basic QA Training	Coaching	Local QA Instructors	Supervision	IMCI
1993	43	0	0	8	
1994	0	0	0	20	
1995	17	11	0	23	
1996	218 in succession 10 in Boboye	37 4 in Boboye	0	0	
1997	23	0	12	0	
1998	88	22 refresher training	0	43 on the checklist	39 (including 6 trainers)
Total	400	52	10 valid	94	39

Table 3–6
Individuals Trained in Basic QA by Year and Center

Center	1993	1995	1996	1997	1998	Total
Regional Headquarters of Tahoua and Reference Centers						
DDS	11	1	4	0	2	18
District health center	1	0	0	3	0	4
Tassigui Maternity Reference Center	1	0	0	2	0	3
Health Districts						
Abalak	0	0	13	1	5	19
Birni N Konni	5	3	54	2	11	75
Bouza	2	3	30	1	5	41
Illéla	4	3	18	1	9	35
Keita	4	3	23	2	7	39
Madaoua	6	3	18	1	6	34
Tahoua	4	3	18	2	5	32
Tchintabaraden	4	3	15	2	1	25
Other Regions						
Dosso DDS and Boboye District	—	—	4	1	25	30
Care Zinder (district chief doctors and one immunization [PEV] coordinator)	—	—	3	0	0	3
Health Ministry, National School of Public Health [ENSP] and other regions	0	0	0	4	0	4
Other countries	0	0	0	0	3	3
TOTAL	42	22	200	22	79	355

Note: Abalak became a health district in 1996.

During the initial QAP phase (1993–97), QA institutionalization was addressed with training on the QA concept, supervisory techniques, and coaching. Other training themes, including IMCI, cost recovery, and a special session on nutrition and management of tuberculosis, started with the joint QAP/BASICS project in 1997.

Moreover, QA teams noticed that some problems were associated with the lack of training in specific areas. The MPH therefore gave its support to train workers in cost recovery and to establish 30-day, ECD training modules (management, supervision, administration, monitoring). This intervention from the MPH is a fundamental, indirect project result.

“QA is still considered as an additional task to perform.”

An ECD Member

Over the course of the QAP/BASICS project, the Tahoua Department’s CRQ assumed responsibility for guiding, coordinating, and following all actions relating to quality improvement of healthcare and services.

4.3 Results and Observations on Mastering the Problem-Solving Cycle

4.3.1 QA Team Composition

QA teams are usually composed of CSI staff or district hospital functional units. Their composition and number differ depending on the CSI/district and can include four to eight members, with an average of five members per team. Community participation varies, depending on the problem chosen. Most often matrons, female shift workers, community leaders, and members of the health community are involved. Only health workers are trained in QA.

In many cases, the initial team changed significantly, causing delays in the problem-solving process, especially in the event of staff transfers. However, in most cases new workers were trained in QA techniques thanks to the QAP training efforts (see Section 5.2). All workers interviewed by the team said that team-work was beneficial.

4.3.2 Identifying and Selecting a Problem

Most interviewed workers reported that problems were identified through brainstorming. Many workers used document analysis with SNIS reports, and most believe that the problem identified was pertinent and a priority for the CSI. In 90 percent of cases, the selection matrix was the most-used QA tool at this stage. It is generally used to choose between different problems and causes, but also to choose solutions and different implementation measures.

“We systematically use brainstorming and the selection tree to choose problems to solve.”

Member of a Problem-Solving Team

Health workers use a scoring pattern in their decision making: 1= weak; 2= average; 3= significant. Criteria most often used for selection are frequency of the problem, its impact on other activities, and its importance and impact on service utilization.

Completed and ongoing cycles focus on PMA and include curative consultation, prenatal consultation (CPN), infant consultation (CN), immunization (PEV), nutritional training activities (CRENA), management of tuberculosis and leprosy patients, and family planning (PF).

Teams tend to select similar problems, which limits the range of problems addressed. The evaluation team questions whether it was necessary to limit the teams' choices to PMA and restrict them to a limited field of operation. By doing so, issues such as logistics or health center management were excluded. On the other hand, benchmarking on the completed cycles can be conducted very quickly, because problems are common to all centers (the complete list of problems selected is in Appendix G).

In the Tahoua CSIs, most teams have already reached their second or third cycle (see Case Studies Number 1 and 2). The Boboye teams were still identifying or analyzing problems at the time of the evaluation, because the QA project began there in mid-1997. Only the CSI team in Koygolo has put solutions into practice (see Case Study Number 3).

The number of organized cycles increased from 7 in 1994 to 31 in 1998; 120 cycles were begun and 27 cycles were abandoned (Table 3-7). The reasons for abandoning cycles are discussed below in Section 4.3.6.

Table 3-8 depicts cycle distribution according to PMA activity. Note that the highest percentage of completed cycles pertain to CRENA and family planning.

4.3.3 Describing a Problem

Most of the interviewed teams reported difficulties describing problems, especially at the beginning of a cycle. "Wording" was redone many times before a final version was reached, but with experience teams acquired this skill, especially when they were starting their second cycle. This became obvious in comparing the Tahoua District, where most teams had reached their second or third cycle, to Boboye, where all the teams were still in their first cycle. In all 13 CSIs visited, wording was satisfactory and consistent with later problem solving. Problems were sometimes stated simply, but always clearly.

4.3.4 Problem Analysis

Overall, problem-solving teams have the techniques well in hand and use most of the tools taught. The first cycle helps problem-solving teams become familiar with the techniques; thereafter, these tools are easily and

Table 3-7
Number of Cycles per Year and Percentage Abandoned

Year	Completed Cycles		Interrupted Cycles	Percentage Abandoned
	Number	Percentage		
1994	7	5.88	1	14.20
1995	19	15.96	5	26.30
1996	36	30.25	16	44.40
1997	27	22.68	4	14.80
1998	31	25.21	1	2.80
Total	120	100.00	27	22.50

Table 3-8
Cycle Distribution According to PMA Activity

Activity	Completed Cycles		Interrupted Cycles		Percentage Cancelled
	Number	Percentage	Number	Percentage	
CRENA	26	21.66	5	4.16	19.23
PF	24	20.00	7	5.80	29.16
CPN	20	16.66	5	4.16	25.00
CN	15	12.50	1	0.83	-0.66
PEV	14	11.66	2	1.60	14.28
Curative	13	10.83	3	2.50	23.00
Delivery	3	2.50	0	0.00	0.00
Hygiene	3	2.50	3	2.50	100.00
Postnatal consultation	2	1.66	1	0.83	50.00
Total	120	100.00	27		

systematically used. All teams used the diagramming process and the cause and effect diagram to analyze problems and thought they were the most effective QA tools for this stage. The evaluation team found that the diagramming process is consistent with the selected problem. Indeed, well-designed diagrams usually clarify basic solutions. In Boboye, the team noticed slight imperfections and hesitations in the typical diagrams during a first cycle. Unfortunately, this cycle is limited to health staff and excludes the larger community. Also of concern is that the Pareto and control diagrams are never used.

Some teams used questionnaires to refine their causal analysis of a problem. The team concluded that many teams do not master the questionnaire and data analysis techniques, delaying the process. On one occasion, a survey became too complicated and was abandoned, resulting in cycle interruption. All teams believed that the identified causes were satisfactory.

4.3.5. Identifying, Applying, and Analyzing Solutions

The evaluation team found that the selective criteria from the basic QA manual (cost, ease of application, secondary effects, resistance to staff changes, and time needed) are applied systematically to identify viable solutions. On the other hand, the analysis of the effect of the solutions is generally insufficiently documented and analyzed. The evaluation team found no mention of a group's having reviewed its strategy or solutions because of unsatisfactory results. Groups are inclined to hasten to a second problem rather than assess the impact of the solution from the previous cycle.

At the district level, results monitoring is inconsistent. The ECD could state the number of active or completed cycles at the CSI level but could not indicate whether solutions were positive, negative, or absent.

Several types of activity have been conducted in the framework for applying solutions. They include activity integration, raising population awareness, organizing medical home visits, and requesting the involvement of matrons (see Appendix G).

Follow-up indicators developed with the SNIS at the CSI level to assess the implementation of solutions are sometimes unused or underused once solutions are applied.

"Near a CSI where a large, privatized cement factory was operating, the team did not think of asking the factory management to assist them in providing solutions."

A DDS Representative

On the whole, local solutions to problems were found without significant outside help at both the CSI and district levels and therefore were easily applied. The community may be asked to participate (to build a waiting room or for food contributions for nutrition presentations, for example) and responds to this kind of request inconsistently. Community involvement was effective in Koygolo (see Case Study Number 3), but remains uncertain in some CSIs (e.g., Malbaza). An effort must be made to improve community response to requests.

Districts are often asked for help when solutions are not found locally, especially for larger resources such as refrigerator or vehicle maintenance, gas leaks, and small equipment needs; the districts help when they can, often with project funds.

At the departmental level, the team observed spontaneous but disorganized rapid problem-solving practices (a one-day process, for example) and even the creation of redesign processes. Some restraining factors, related in particular to logistics problems, seem to have hindered these alternative QA initiatives, which are a direct result of QA practice. Of concern is the fact that staff at this level are unaware that a thorough results analysis must be conducted after the solutions are applied.

4.3.6 Difficulties and Constraints Encountered by QA Teams

Several difficulties and restrictions caused the delays or cessations in the problem-solving process, including difficulties using QA tools (defining the problem or collecting/analyzing data), staff mobility/availability, lack of coaching, and irregular supervision.

4.3.7 Problem-Solving Process: Conclusions

Problem-solving activities led to the following:

- A motivating and participatory atmosphere developed for the health workers. Their morale was highest after group activities were structured to use valid tools for problem solving, and they became more involved in their work
- Teamwork development was a new experience in working methods in Niger. Previously, teamwork was absent or minimal in the public health sector. A new team spirit was thus created
- Teams regularly practiced brainstorming techniques to analyze and resolve problems
- Full commitment from workers to solve problems locally at first (despite minimum community involvement) tended to ensure the continuity of QA techniques
- Concerns about patients changed doctors' habits. Problems were effectively centered on patients' expectations and satisfaction. Indicators show variations in utilization and attendance
- Unfortunately, health worker satisfaction was largely omitted as a consideration of QA
- A problem-management framework with appropriate tools led to a new style of management that, in turn, improved health workers' habits and performance. The new, QA-created health center management focused on improving the quality of healthcare

On the local and departmental level, the evaluation team observed that the ECDs conducted few or no problem-solving activities, often because of a lack of time or initiative. Three major drawbacks are:

- Lack of regular QA practice to ensure efficient and skillful field coaching
- Lost opportunities to solve problems on a regional scale, involving many CSIs (an average of 60) or districts (an average of seven or eight), which would have had an indirect effect on problem solving by the CSIs
- Difficulty in attempting to launch another QA technique, which represents quality designing or redesigning for the entire healthcare system

4.4 Team Documentation

The team found that work was often well documented with flip charts and record books that are well kept and include minutes of weekly problem-solving meetings. All QA tools used are logged in both charts and record books; however, the team could not determine how the problem-solving teams use the tools afterwards or when a member misses a meeting. The postcycle use of such tools should be explained more clearly.

To ensure that QA activities are maintained, the continued use of flip charts and other writing tools seems to be an important logistic consideration.

4.5 Coaching System

Table 3-9
PMA Indicators: 1993 to 1997 (Tahoua Department; in Percentages)

Indicators	Year					Department Objective
	1993	1994	1995	1996	1997	
Utilization rate of curative services (total population)	30	28	37	33	29.8	50
CN coverage rate (0-5 km.)	58	57	69	89	75.6	85
CPN coverage rate (0-5 km.)	63	70	70	85	76.6	85
CRENA recovery rate	14	19	15	14	24.8	25
CRENA rate of dropping out	15	17	14	11	16	10
PF utilization rate (total population)	5	5	7	11	14	7
BCG coverage (0-11 months)	35	60	87	107	76	100
Fixed coverage rate for measles (0-11 months)	24	37	61	83	55	80
Fixed coverage set rate of DTCP/3 (0-11 months)	63	59	62	66	68	90
Fixed return rate VAT2/1	74	58	80	65	73	90
VAT: Anti-tetanus Vaccine Source SPIS/DDS/TA NB: These indicators were calculated from demographic data from the general population census (RGP 1988) and revised according to the annual population growth rate in the Tahoua Department and calculation methods recommended by SNIS						
Demographic Data: The number of children of 0 to 11 months represents 4.7 percent of the population Expected pregnancies represent 52/1000 of the population Women of childbearing age represent 22 percent of the population						
Calculation Methods: Utilization rate of curative services number of clients / total population of the department CN coverage rate (0-5 km) = children up to 11 months old newly registered at CN (0-5 km) / children up to 11 months old (0-5 km) CPN coverage rate (0-5 km) = newly registered at CPN (0-5 km) / pregnancies expected with 0-5 km range CRENA recovery rate = number of patients cured at the CRENA / number of children cared for at CRENA CRENA drop-out rate = number of drop-out cases at the CRENA / number of children cared for at the CRENA PF utilization rate = 2 years of protection / women of childbearing age BCG coverage rate (0-11 months) = Fixed BCG doses given to children between 0-11 months / children between 0-11 months (0-5 km) Measles coverage rate (0-11 months) = measles fixed doses given to children from 0-11 months / children from 0-11 months (0 to 5 km) DTCP3 return rate = DTCP3 fixed doses given / DTCP1 fixed doses given VAT2 return rate = VAT2 fixed doses given / VAT1 fixed doses given						

most of the Boboye cycles had not been completed at the time of the evaluation, results from their problem solvings were not assessed.)

From 1993 to 1996, the utilization of curative services improved, rising from 30 percent in 1993 to 37 percent

in 1995. A drastic improvement in the coverage rates for measles vaccination was reported, rising from 24 percent in 1993 to 83 percent in 1996.

Between 1996 and 1997, however, several key rates plummeted. The utilization rate of curative services dropped from 37 percent in 1995/1996 to 29.8 percent in 1997. BCG coverage rates dropped from 107 percent³ in 1996 to 76 percent in 1997, and coverage rates for measles vaccination dropped from 83 percent in 1996 to 55 percent in 1997.

An analysis of these trends shows a significant increase in coverage rates between 1993 and 1996. When cost recovery with user fees was installed in 1997, some indicators dropped suddenly. Some factors such as price adjustments, misunderstanding of the new cost recovery system, and/or a general exodus from crop failures may partly explain the decrease.

The team noted, however, that after some time the number of visits to the centers slowly increased. This, in turn, may have been due to a growing satisfaction with healthcare services among the population. This may have been generated by: (a) permanent availability of drugs at the CSIs, (b) management of integrated services, and/or (c) lower medical costs. (Before cost recovery, prescriptions were written at the CSI, and drugs were bought from the local pharmacists at a substantially higher cost that is paid under cost recovery.) Still, it is evident that the average rural family's purchasing power does not cover healthcare expenses for all family members, especially under certain conditions, such as during the rainy season. This was, however, also true before cost recovery.

The team observed that health authorities did not give any special provision or exemption to the poor or needy for healthcare and that cost recovery changed patients' behavior: They now demand better quality healthcare services. The QA system is responding appropriately to this new demand.

It is often said that it is difficult to measure the impact of QA and clearly determine its many effects. The team visited and evaluated a CSI that was not part of the project. Table 3-10 shows the major differences.

A thorough operational research exercise could be conducted to compare these two kinds of CSIs and to analyze, for example, the impact of cost recovery, QA, and IMCI on the main activity indicators of a specific center, as well as the satisfaction levels of staff and

³ Some children were vaccinated more than once, for reasons unknown to the evaluation team. Perhaps healthcare workers were unsure of some children's vaccination status or doubtful of the effectiveness of any previous vaccination.

visitors. The following factors make it difficult to determine cause and effect and therefore to analyze results and draw definitive conclusions:

- The many interactions between the different programs (cost recovery, QAP, BASICS, etc.)
- The influence of other projects in the same region (UNICEF, ALAFIA, etc.)
- The variations in the length of programs (five years for QA alone, two months for IMCI)
- The introduction of standards over a long period of time
- The variations in implementation dates (SPT in 1993, CCM in 1995, IMCI in 1998)
- The absence of operational research focusing on a control region to establish valid comparison
- The absence of a baseline study on the state of healthcare facilities before the QAP/BASICS project

Figure 3-2 graphically displays some of the different interactions.

Figures 3-3 through 3-7 show the evolution of PMA indicators over four years in the Tahoua Department. The 1997 figures are not included because that was the first year of cost recovery and famine, which both affected the QA project's impact.

7. Results from Case Studies

Case Study Number 1: Postnatal Consultation at the Koufan-Tahoua CSI (Tahoua DS)

The Koufan-Tahoua CSI is located in the western part of the city of Tahoua and serves 12,540 inhabitants. The staff is composed of six managers and three assistants. The CSI team members used brainstorming techniques to identify service problems. Three problems were identified as priority items in the PMA:

- CPN's low success rate
- No postnatal consultation
- CRENA's low recovery rate

The decision matrix helped determine the priority problem: the lack of a postnatal consultations. It was defined as follows:

Table 3-10
Comparison of QA CSI and Control CSI

QA with CR	Non-QA, Non-RC
■ Better organization of services and activity planning	■ Uncertain activity schedule
■ Regular follow-up of activities performed by centers (attendance, utilization)	■ No follow-up indicators
■ Good understanding and handling of data	■ No data charts
■ Data analysis	■ Key statistics unknown
■ Data on SNIS posted	■ Unaware of the SNIS report
	■ No idea of the changes in the center from one year to another
■ Injection and wound care facility is clean and well kept	■ Clean premises and wards
■ MEG available	■ No drugs; medical prescriptions are filled by a local pharmacist
■ Inconsistent logistical management	■ Inconsistent logistical management
■ Strong integration of services	■ No integration
	■ Well-organized documents

Figure 3-2
Factors Influencing or Interacting with the CSI Center's Utilization (Tahoua Department)

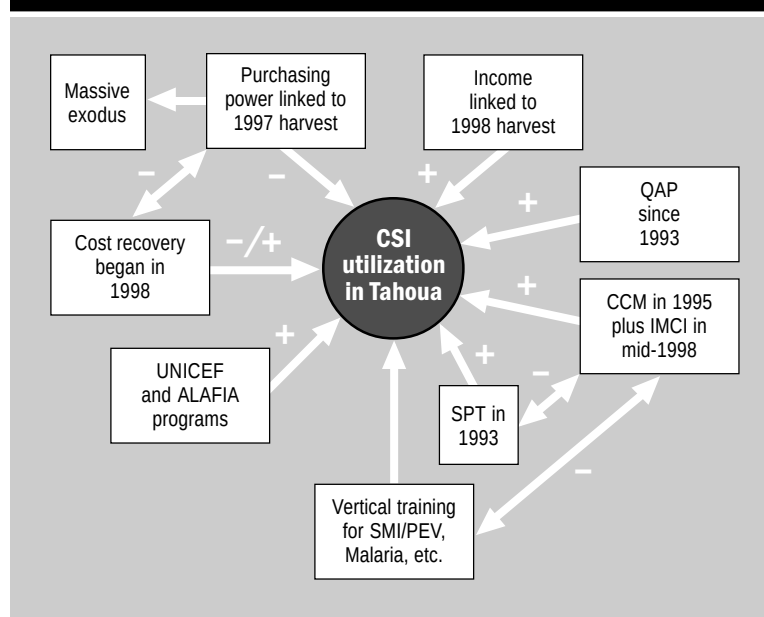


Figure 3-3
Evolution of Prenatal Consultation Indicators within a 5-Km. Radius (Tahoua Department; 1993 to 1996)

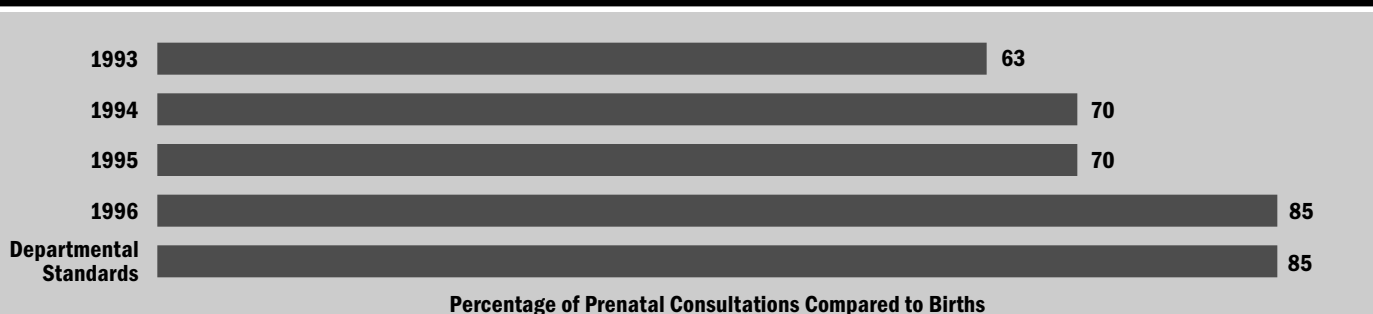


Figure 3-4
Evolution of Infant Consultation Coverage Indicators within a 5-Km. Radius (Tahoua Department; 1993 to 1996)

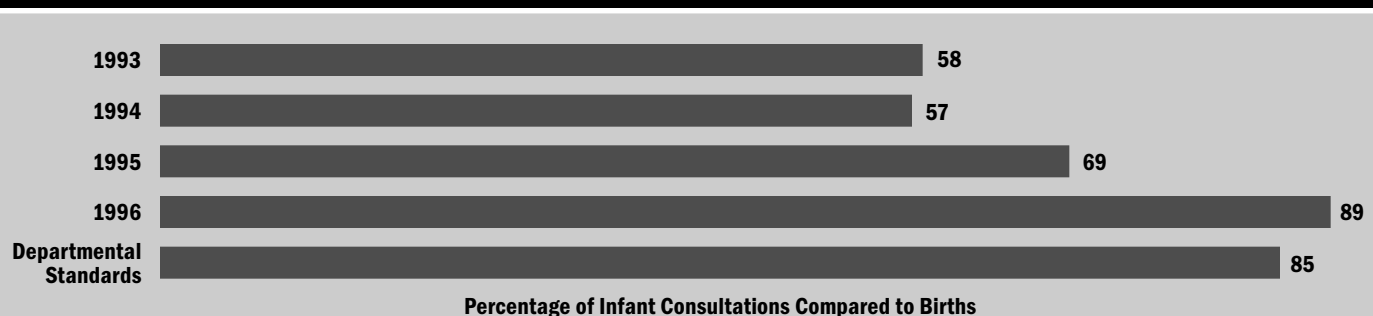
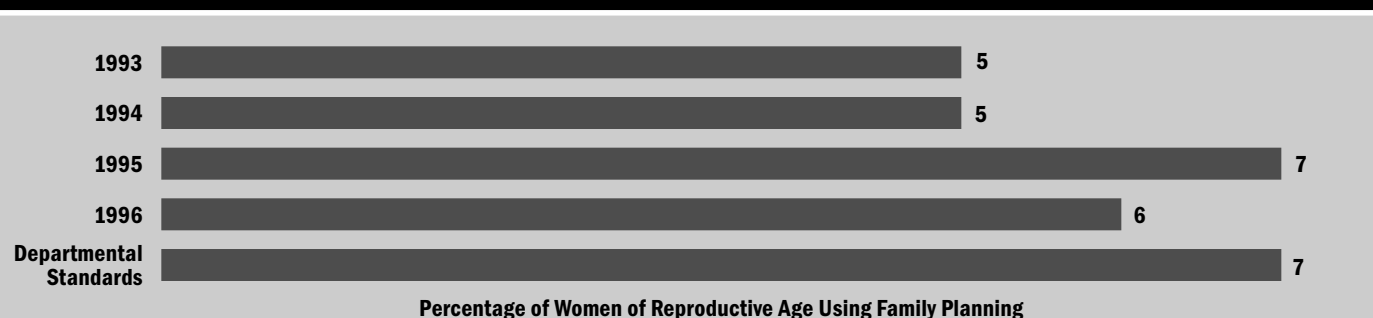


Figure 3-5
Evolution of the Rate of Family Planning Utilization within a 5-Km. Radius (Tahoua Department; 1993 to 1996)



“The postnatal consultation records were studied in March 1998 and revealed no postnatal consultations. No postnatal visits were recorded from 1995 to March 1998, although this activity is part of the PMA services. Considering the importance of this activity for mothers and newborn infants, the situation must be improved to raise the consultation rate from 0 to 80 percent before the end of 1998.”

A team was identified to take charge of the problem, and the situation was studied by first establishing the initial process diagram. Several shaded areas were identified and the cause and effect diagram was used to list the cause hypotheses. Possible causes were then verified through staff interviews and a questionnaire that was given to 100 women. Possible causes uncovered included:

Figure 3-6
Evolution of the CRENA Drop-Out Rates within a 5-Km. Radius (Tahoua Department; 1993 to 1996)

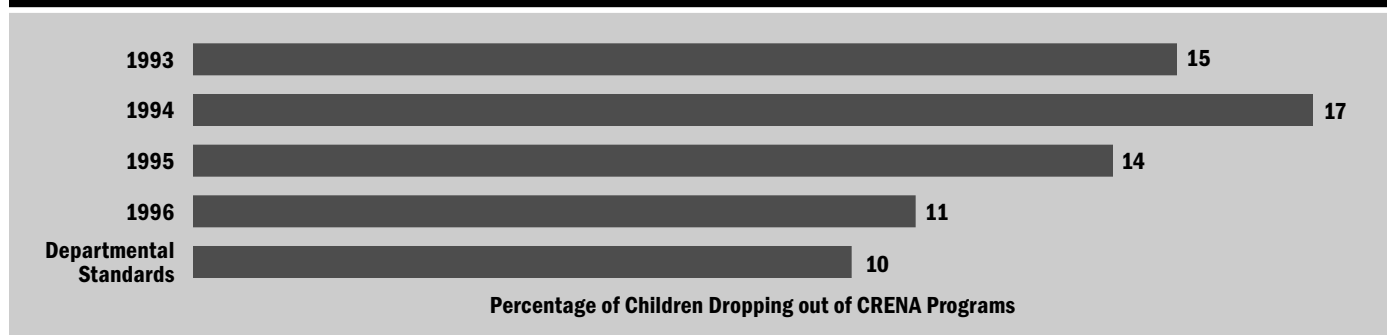
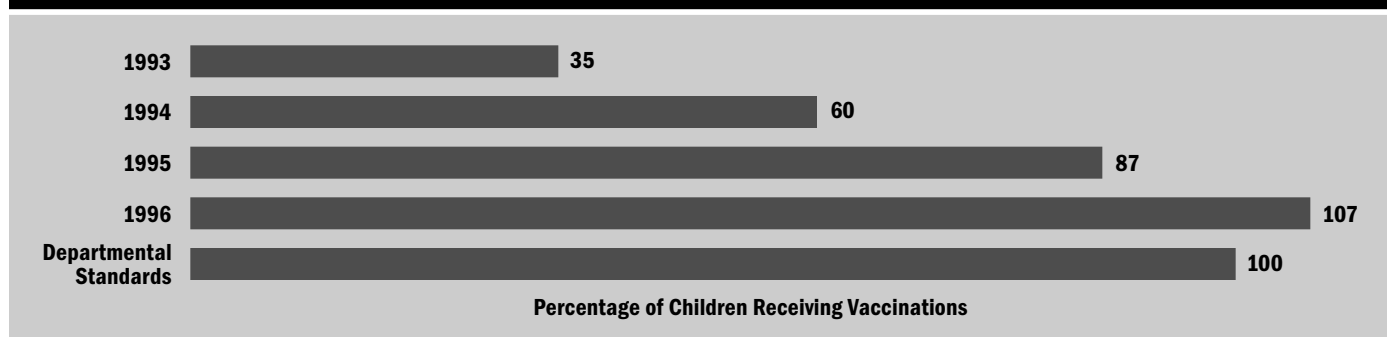


Figure 3-7
Evolution of the BCG Coverage Rate for Infants up to 11 Months



- Insufficient staff knowledge of postnatal consultation standards
- Insufficient public awareness of the existence of postnatal consultation
- Lack of integration of this activity in the CSI's PMA

After reviewing the interviews and questionnaire results, it was found that insufficient awareness of postnatal consultation was the main cause for low attendance. The following solutions were identified:

- Integrate postnatal consultation in the CSI's PMA
- Increase public awareness on the importance of the activity

As a result, the CSI implemented the following activities:

- Increased supervision of postnatal consultation
- Weekly activity planning
- Reference to SMI/PF standards

- Neighborhood meetings
- Education on individual and public health issues
- Home visits

Four follow-up indicators were identified:

- Number of health education/training (EPS) group sessions held on postnatal consultation
- Number of home visits
- Number of women attending postnatal consultations
- Number of neighborhood meetings conducted

The following results were obtained after these activities were conducted:

- 8 out of 12 planned home visits were conducted
- 36 out of 48 planned EPS sessions were conducted
- 3 out of 3 planned neighborhood meetings were held
- 46 of 69 admitted women attended postnatal consultations

The following schedule was adopted for the overall process:

- March: Identify and define the problem
- April/May: Analyze the problem
- June: Choose solutions
- July: Implement solutions and follow up

Conclusion: Three-and-a-half months after implementing the solutions, 46 women, or 67 percent of those expected, had attended a postnatal consultation by end of September. The team hoped to achieve an 80 percent attendance rate by the end of 1998.

Case Study Number 2: The PMA Activity Integration Process in the Madaoua CSI

The Madaoua CSI serves 163,235 inhabitants with 30,420 within a 5-kilometer radius. It has a maternity ward, a healthcare ward, and a social services department. The staff is composed of 12 managers and 2 assistants.

After a problem-solving session on “CRENA’s high failure rate” conducted using the QA approach, integrating activities was identified as one solution to improve CSI services. Reasons for the high failure rate were identified as follows:

- Long waiting time for customers, leading to frustration
- Unmotivated healthcare workers
- Long travel distances to the CSI for some women
- No service integration, insufficient public awareness

Interviews of 55 customers and healthcare providers from the center provided information to clarify the problem. One customer answered, “I prefer that all necessary services be provided to me during a single visit rather than being forced to come back another day.” The team studying the problem reorganized the center activities by:

- Creating permanent positions in major service areas (PEV, CRENA, Curative, CPN, PF)
- Supplying the necessary equipment
- Increasing customer awareness of service integration
- Assigning tasks among identified staff members

A follow-up system was established using the following indicators:

- Waiting time
- Visit time
- Use of SMI/PF services (CNS, PF, and CPN)
- Number of services requested
- Number of services provided

Results obtained were:

- Waiting time was reduced from 120 minutes to 5 minutes 11 weeks after service integration
- The length of each visit increased from 2 to 5 minutes during the 11th week
- CNS services’ use rate increased from 45 percent in 1993 to 85 percent in 1996
- PF services’ use rate increased from 4 percent in 1993 to 7 percent in 1996
- CPN services’ use rate increased from 30 percent in 1993 to 85 percent in 1996

Conclusion: Integration as a solution to increase the use of services, establish a quality environment, and satisfy customers is clearly demonstrated by the Madaoua CSI experience.

Case Study Number 3: Partnering with the Community to Solve Problems Related to the Quality of Healthcare: The Koygolo CSI Center (Boboye)

The Koygolo CSI center serves 24,205 inhabitants; cost recovery was implemented there in 1996.

Several attendance problems were identified and tackled during regular Health Committee meetings. These problems were:

- Low CPN attendance
- Underutilization of maternity services
- Low CNS attendance
- No observation room

Based on a number of criteria, the Health Committee decided to identify a single priority problem: the “underutilization of maternity services.” A study identified several reasons, all relating to patients’ needs. It found that women resent:

- Being attended by men
- High fees (500 CFA for childbirth)
- Birth registration not being performed
- Lack of space for relatives who accompany them

Several solutions, some requiring patients' participation, were proposed to encourage the use of maternity services. These were:

- Build a facility for relatives who accompany patients
- Use "pay" contributions to build an observation room for the patients
- Establish a follow-up committee to monitor actions taken

Implementing the suggested solutions helped reach the following results between January and April 1998:

- An increase in the number of assisted births from 12 to 57
- A facility (hangar) was built
- The center collected 100,000 CFA to build an observation room

Conclusion: Based on the results, it is obvious that addressing the low use of maternity services had a positive impact. This successful experience of partnership with the community should be applied in other healthcare centers to improve the quality of healthcare.

8. Results from Focus Groups

Focus Group Number 1: Badaguichiri, Illéla DS Center (Tahoua)

Group composition: 10 mothers who used CN services

Summary of comments made by the group:

Positive Points:

- An EPS group session is held before the consultation
- Seating is available in a shady area
- Entering the room proceeds according to arrival
- Immunizations are available every day
- Nutrition recommendations are given before the CN sessions

- Regular meetings are held with women for feedback on CSI activities
- Family planning services are provided daily. They understand the importance of contraceptives, especially the injections

Regarding cost recovery, focus group participants believe that rates are acceptable and are satisfied with the medicine supply available at the health center. They were relieved to learn that they are not required to pay for prescription medicine.

Negative Points:

- The long waiting line, which they believe is due to the large number of mothers visiting the center
- There is no facility (hangar) to make nutrition presentations to mothers of malnourished children

Focus Group Number 2: Konni City CSI (Konni District, Tahoua)

Group composition: 12 mothers using the CN and CPN centers

Summary of comments made by the group:

Positive Points:

- EPS group and individual sessions are held before the consultation
- Patients receive a warm welcome
- Immunizations are given daily for children
- Patients show a good knowledge of cost recovery
- Patients are satisfied with the medicine supply available

Negative Points:

- There is no facility (hangar) to make nutrition presentations
- There are no home visits or neighborhood meetings
- The waiting line is sometimes long

IV. QAP/BASICS: Applying QA Measures to Introduce IMCI (TAP Objective Number 2)

1. Development and Communication of IMCI Guidelines

1.1 Combined Case Management: A Prelude to Introducing IMCI in Niger

Before QAP and BASICS were merged, BASICS had provided technical assistance to the MPH in combining vertical case management approaches for childhood diseases to minimize missed opportunities to identify and treat sick children. CCM included the updating and merging of clinical standards for potentially fatal childhood diseases: diarrhea, acute respiratory infection (ARI) and malaria. It also included verifying a child's vaccination and nutritional status and counseling mothers about their malnourished children. CCM training was introduced in 1995 in Say District (Tillabéry Department) and Boboye District (Dosso Department).

CCM's introduction before IMCI was controversial and raised these issues:

- Introducing CCM seemed advisable because there was an obvious need to merge the vertical treatment approaches of childhood diseases to minimize missed opportunities
- CCM's introduction was thought to be "premature" because the WHO IMCI materials were not ready. CCM might jeopardize the introduction of IMCI as it had in other countries, which involved government officials in adapting WHO materials and selecting sites for pilot testing

After interviewing WHO officials at the national, departmental, and district levels, the evaluation team concluded that CCM improved the introduction of IMCI. This conclusion is based on the following:

- CCM resulted in the updating of national case management standards for diarrheal disease, ARI, and malaria, a step required before introducing IMCI
- CCM involved WHO officials at different levels and sensitized them to the benefits of replacing vertical case management of childhood illness with an integrated process. As a consequence, they were better prepared to accept the IMCI rationale

- The process of updating and combining case management standards through CCM resulted in the creation of a national working group that included directors (of national programs to control diarrheal disease, ARI, and malaria) and prominent pediatricians. This same structure is needed for the national adaptation of the WHO IMCI clinical guidelines
- CCM introduced the processes of checking the vaccination and nutrition status of all child patients and counseling mothers of children with low weight for age
- CCM's introduction in Boboye resulted in stimulating efforts to improve the availability of essential drugs and supervision before IMCI was introduced
- CCM contributed to the early identification of the inconsistencies between the commonly used SPT and the combined case management approach

1.2 Introducing IMCI in Niger

The QAP/BASICS project played a crucial technical and managerial role throughout the introduction of IMCI in Niger.

Planning: The project was an important partner working with the MPH and WHO in planning IMCI's introduction. In February 1997, a working group was established to adapt WHO IMCI generic standards to Niger. IMCI was to be piloted in three districts: Konni (Tahoua Department) and Boboye and Doutchi (Dosso Department). In addition, the MPH nominated a point person to coordinate IMCI activities.

A one-year action plan for 1998 IMCI implementation was developed. Funding for the activities was provided by the contributing partners, including the MPH, WHO, the QAP/BASICS project, and others. The project funded all 1998 workshops for district managers' orientation, training of trainers, and training of health workers in the Konni and Boboye Districts.

Orientation: The project participated in the August 1996 National IMCI Seminar in Kollo, which WHO had organized to orient MPH decision makers, international partners, and prominent pediatricians. In 1998, the project funded two district-level orientation workshops in Konni and Boboye.

Adaptation: The IMCI working group, with the MPH represented by the point person, participated in the adaptation process. This included reviewing all existing national standards for vertical programs (such as diarrheal disease, ARI, and malaria control) as well as the generic WHO IMCI guidelines. The adaptation process resulted in Niger's adopting WHO IMCI generic guide-

lines with some modifications to fit the Niger situation. Some examples of these modifications are: (a) All of Niger is a high-risk area for malaria, so the low-risk section of the WHO guidelines was omitted, (b) the IMCI working group did not believe parasitic infestation to be common in Niger, so mebendazole is not systematically given to all malnourished children, and (c) the signs for evaluating dehydration were reduced to four from six.

Training: In general, the project used training to communicate IMCI guidelines and played a key technical and managerial role in organizing the training events shown in Table 4-1.

2. Local Implementation

2.1 Merging QAP and BASICS

IMCI is perceived as an efficient way to minimize missed opportunities to identify and treat childhood illnesses and save sick children. It focuses on five conditions that cause most child mortality: diarrhea, ARI, malaria, measles, and malnutrition. WHO introduces IMCI in developing countries. In the late 1990s, BASICS was USAID's main vehicle for introducing IMCI in selected developing countries, including Niger.

"The success of IMCI introduction is enhanced where QA field preparation precedes it."

Director, WHO Office in Niamey

The presence of QAP and BASICS in Niger presented a unique opportunity for USAID and its national partners to merge the two projects and benefit from applying QA measures to support the introduction of IMCI. USAID and its partners envisioned that this merging would have the following national, regional, and international benefits:

- In addition to the obvious benefit of reducing operational costs by combining the two projects, Niger would benefit from the synergistic effect of applying QA measures to ensure that IMCI was successfully introduced. It would also benefit from using better quality child care standards at the primary healthcare level through IMCI
- For the West Africa region and the international community, it would provide a unique opportunity to pilot test a new approach of introducing IMCI, one that starts with strengthening health support systems well before IMCI is introduced

Table 4-1
Training Courses: Dates and Results

Training Course	Dates	Results
Regional Training Course organized by WHO: Niamey	January 19–30, 1998	18 West African participants, including 5 Nigeriens, trained in clinical IMCI
Regional Training Course organized by WHO: Niamey	June 29–July 3, 1998	8 participants including 5 Nigeriens, trained as facilitators and clinical instructors
National Training of Trainers Course: Niamey	July 6–18, 1998	15 participants, including 14 Nigeriens, became national trainers
Training of Trainers Course: Niamey	August 4–8, 1998	9 Nigeriens trained as trainers: 6 at national and 3 at regional and subregional levels
Training Course for Health Workers at the District Level: Niamey	August 10–22, 1998	18 Nigeriens (16 at the district level and 2 at the national level) trained in clinical IMCI
Training Course for District-Level Health Workers: Niamey	August 31–September 12, 1998	17 Nigerien district-level health workers trained in clinical IMCI

2.2 The Influence and Impact of Cost Recovery and Drug Supply Management

The evaluation team was impressed with the Konni District stockkeepers' ability to apply basic stock management principles and calculate and initiate monthly orders. The project has done a commendable job in coordinating the stockkeeper training with Pharmacists Without Borders (PSF, a nongovernmental organization [NGO] funded by the European Union). The staff's ability to keep a "security stock" saved the CSIs from a national shortage in cotrimoxazole in 1998. After the introduction of cost recovery in Konni, fewer stock-outs occurred and the average monthly consumption increased (see Table 4-2).

Table 4-2
MEG Stocks before and after Cost Recovery (Konni)

Indicators	Cotrimoxazole: 480 Mg. (Box of 1,000 Tablets)		Chloroquine: 100 Mg. (Box of 1,000 Tablets)		Oral Rehydration Solution (SRO) Bags	
	Before (1997)	After (1998)	Before (1997)	After (1998)	Before (1997)	After (1998)
Number of stock-outs	1	1	3	0	2	0
Duration of stock-outs	3 mos.	1 mo.	19 days	0	10 mos.	0
Average monthly consumption	19.6 boxes	39.4 boxes	20.1 boxes	56.4 boxes	84 bags	455 bags

Table 4-3
MEG Stocks before and after Cost Recovery (Boboye)

Indicators	Cotrimoxazole: 480 Mg. (Box of 1,000 Tablets)		Chloroquine: 100 Mg. (Box of 1,000 Tablets)		Oral Rehydration Solution (SRO) Bags	
	Before (1997)	After (1998)	Before (1997)	After (1998)	Before (1997)	After (1998)
Number of stock-outs	0	1	1	1	1	0
Duration of stock-outs	0 mos.	4 mos.	4 mos.	2 mos.	1.5 mos.	0
Average monthly consumption	33.1 boxes	14.2 boxes	29 boxes	60.1 boxes	400 bags	572 bags

Figure 4-1
Utilization of Services in Konni District
(1997 and 1998; January 1 to June 30)

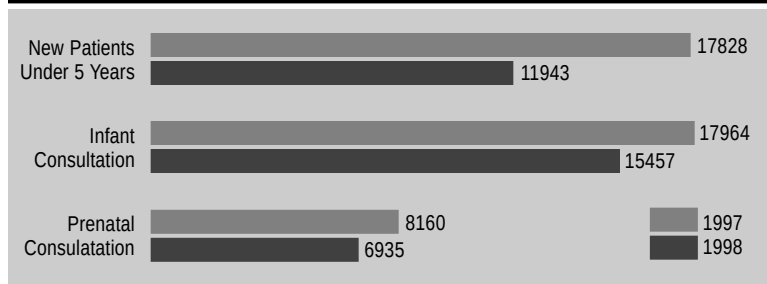
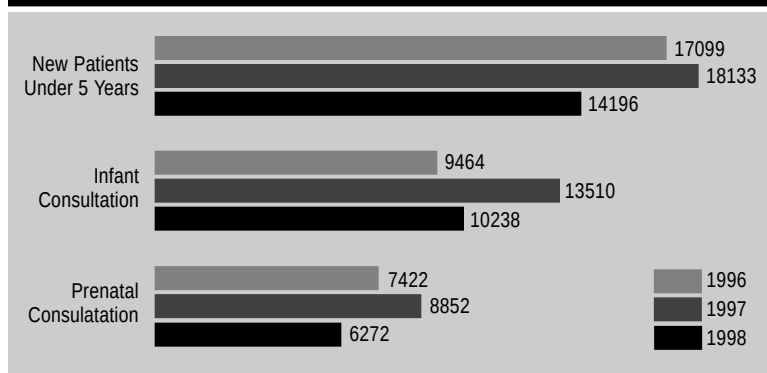


Figure 4-2
Utilization of Services in Boboye District
(1996, 1997 and 1998; January 1 to June 30)



Cost recovery also resulted in the increased availability of essential drugs (MEG) in Boboye. Staff said that before cost recovery “shelves were empty.” (In fact, the team visited a nonproject CSI [urban CSI in Toudobou, Dosso] where cost recovery had not yet started and found the shelves to be empty.) However, the Boboye staff’s stock-management skills need improvement. Relevant district- and CSI-level staff need training similar to that conducted with Konni staff in: (a) keeping stock cards up-to-date and safety stock on hand and (b) using previous consumption patterns to predict future demand. In one of the Boboye health facilities (Fabigi), there was no cotrimoxazole from February to June 1998. The district-level stock also lacked cotrimoxazole during that period (see Table 4-3).

The evaluation team made the following observations:

- The chloroquine and SRO stock forms were not up-to-date
- The Boboye cotrimoxazole stock-out was caused by a national stock-out. However, keeping a district-level safety stock could have prevented or at least shortened it
- First-line antibiotics required for IMCI are generally available; however, second-line antibiotics are generally lacking
- Unlike Konni where the CSI stockkeeper oversees the drug stock, in Boboye a certified nurse performs this task in addition to his/her other clinical and administrative tasks. Konni’s system could probably be followed in Boboye after staff are trained in drug supply management
- While the availability of MEG has improved remarkably with cost recovery in both Konni and Boboye, its impact on the utilization of services should be carefully monitored. Service use rates before and after the implementation of cost recovery in both districts suggest that it caused a decrease in the use of services. Particularly worrisome are decreases in utilization by children under five. Comparing usage during the same quarters in 1997 and 1998 reveals a 33 percent drop in Konni and a 22 percent drop in Boboye. These and other changes in utilization are in Figures 4-1 and 4-2

While the utilization of health services could be affected by many factors, such as population movements and environmental and political factors, the data suggest a strong association between the introduction of cost recovery and decreases in utilization. Health facilities that have not yet implemented cost recovery, such as urban CSI in Toudobou (Dosso), have not witnessed a drop in the utilization rate (see Figure 4-3).

Figure 4-4 shows utilization rates in Badaguichiri, where cost recovery has been implemented, and indicates drops in utilization rates similar to those seen in Konni and Boboye.

2.3 Cost Recovery and Family Income

Service fees vary from one center to another. Table 4-4 shows the fee structure in CSI Badaguichiri (Tahoua). Comparing these with a family's average daily income of about 700 CFA suggests that, for individual cases, the system seems affordable. However, it could present a financial burden in epidemics. For example, in the malaria season, a family could have three or four cases needing health service, which could cost the family three to four days' income.

2.4 Health Information System (SNIS)

The project has greatly succeeded in training health staff to collect, analyze, and use data, especially at the CSI and district levels. The evaluation team was particularly impressed with Konni District staff's analytical capacity. They were able to regularly monitor health service indicators (rates of prenatal visits, neonatal visits, vaccinations, and family planning visits) and detect malnutrition, tuberculosis, and leprosy cases. However, the Boboye District staff's ability to maintain and use data could be further developed.

Certain IMCI indicators should be monitored, especially at the start of IMCI implementation. The SNIS reports and IMCI forms are good data sources.

3. Applying QA Measures to Introduce IMCI

Assessing the merger of the two projects also has an international dimension. In the initial phases of introducing IMCI in developing countries, the emphasis was primarily on training. Later, it was found that while training is essential, it is not enough to ensure IMCI's successful implementation. As a result, WHO has added two components to IMCI training:

Figure 4-3
Utilization of Services in the Dosso CSI
(1997 and 1998; January 1 to June 30)

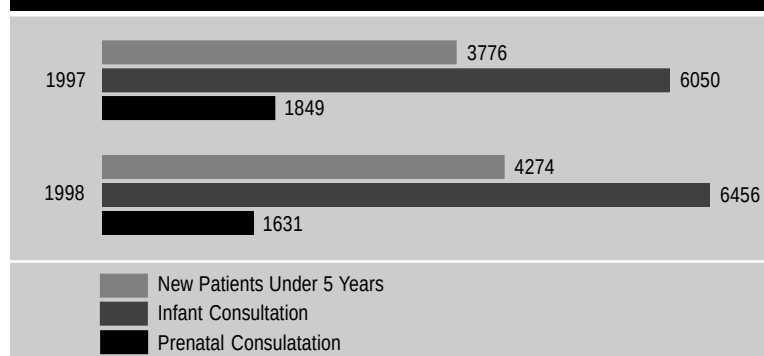
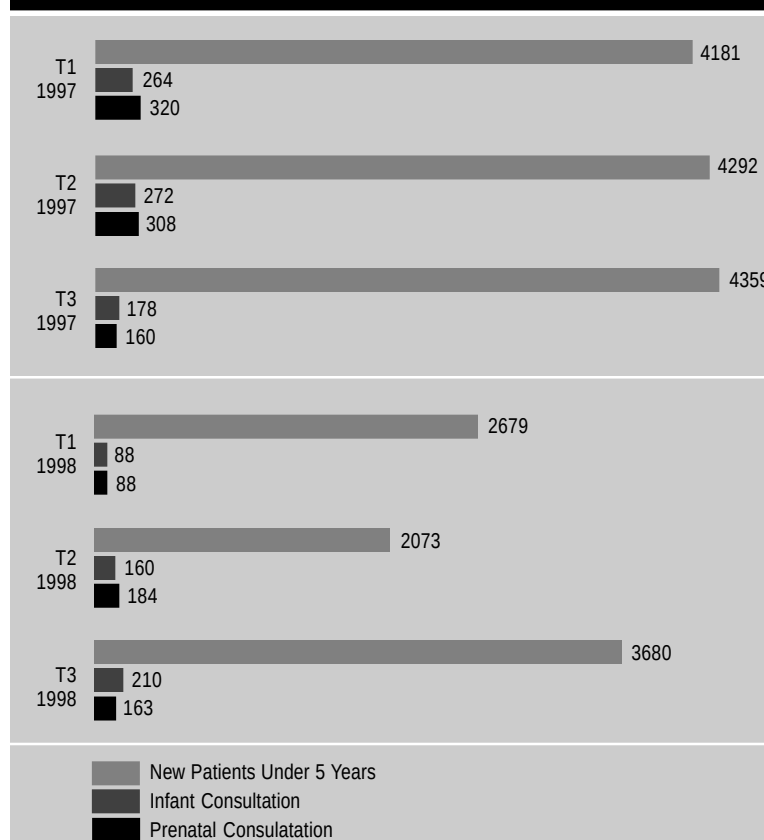


Figure 4-4
Utilization of Services in Badaguichiri CSI
(First Three Quarters of 1997 and 1998)



Note: T1 is the first quarter of the year; T2 is the second quarter, etc.

Table 4–4
Fee Structure in CSI Badaguichiri

Service	Fees (CFA)
Curative visit for children 5 years or less	350
Curative visit for children over 5 years or adults	700
Prenatal visits (covering all visits for one pregnancy)	700
Neonatal visits (covering all child vaccination)	350
Exchange rate: US \$1: CFA 500	

- A support system to ensure the adequate provision of essential drugs and that health workers' performance is maintained through effective supervision
- A community component to reach beyond health facilities to promote key child survival behaviors such as breast-feeding

In Niger, QAP introduced methods and tools for health services quality monitoring and quality improvement in the Tahoua Department in 1993. Merging QAP and BASICS allowed the projects to support the introduction of IMCI in the Konni District. In addition, in 1996, quality assurance was extended to the Boboye District (Dosso) to support the introduction of IMCI.

Due to the national and international importance of the unique merging of QA methods and IMCI, the evaluation team had a special focus on assessing the impact of applying quality monitoring and quality improvement tools to support the introduction of IMCI. Their findings appear in the following sections.

3.1 The Supervision System in Support of IMCI

3.1.1 Supervision/Coaching

In the Tahoua Department, the project succeeded in reviving the supervision system at departmental, district, and CSI levels.

The departmental and district-level supervisory teams are trained in both QA and IMCI, so they are capable of providing technical support to CSI health workers.

Each district supervisory team includes at least one “coach” to help CSIs in problem identification and solving. Coaching is performed in a supportive manner that replaces the previous authoritarian type of supervision.

Supervision's benefits are greater when the results of supervisory visits are communicated clearly to health workers. (A copy of the supervisory report is not always

given to CSI staff.) The supervisory staff's ability to write their observations precisely with required actions clearly noted could be improved. In Konni, supervisors also use a Supervision Notebook, which contains a summary of each visit, and leave a copy at the CSI.

IMCI quality monitoring and improvement efforts could be disrupted when a trained supervisor is transferred out of the districts using IMCI. This risk could be minimized with the support of decision makers at the central and departmental levels.

The evaluation was too early to demonstrate supervision's impact on maintaining health workers' skills that were acquired in IMCI training. IMCI was introduced at the CSI level in August 1998. There were two rounds of ERPA (Rapid Assessment of Health Worker Performance, discussed below), but they were completed before IMCI was introduced. The results of future ERPAs should demonstrate the supervisory system's ability to maintain health workers' skills.

After the project ends, the supervisory system's sustainability is not assured. The MPH's commitment at the national and departmental levels and international partners' involvement could help sustain the supervisory program.

3.1.2 Supervision Checklist

The evaluation team found an impressive and significant behavior change among supervisors in their regular use of the supervision checklist. Before the project started, supervisors did not have a checklist to use as part of a supervisory visit, so they had limited ability to systematically verify service quality. The project realized that a checklist would help them structure their visits and maximize their benefits. Concurrently, however, there was some reluctance to use the new tool.

The integrated supervision checklist is a comprehensive tool to assist supervisors in systematically evaluating a CSI's technical, managerial, administrative, and logistical abilities. It has evolved from its initial version and now covers all services that CSIs offer, including numerous sections on the PMA and IMCI. It integrates the supervision of QA with IMCI by including a section, taken mainly from the ERPA, that assures adequate monitoring of health workers' IMCI skills. It also has a section that monitors the MEG stock and the cost recovery system.

In addition to its value at the CSI level, the checklist can be used to collect data that could help districts and higher levels plan and monitor overall health worker performance with IMCI and other services. It has the

capacity to monitor the effectiveness of training and supervision in developing and maintaining health workers' skills.

When the evaluation was conducted, the project was pilot testing the checklist and had a completion target date at the end of 1998. Health workers and supervisors said that the checklist is comprehensive but very lengthy. While supervisors do not need to complete the entire form in each supervisory visit, the evaluation team concluded that it should be shortened and/or the questions should be prioritized in each section.

3.1.3 Rapid Assessment of Health Worker Performance (ERPA)

The Rapid Assessment of Health Worker Performance (ERPA) is based on the "Health Facility Quality Review" methodology. Its objectives are to evaluate workers' performance in following IMCI and to gather information on the QA process. It is conducted through observation of health workers while they examine children under five and through exit interviews with mothers to measure their satisfaction and assess the workers' ability to communicate instructions related to prescribed medicine, danger signs that require them to bring the child back to the health facility, and effective nutritional counseling. Using it, supervisors can monitor health workers' ability to greet caretakers appropriately, take the patient's history, examine children according to IMCI standards, classify the disease, identify treatment, verify the child's vaccination and nutritional status, and counsel mothers. Information from the exit interviews helps in verifying the caretakers' understanding of messages from health providers.

A pilot ERPA was performed in October 1997 in Konni and Illéla (which are in Tahoua). A second occurred in June 1998 in Konni, Illéla, and Boboye (which is in Dosso). A third was scheduled for December 1998. It has proven to be an easy and valuable tool to monitor health worker performance and generate IMCI data for district- and higher-level managers.

The ERPA informed the ECDs about the quality of services provided to sick children before first level staff were trained on the IMCI approach. Repeated every six months, its continued use informs ECDs of the development process of quality evaluation tools and helps in monitoring workers' performance and service quality.

The ERPA is comprehensive, easy to use, and capable of producing valuable data for monitoring health workers' performance. The team also found that feeding ERPA results back to health workers resulted in im-

proved performance. Results from the first ERPA were communicated to health workers, and this feedback alone seems to have positively influenced their performance. Results from the second ERPA showed an improvement in several IMCI performance indicators, such as the ratio of mothers adequately counseled for the treatment of their sick children. On the other hand, some indicators did not improve or declined between the ERPAs (see Table 4-5). The evaluation team interpreted this finding as indicating that communicating standards and ERPA results without IMCI training is not enough to bring about needed improvements in clinical skills.

Table 4-5
Results of ERPAs Conducted in 1997 and 1998 (in Percentages)

Indicators	Konni		Illéla	
	ERPA 1 (Oct. 97) n = 78	ERPA 2 (June 98) n = 41	ERPA 1 (Oct. 97) n = 81	ERPA 2 (June 98) n = 32
Children checked for general danger signs	49	25	51	63
Children correctly examined	54	28	19	49
Children correctly treated	81	83	77	78
Mothers adequately counseled for the treatment of their sick child	52	73	50	69
Mothers counseled for signs that merit bringing their child back	75	83	33	50
Children having their nutritional status checked	93	45	6	16
Mothers who knew at least two general danger signs	43	83	79	53
Mothers who know how to give the prescribed medicine to their sick child	73	83	40	80

Conducting the ERPA during routine supervisory visits, however, presents a significant limitation. It will be very challenging to sustain the routine supervisory visits along with an additional evaluation activity like the ERPA. The team suggests exploring ways that would facilitate conducting ERPAs as part of the supervisory system.

The team categorized the strengths and weaknesses of the ERPA as a review mechanism (Table 4-6). As presently organized, it focuses only on the child health aspect of health facility services and excludes the evaluation of other health services, but it could easily be modified to integrate more services.

Table 4–6
Strengths and Weaknesses of the ERPA

Strengths	Weaknesses
It is a useful tool to help health workers and supervisors apply the QA process.	It is conducted outside the routine supervisory system, so it could add a burden to supervisors.
It is specific to examining health performance in IMCI.	Health workers are not accustomed to such intense workers' scrutiny.
It relies on direct observation of health workers, so it provides an objective evaluation of their performance.	Evaluation is based on observing a limited number of cases per health worker.
It includes exit interviews with caretakers to verify their level of understanding and satisfaction.	The test is a tool framed to assess the clinical capabilities of only one individual
It is a concise instrument that is easy to analyze in a short time.	It is limited to IMCI.
It is feasible with available human resources.	ECD members must be available to manage it.
Timely feedback of its results to health workers could result in improving their performance.	
It helps health workers to evaluate themselves.	
It is part of the problem-solving approach.	

"The ERPA gives me an excellent opportunity for self-evaluation."

A Project Health Worker

Results from the two ERPAs show that this methodology is applicable at the CSI and DS levels and that it could also apply to follow-up and supervision for improved healthcare services. The team recommends the following:

- Give the ERPA results to surveyed workers as quickly as possible, the same day if possible or within 15 days. This will help them assess their strengths and weaknesses. A review of overall performance must be conducted during quarterly meetings to provide a general overview
- Ensure coordination with various operational research activities and monitor results
- Give ECDs training in operational research
- Adapt the quality indicators measured by the ERPA and integrate them into the SNIS systems

3.2 Problem-Solving Approach

All staff who received IMCI training in Konni and Boboye had also been trained in QA methods, including problem solving. It was clear to the team that all interviewed staff had mastered the QA tools, such as brainstorming and the selection matrix. The project has clearly succeeded in raising the staff's ability to identify and solve problems.

Specific to IMCI, the problem-solving approach enabled staff to be aware of problems with malnourished children and follow their progress to recovery. Some CSIs in Konni (CSI Konni and CSI Samo) reported an impressive decrease in the drop-out rate among malnourished children from treatment at the Nutritional Training and Rehabilitation Center (CRENA). However, there seemed to be a variance in the supervisory team's effectiveness in assisting CSI-level health workers in solving problems. For example, there were long breaks in the cold chain in a number of CSIs that district supervisors visited repeatedly.

It is important to recognize the limitations of the problem-solving technique in supporting IMCI. While the method enables staff to identify certain problems, such as low utilization of health services, it cannot detect defects in the staff's clinical skills. Skill problems can only be identified through observation by trained supervisors.

3.3 Findings on IMCI in Konni and Boboye

Because IMCI implementation and service provider training had been conducted only recently, it was too early to evaluate the pilot fully. The team did make several observations, however, as follows:

- Trained health staff are capable of applying the IMCI clinical guidelines to examine and treat children. They are also capable of checking children's vaccination and nutrition status
- The team did not find many of the items needed for IMCI to be successful. This included IMCI forms in Boboye and the universal lack of chronometers or clocks with second hands for counting respiratory rates. One facility did not have a baby scale (urban CSI in Konni). The team learned that the IMCI working group had decided not to provide chronometers or routinely use IMCI forms to reduce costs (because of inadequate financial resources). The team suggests that the working group reconsider this decision because the lack of these essential items, especially the IMCI forms, could be detrimental to IMCI's success

- In addition to IMCI forms, health workers have to complete four different records for each sick child: the SNIS daily tally notebook, the Daily Register Book, the Cost Recovery Register, and the Card of Care. Having so many records reduces the health workers' ability to complete the IMCI forms
- There is no clear understanding among health staff as to what to do with the completed forms. The team had a difficult time tracking completed IMCI forms at the CSIs visited. These forms could be valuable in monitoring IMCI implementation, especially in its early phase: The team recommends that they be completed at the CSI level and delivered to the district supervisory team during supervisory visits
- From its review of 127 completed IMCI forms in three CSIs in Boboye (Fabigi, Falmey, and Tonkossarey), the evaluation team found that some trained health staff need closer supervision to complete the IMCI forms correctly
- The evaluation team found that only 11 percent of expected follow-up visits actually occurred. This suggests that caretakers find it difficult to comply with IMCI standards that encourage their return to the health center for follow-up (70 percent of Niger's population lives more than five kilometers from a health facility)
- A similar discrepancy exists between children who had a general danger sign and should be referred to a hospital and those who actually were: Only 9 percent of children in Boboye with a general danger sign were referred. It could be that either the health staff neglected to indicate on the form that they had referred cases or that the health staff is reluctant to refer cases knowing that it is hard for caretakers, lacking transportation, to go to the hospital. (See Figure 4-5 and Appendix D, Table 1.)

From its review of 142 completed IMCI forms in three CSIs in the Konni District (CSIs Malbaza, Yaya, and Dogueraoua), the team found that health staff are generally capable of following IMCI standards. However, on 30 percent of the forms, the nutrition section was not completed. Similar to the situation in Boboye, the Konni CSIs had difficulty in complying with the IMCI standard on referral instructions. Only 33 percent of children with a general danger sign were actually referred. (See Figure 4-6 and Appendix D, Table 2.) CSI Malbaza referred most of such cases to a nearby missionary hospital (Galmi Missionary Hospital).

Figure 4-5
IMCI Forms at Three CSIs in the Boboye District

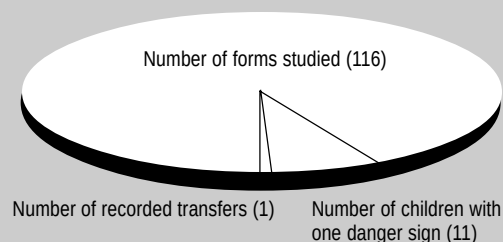
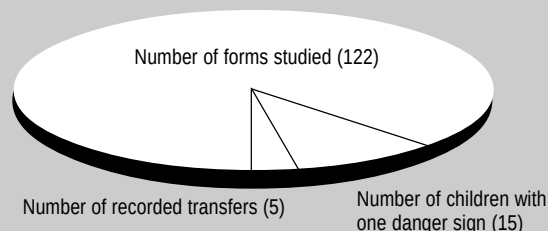


Figure 4-6
IMCI Forms at Three CSIs in the Konni District
(September and October 1998)



- Obviously, caretakers in the Konni District are having difficulty complying with IMCI standards on follow-up visits. Of the 92 required follow-up visits, none was recorded
- The Konni and Boboye District Hospitals are not prepared to act as effective referral centers because they lack needed equipment. For example, the oxygen mask needs to be replaced in the Konni District hospital. (It has not been able to provide oxygen to patients for a year.) These hospitals are also underutilized. In the Boboye District Hospital, only four children under five were admitted in September and October 1998
- Limited exit interviews with mothers suggest a need for improvement in the instructions they receive on how to use prescribed medicine: It is given to them wrapped in a paper with no written instructions. Counseling and written instructions should be provided for prescriptions

- Cold chain problems and failures to provide vaccinations are eroding IMCI's benefits. Out of eight CSIs in Konni, four have cold chain equipment in disrepair and many have refrigerators that are over 10 years old and should be replaced. Cold chain maintenance support was lacking in the six months prior to the evaluation, resulting in a serious drop in vaccination coverage in Konni
- Health staff are capable of checking children's vaccination status, but in many CSIs children identified as needing vaccination are not vaccinated on the examination day. SNIS district reports show that measles vaccination coverage dropped from 68 percent in May 1997 to 26 percent in June 1998

3.4 Recommendations Regarding IMCI

The evaluation team makes the following recommendations to improve the implementation of IMCI:

- Ensure that the new IMCI guidelines have replaced the previously existing case management for childhood diseases, such as SPT
- Provide CSIs with an adequate supply of IMCI forms and chronometers, and ensure the availability and use of the baby scales that the project provides
- Simplify, integrate, and reduce the number of records required for each sick child (SNIS daily tally notebook, the Daily Register Book, the Cost Recovery Register, the Card of Care, and IMCI form)
- Ensure that completed IMCI forms are kept either at the health facility or at the district level so the data can be used as appropriate, especially at this early stage of IMCI implementation
- Use data in the SNIS and from the IMCI forms to monitor selected IMCI indicators at the district level, such as:
 - Service utilization rate for children under five years old
 - Percentage of forms completed
 - Percentage of children with one or more general danger signs
 - Percentage of children with one or more general danger signs who were referred to the district hospital
 - Percentage of children who were required to come back for a follow-up visit
 - Percentage of follow-up visits at the health facility
 - Percentage of children with very low weight for age or anemia
 - Train stockkeepers in Boboye in the same manner as was used in Konni, including working with Pharmacists Without Borders
 - Supervise more closely health workers' performance in completing the IMCI forms, communicating the instructions for prescribed drugs to mothers, and providing nutritional counseling
 - Dispense drugs to mothers in envelopes with illustrated instructions
 - Develop, test, and distribute to mothers a card to facilitate communication during nutritional counseling
 - Improve referral systems and strengthen child health services in district hospitals
 - Rehabilitate the cold chain system by renovating or replacing refrigerators that are over 10 years old
 - Vaccinate children on the same day their need for a vaccination is discovered

V. Disseminating the Techniques and Results of QA

1. Dissemination during QAP

The following dissemination activities occurred before the merger of QAP and BASICS:

- A QA conference was held in December 1995 in Tahoua, with over 200 people in attendance. They came from all over the country to present results obtained by the problem-solving teams and to exchange viewpoints with people from other districts
- The MPH conducted a 10-day mission in May 1998 in the Tahoua District to assess QAP progress. He visited all the centers involved in QAP, and a national QA policy was subsequently adopted. In his last statements, he clearly expressed his intent to create a national QA program, although implementation methods and financial means are not yet determined
- The WHO representative visited the project in 1995
- Staff from other DDS and DS offices were invited to each quarterly meeting in the Tahoua District. This generated interest and a demand for QA in different regions. The World Bank representatives in Niger have started to show interest in the project. As a result, the MPH, with a loan from the World Bank, launched a request for bids in October 1998 for a large, two-year QA program in the Zinder, Diffa, and Tillabéry Districts

2. International Dissemination of QAP/BASICS

QAP staff participated in the following international or regional conferences and projects:

- International Society for Quality Assurance in Healthcare (ISQuA)
 - The 1993 conference in Austria, where staff received the best presentation award for a QA experience in a developing country
 - The 1994 conference in Italy
 - The 1995 conference in Canada, where staff gave a presentation and participated in the poster session on the Tahoua supervisory system

- In Burkina Faso staff collaborated with a GTZ project
- In Cameroon and Togo, staff introduced QA elements to the Regional Family Health and AIDS Prevention and John Snow International project
- A delegation from the Ivory Coast visited Tahoua for 30 days to study and receive training
- In Rwanda staff held an awareness workshop and training seminar with John Hopkins University
- With WHO/AFRO, staff participated in a consultation to reproduce the Tahoua experience
- African experts were invited to Brazzaville in November 1996 to define national QA strategies and programs
- Staff organized the first QA workshop in Niamey for French- and Portuguese-speaking countries

3. QA/IMCI Dissemination

Project staff participated in the following international or regional conferences and projects:

- In Mali a one-week visit for study
- In Senegal a collaboration with the BASICS regional office

4. Niamey Conference, October 26–28, 1998

While “international,” the Niamey conference disseminated information to entities in Niger as well as in West Africa and worldwide. It was held to explore and disseminate information on various experiences by healthcare providers in the Tahoua and Dosso Departments, following the implementation of the joint QAP/BASICS project. More than 200 participants attended the conference, representing all levels of the healthcare system: public administration at the prefecture level; related sectors and associations; NGOs and projects in Niger and eight Francophone African countries (Benin, Burkina Faso, Burundi, Ivory Coast, Guinea Conakry, Mali, Senegal, and Togo); and bilateral and multilateral cooperating agencies such as USAID/Washington, Quality Assurance Project URC/CHS/Washington, BASICS/Washington and/Dakar, WHO/AFRO in Harare, WHO/Niger, UNICEF/Niger, and the Belgian Medical Cooperation. Throughout the conference, staff from the two departments discussed their experiences with the QA approach and IMCI.

Presentations were conducted during plenary sessions on the basic concepts and general topics, and in working groups on issues focusing on specific PMA elements. The following items were discussed in plenary sessions:

- Basic concepts of the QA approach
- Child survival approach
- QA rationale
- The problem-solving process using the QA approach: the Tahoua, Niger, experience
- IMCI
- Lessons learned from supervisory activities and quarterly meetings
- Implementation of the ERPA to improve the performance of healthcare workers
- Using the operational research methodology to determine client satisfaction

Working groups were organized on the last day to elaborate on priority themes, such as staff motivation, institutionalization of the QA/IMCI approach, and QA project implementation strategies and tools. The conference provided abundant documentation on the various interventions to give a significant amount of information on the progress of various project activities, lessons learned, etc.

VI. Costs of the QAP/ BASICS Activities

This chapter provides an overview of the QA costs for each main activity and the project's overall operational costs. Key statistics are provided to help ensure that QA will continue in the future, first in the two target districts and then nationally.

1. Approach

The evaluation team conducted a cost analysis to evaluate the operational costs of implementing and maintaining essential program activities. The investigation focused on costs incurred at the health system's facility, district, and regional levels and relied mostly on historical data tracked by the QAP/BASICS project. The most comprehensive source was a program report on costs completed by the administrator for the QAP/BASICS project. The team also used findings from interviews with the QAP project manager and other stakeholders (who were not directly involved in cost analysis). Where appropriate and where direct data were lacking, costs were estimated based on reasonable assumptions. Excluded from this analysis was an assessment of the full cost of technical assistance and the QA and BASICS project-level costs and overhead, so cost estimates for operating essential activities do not reflect the allocation of indirect costs related to the necessary administrative infrastructure.

The evaluation team presents cost estimates with recognition of their limitations. Government-set per diems were high compared to devaluating salaries, so personnel costs are higher for activities that involve a per diem (training, supervision, and coaching) than they are for salary-based activities (problem solving). The former activities involve travel and consequently require per diems. In addition, several factors limit the application of these figures to Niger: government policies, the high cost of fuel in Niger, and the fact that spending was influenced by a budget. Lastly, the team was unable to obtain sufficient data to link the costs of these activities with their effectiveness.

Given the evaluation's narrow timeframe, the team focused on evaluating the costs of core activities of the QA project and the joint QAP/BASICS project that were identified as critical in achieving objectives. These were reduced to:

- Basic QA and IMCI Training
- Training of trainers

- Team-based problem solving
- Supervision and coaching activities (including the supervisory checklist)
- District, Regional, and Quality Council QA meetings
- Cost of sustaining essential QA Activities

2. Basic QA and IMCI Training

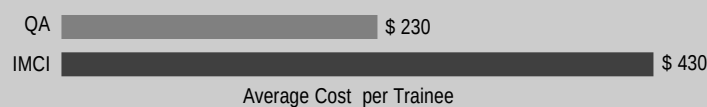
Based on project estimates, training constitutes the most significant cost category relative to the total cost of essential activities. Over the course of the QAP/BASICS project, costs for training accounted for nearly 60 percent of the total cost of essential activities (see Appendix H, Tables 2 and 3).

Methodology: The evaluation team primarily based cost estimates for training providers and trainers in QA and IMCI on an analysis of 1997 and 1998 training costs. While exact estimates of the average costs per trained individual tended to vary from one session to another (largely because of each session's specific needs), estimates of average training costs could be derived across multiple sessions. Estimates included the cost of per diems paid to participants and trainers, honoraria for trainers, transportation reimbursements, training kits and other supplies, and refreshments. In the case of IMCI training, the team also included the cost of accommodations for participants and trainers, as well as training site rental.

Several costs that may be considered in “economic” or “real” terms were excluded from the analysis. For instance, not included were the opportunity costs of the time that participants and trainers (when local personnel conducted the training) spent training. This stems from the Nigeriens’ desire to integrate QA principles into the way that care is delivered so that QA training becomes part of the healthcare providers’ responsibility and functioning. Consequently, time costs often cannot be extracted. In the following analyses, when local staff provided technical assistance, the cost was assessed based only on expenses incurred to cover their local per diem and honorarium; costs associated with the individual’s time (or salary not directly supported by the government) were not included. The team made this adjustment to capture the actual training cost that the Nigerien health system will most likely have to support when QA principles are nationally institutionalized. In this scenario, local trainers would be sufficiently equipped to meet the training needs of other participating regions in Niger (and possibly Africa), and QA would be integrated into the delivery of care.

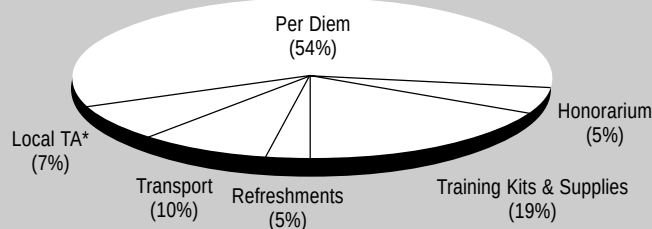
Findings: The cost associated with training one provider in QA averaged approximately \$230 (\$33 per provider per day; see Figure 6-1; Appendix H, Table 2 has details). Similarly, it cost approximately \$430 per provider to train them in IMCI (\$39 per provider per day; see Appendix H, Table 3). The cost difference between the two training sessions is partly due to the length of the training (seven days for QA versus 11 days for IMCI) and the accommodation and rental costs.

Figure 6-1
Training Costs for QA and IMCI (US Dollars)



The investigation of training costs revealed that the most significant driver of QA training costs are per diem charges (over 50 percent) paid to both trainers and providers, followed by costs associated with training kits (up to 15 percent). Figure 6-2 shows the proportion of these and other costs.

Figure 6-2
Breakdown of QA Training Costs (Percentages)

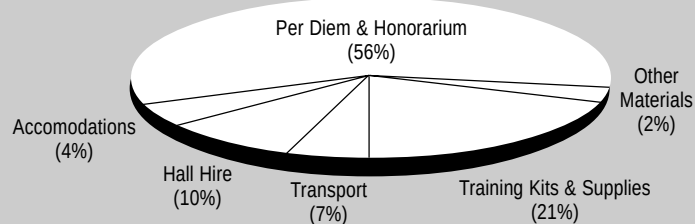


Based on four training sessions held between February and April, 1998

*TA: Technical Assistance

For IMCI training, cost categories were divided in roughly the same manner, with training kits constituting a slightly higher percentage of total costs (about 20 percent; see Figure 6-3).

Figure 6-3
Breakdown of IMCI Training Costs (Percentages)



Based on two training sessions held between August and September, 1998

3. Training of Trainers

Creating and maintaining local training capacity to sustain program goals beyond the project's lifetime are critical aspects of a program's institutionalization. Knowing this, the evaluation team estimated the incremental cost of training a cadre of local trainers that would be independently capable of continuing training activities in either QA or IMCI. QA trainer training consisted essentially of a week of intensive training (after basic QA training) and a series of practical applications/demonstrations that trainees in basic QA were required to complete to obtain trainer qualification. This training varied in length and rigor based on the individual's perceived needs.

Methodology: To estimate the cost of this training process, the team focused on the requirements associated with the initial week-long basic training. In most cases, the amount included the cost of the per diems paid to trainees, QA counselors, and training consultants, and transportation and other expenses related to the training exercises (e.g., materials, supplies, refreshments). These costs are considered "standard" costs. Other expenses provided on an as-needed basis were considered "situational" costs (i.e., costs that are not consistently incurred but were expended if needed for a given session). These included accommodations for participants and trainers and rental for the training site. (Accommodation was often free if space was available in the health facilities during nonwork hours or if accommodations were found in the homes of local residents. If such space was not sufficient or available, expenses were incurred to rent it.)

Findings: Based on 1998 expenditures for training, the incremental cost of training a trainer for QA qualification was about \$260, of which \$200 was considered a "standard" cost and about \$60 was driven by situational

training needs (see Table 6-1; Appendix H, Table 4 has details).

3.1 Training Recommendations

Opportunities to decrease costs should be targeted and capitalized. They may include:

- Assuring cost efficiencies, e.g., importing the experience from other countries of conducting on-site training (trade-off between the cost of transport for trainers versus the cost of accommodations for participants)
- Minimizing the cost of training kits
- At a higher level, changing the criteria for per diem payment

Table 6-1
Average Incremental Cost of Training Trainers in QA

Average Cost per Provider	
"Standard" Costs	\$ 200
"Situational" Costs	60
Total	\$ 260



4. Team-Based Problem Solving

Historically, information on the cost of conducting and implementing team-based problem-solving activities has been difficult to collect. One such initiative began in 1997 and aimed at collecting data on the frequency of team-based problem-solving meetings, the amount of time staff spent in the meetings, and the activities that helped support a team's problem-solving efforts, including the cost of collecting data. The team was able to develop a cost estimate of instituting team problem solving in facilities through a retrospective analysis and estimation.

Methodology: Appendix H, Table 5 provides a summary of the cost elements of team-based problem solving with cost estimates. The cost list assumes that the recommended problem-solving schedule (weekly meetings of one to two hours for three months) was followed.

Assessed completely, the cost estimate of conducting problem-solving activities should include the equivalent cost of the time of staff who participated in the activity. This cost is particularly important if that time would have been devoted to their regular duties (i.e., an oppor-

tunity cost for their time either exists or is perceived). An average problem-solving team in Niger is composed of three to seven people, typically a head nurse, assistant nurse, janitor, some mix of traditional birth attendants, and the district chief.

Findings: On average, a team-based problem-solving cycle cost about \$104 (see Table 6-2), ranging from about \$78 to \$130 per cycle in recurrent costs. (A one-time investment of about \$14 in a tripod to hold flipcharts would increase this cost, but the tripod would likely be used for multiple cycles, rendering this cost negligible on a per-cycle basis.)

Table 6-2
Average Total Recurrent Cost of QA Problem-Solving Activities (Estimated; US Dollars)

Type of Cost		\$
Team member costs	\$ 52	
Data collection and supply costs (recurrent only)	52	
Total	\$ 104	

Overall, for data collection and supplies, the most significant cost components were the per diems paid to data collectors (about 30 percent of costs), transport or fuel costs (about 23 percent) and markers (about 20 percent). Paper-based inputs such as survey forms, flipcharts, and a record book were separately not a large component of the total recurrent costs, but combined they accounted for a little over 25 percent of costs.

The cost of the service providers' time was, on average, roughly 50 percent of the total recurrent cost of implementing problem-solving activities. Again applying the recommended guideline of a standard problem-solving cycle (i.e., team meets for one to two hours per week for three months), the average equivalent staff and community member time cost is approximately \$52 per cycle. This is influenced as much by the number of representatives from each skill or health provider category as it is by the compensation level within a specific skill level.

It is reasonable to expect that the actual cost of completing a team-based problem-solving cycle will vary from these estimates and may even be higher. A variation will occur from team to team, depending on several factors. One factor is the team's productivity level and the efficiency with which it completes a cycle. (According to some estimates, 70 percent of teams are semi-active and only half are active. The average cycle lasts over six

months to a year with teams meeting bimonthly.) Another factor depends on the team's size, composition, and the mix of staff and skill levels. Finally, a culture of "safety stocking" (where teams request more supplies than necessary) will tend to inflate the actual consumption of problem-solving supplies. While the degree of these effects is highly situational, "safety stocking" nearly always leads to higher costs. Table 6-3 depicts the forces that influence total costs.

Table 6-3
Effects of Various Factors on Average Cost of a Problem-Solving Cycle

Factor	Impact on Average Cost	\$
Team size and mix	+ / -	
Cycle duration	+ / -	
Level of team activity	+ / -	
"Safety stocking"	+ +	
+ / - = Net effect undetermined		+ = Increase cost

4.1 Recommendations to Reduce the Cost of the Problem-Solving Cycle

One or a combination of the following is recommended:

- Use less expensive inputs (e.g., use low-cost chalk and blackboard and transcribe activities into records rather than more expensive flipchart and markers)
- Change the length and breadth of the survey forms (this is currently being done). Shorter and broader surveys could cover more than one district for economies of scale, or more comprehensive surveys could capture more information per survey and reduce the need for numerous surveys
- Encourage and enforce data collection on team activities to better support cost analysis in the future and, more importantly, to use the information to identify teams needing help
- Minimize "safety stocking" of supplies by reassuring teams that supplies will be replenished should theirs run out

5. Supervision and Coaching Activities

Together with costs for regional and departmental meetings, supervision and coaching activities constituted a significant cost category for the QAP/BASICS project's field costs. Over the course of the project, over 40

percent of essential QA activities focused on supervision, coaching, and meetings (see Appendix H, Table 7). For supervision and coaching, cost estimates are based on 70 to 75 percent completion rates of all scheduled activities in this category; this may actually underestimate the full cost of supervision and coaching. (The referenced table also compares completion and consumption rates.)

Caveats Regarding Cost: A caveat regarding costs of supervision activities in the Nigerien context relates to the reality of existing supervision activities in most districts. Traditionally, the cost of QA supervision would be considered incremental to existing supervision expenses, but in Niger there was no previous supervisory system. Hence, any cost in this area results from a stimulated need and demand for supervision to support QA activities. In other words, for this function to occur, investment in labor and the support infrastructure must be made “de neuve.” The same is true for the coaching system. To the extent possible, the evaluation team made adjustments in the methodologies to estimate costs of both activities (see below). Another shortcoming of this analysis is its limitation in linking the cost of supervisory and coaching visits with the quality of those visits. The team was unable to obtain sufficient data to link the nature/quality of the supervisory/coaching visit and the teams’ performance.

Methodology: Appendix H, Tables 7 and 9 document the actual costs associated with coaching activities in eight districts in 1997. Typically, two coaches are responsible for visiting two centers a day (centers receive coaching visits monthly) and conducting each coaching visit. Per diems are typically collected by coaches upon demonstration that they visited two health centers a day. In addition to the per diem paid to each coach, costs include the cost of enlisting a driver and fuel. Since this activity is specific to QA initiatives, a lump-sum fee for maintaining this activity is allocated quarterly to each district. While difficult to determine exactly, the degree of cost efficiency⁴ in carrying out coaching activities varied significantly across districts.⁵

Controlling for the rate of completion of scheduled coaching visits, the percentage of costs ranged from close to 50 percent below budget (Illéla) to about 35 percent above (Tchinta).

Appendix H, Tables 8 and 10 document the actual costs associated with supervisory activities in eight districts in 1997. Centers are supervised quarterly, and each supervisory visit is typically conducted by two supervisors. Costs include the cost of enlisting a driver and fuel for the vehicle. Controlling for the levels of activity and hence expenditures across districts—which vary considerably—the evaluation team observed that spending for supervision has generally tended to exceed amounts budgeted for this activity in all districts, on average by about 30 percent. This is partly due to an increase in fuel prices, which was not foreseen when the budgets were developed.

Findings: The Konni and Tahoua Districts, where the schedule of coaching visits was successfully completed, provided the basis for estimating the average cost of completing a coaching visit: \$15 to \$20. While per diems for both drivers and coaches are fixed, a breakdown of total coaching costs reveals that fuel accounts for 70 to 80 percent of the total. This proportion holds across all CSIs and districts, as well as for each district, regardless of the number of CSIs or the average distance of a CSI from the district headquarters. (See Appendix H, Table 7 for details.)

An analysis of the supervisory cost per CSI and cost per visit for four districts where all scheduled visits were conducted (Tahoua, Konni, Illéla, Madaoua) led to several findings. While estimates vary by district and are based on the distribution of CSIs in a district, supervisory visits to a CSI averaged \$20 to \$35 each. Unlike the breakdown of coaching costs, both the cost of total per diems paid to supervisors and fuel costs are major drivers of supervisory costs, accounting for roughly 20 to 40 percent and 40 to 75 percent of total costs, respectively. Both the slightly higher rates of per diems for supervisors and the relative importance of per diems to fuel costs (supervision visits are less frequent than coaching visits) partly account for this difference. This is supported by the high sensitivity of relative per diem and fuel costs to variations in the number of CSIs visited and to the distance traveled to the CSI. Appendix H, Table 11 has information on the average round-trip distance to a CSI in a given district and corresponding fuel costs.

⁴ Determined as the ratio of resources consumed relative to the amount budgeted versus the number of activities completed relative to the number scheduled.

⁵ The difficulty stems from the possibility that idiosyncrasies of the performance reporting process may account for variations in the budget utilization rates as much as real variations in activity efficiencies. Essentially, because monthly coaching activities are reported quarterly, it is possible that districts under- or over-report the number of coaching visits completed relative to the actual amounts spent on coaching.

6. Supervision Checklist

Because of its fairly recent introduction, the impact of the supervisory checklist is still being measured, with early indications of potential benefits. It seemed appropriate to assess and make early projections on its costs. Using the checklist generates two costs: (a) the recurrent cost of reproducing the binder containing the forms and (b) the investment in minimal training for supervisors in using the checklist. Table 6-4 provides a breakdown.

7. Recommendations Relating to Supervisory and Coaching Costs

The evaluation team proposes the following recommendations regarding the costs associated with supervision and coaching:

- Encourage the institutionalization of supervisory systems, such that QA supervision can be measured as part of routine supervision, minimizing incremental QA supervision costs relative to overall QA program costs
- Merge supervisory visits with coaching visits
- Re-use binders and materials for the checklist over more visits, so that the recurrent cost of the checklist per supervisor is reduced (e.g., content of one checklist is designed to accommodate multiple visits; reuse checklist storage binders once a set of checklists are completed for the annual supervision cycle)
- Link information on the quality and effectiveness of supervision and coaching with cost

8. Quality Meetings

Methodology: Regular, quarterly meetings of providers and other stakeholders in the QA process have been well regarded as having significant impact on the sustainability and progress of the district and regional initiatives to promote quality assurance. Consequently, the team estimated and documented their cost. For this, the team used historical costs expended to support meetings, which primarily included per diems, transport reimbursements, and refreshments.

Findings:

District Meetings: District meetings typically are attended by eight head nurses and ten other individuals from the district and occur over two days. Historically, the average cost of quarterly meetings has been allo-

Table 6-4
Cost of Supervisory Checklist (US Dollars)

Component	Cost	Comments
Supervision Tool*		
Checklist	\$10 every 6 months	Currently covers material for 2 supervisory visits. Plans are under way to extend material coverage for up to a year.
Binder (one time)	\$14 per center	Cost per CSI. It is foreseeable that encouraging re-use of initial binder for new periods can reduce this cost.
Total annual recurrent cost	\$34 per center	
Training		
Per diem	\$25 per supervisor	Compensation for 2-day basic training course.
Transport	\$8-17	Based on average distance traveled of 50 to 100 kms. and fuel mileage rate of US 17 cents per kilometer.
Total annual cost	\$33-42 per supervisor	
* Cost reflects two copies of the tool, one for the center and one for the supervisor.		

cated a flat rate of around \$200 per quarter per district (see Table 6-5).

Regional Meetings: Regional meetings have historically been well attended by representatives from different levels of the health system. Typically, a meeting accommodates two representatives from each of the eight districts implementing QA programs, five individuals from the departmental office, and three from the MPH. The cost of regional meetings per quarter amounts to approximately \$3,000, including per diems paid to participants.

Quality Council: Another practice of general meetings that has become part of the QA program is the Quality Council meeting. Typically, this entails the travel and per diem expenses of about four people from each district who meet about six times per year. Costs to support these have been about \$120 per meeting.

Table 6-5
Estimated Average Cost of QA-Related Meetings (US Dollars)

	Estimated Average Cost	
District Meetings (quarterly)	200	\$
Regional Meetings (quarterly)	3,000	
Quality Council Meetings (bimonthly)	120	

9. Cost of Sustaining Essential QA Activities

With regard to the cost of sustaining the essential QA and IMCI activities that are evaluated in this report, the evaluation team developed an estimated projection of the total annual cost (see Table 6-6). For a department with the size and structure of Tahoua, training, supervision, coaching and quality meetings, and IMCI training require an investment of approximately 3.1 cents per capita. This figure is the equivalent of 7.7 cents per person within the catchment area of a QA health center. This projected level of investment capitalizes on the other QA activities built into the design of the program, including the development of standards and quality monitoring. These estimates reflect only the direct costs and do not include the overhead costs associated with maintaining a basic administrative infrastructure to support these activities. This infrastructure would include a minimal logistical capacity at the department

level, including a regional coordinator, a core local cadre of trainers, a minimal support of external technical assistance, and basic investment in supplies and maintenance of buildings, equipment, and vehicles. The costs of other QA activities (quality assessment surveys, developing standards, and incentive and reward systems) that could be beneficial in supporting these essential QA activities are also not included.

VII. Conclusions/Recommendations

1. Conclusions

The merger of QAP and BASICS in Niger led to a new way of implementing IMCI. This new approach starts with interventions to support the systems needed for IMCI rather than with IMCI training. In selected areas, QA interventions had been implemented at least a year before IMCI training began and resulted in significant improvements. There is an important lesson from the joint project for the West African region and the international community. It demonstrated a new way to introduce IMCI, one that starts with strengthening health support systems well before beginning IMCI training.

The joint project succeeded in bringing many improvements to the healthcare system in the target areas. First, it revived the supervisory system and created trained supervisory teams who can provide technical support to health facility staff. The concept of coaching facilitated the transformation of supervision from the traditional authoritarian style to a supportive, problem-solving approach.

Second, the project introduced a number of tools that contributed to IMCI's introduction. ERPA, the assessment tool, proved valuable not only in monitoring health workers' performance but also in improving it through the timely feedback of its IMCI compliance data. Also, the integrated supervision checklist is a helpful, comprehensive tool, albeit too long.

Third, the problem-solving tool elevated the health providers' ability to identify and solve problems in the delivery of healthcare services. It is important to recognize, however, that this tool cannot detect defects in clinical skills, which must be addressed through supervision. The project has also had a great impact in improving the staff's ability to collect, analyze, and use data at the health facility and district levels.

Table 6-6
Average Annual Cost of Essential QA and IMCI Activities (Tahoua; US Dollars)

	Average Unit Cost	Description	Total Cost
Supervision/coaching			
Supervision - district	\$ 27	58 centers, 4x/yr	\$ 6,264
Coaching - health centers	18	58 centers, 12x/yr	12,528
Supervisory checklist ¹	10	58 centers, 2x/yr	1,160
Training			
New staff ²			
QA	\$ 2,300	1x/yr	\$ 2,300
IMCI	10,750	1x/yr	10,750
QA refresher for current staff ³	2,300	2x/yr	2,300
Meetings			
Regional	\$ 3,000	4x/yr	\$ 12,000
District	200	4x/yr	800
Quality Council	120	6x/yr	720
Team-Problem Solving			
Data collection and supplies	\$ 52	63 teams, 2 cycles	\$ 6,552
Total for QA only			\$ 44,624
Total for QA and IMCI			\$ 55,374

¹ This excludes one-time costs of \$14 for a binder and \$33–42 for supervisor training in using the checklist.

² Basic QA and IMCI training: 10 people at approximately \$230 per person (making allowance for potential personnel turnover rate) for QA and 25 people at approximately \$430 per person for IMCI

³ Basic QA refresher: 10 people at approximately \$230 per person (may be less per person with shorter training)

Fourth, improved stockkeeping of essential generic drugs, combined with cost recovery, resulted in lower cost, more reliably available MEG, which stimulated the continuity of care and activity integration. The team measured utilization rates and samples of MEG stocks and found a slight decrease in utilization rates at the beginning of cost recovery followed by an increase in most cases.

The evaluation team found that there are many items missing that are needed for IMCI to be successful, such as IMCI forms and the respiratory rate counter. (Baby scales were also missing sometimes.) The team suggests that the national IMCI working group reconsider its decision to cut back these tools because of their cost. Their absence, especially the IMCI forms, could be detrimental to IMCI's success.

In addition to the IMCI form, health workers have to complete four different records for each sick child (SNIS daily tally notebook, the Daily Register Book, the Cost Recovery Register, and the Card of Care). It is difficult for health workers to complete this paperwork, so the forms should be integrated to reduce and simplify recordkeeping.

Problems in maintaining the cold chain are eroding IMCI's benefits. This has a twofold downside. First, children are receiving ineffective vaccines, unbeknownst to health providers. Second, statistics from IMCI reports are incorrect, since staff are reporting vaccinations that are not effective. Some investment in new refrigeration and maintenance could solve these problems.

While healthcare providers are capable of checking a child's vaccination status, children identified as needing a vaccination frequently do not receive it on the day of the examination. Since people frequently live far from their health centers, it is especially important to provide this service when the opportunity arises.

Results show that health workers and caretakers are having difficulty complying with IMCI standards regarding both the referral of very sick children to other healthcare facilities and the need to return to the CSI for follow-up visits. This difficulty, exacerbated by Niger's dispersed population, presents a challenge not only to the health delivery system but also to IMCI standards. Further adaptation could be needed to adjust the requirements for follow-up visits to better suit the dispersed population.

The team discovered some troubling aspects of healthcare services delivery in the target areas. Both district hospitals in Konni and Boboye are not prepared

to act as effective referral centers due to lack of equipment and trained staff. This means that children are not receiving appropriate care and that the facilities cannot follow the IMCI guidelines. Furthermore, the exit interviews with mothers indicated that providers should improve their communications regarding prescriptions and nutrition.

Looking broadly, the project enabled Niger to take a leadership role in introducing IMCI in the West African region. Participants from many West African countries have participated in IMCI training in Niger, and Niger's experience in QA and IMCI was presented at a number of regional conferences and meetings. Considering the large number of trained agents and trainers, prepared materials, existing documentation, and the success of the international conference in Niamey in October 1998, the project's replication in Francophone Africa should be rapid. Further, the project's benefits could spread to other continents. The supervision system's launch with the efficient use of the supervision checklist, ERPA management and analysis, and the coaching methods were important experiments that have been field tested and should benefit other QA projects in Latin America and Asia.

2. Lessons Learned

Several aspects of the joint project experience should serve as guideposts for those who will implement similar endeavors in the future. First and foremost, the evaluation determined that the QA approach helped improve the integrated management of childhood illnesses by creating favorable conditions, such as activity integration, a referral system, and regular follow-up of activities.

General experience showed that discussion opportunities within the problem-solving cycle generated favorable group dynamics and teamwork. The experience-sharing mechanism is an indispensable part of the system, and the emergence of teamwork will likely improve healthcare services in the target areas for a long time to come.

All staff were able to use the QA tools and generate satisfactory—sometimes very impressive—results. The problems identified for problem solving were generally limited to the PMA, which may be linked to the fact that teams use SNIS data analyses in determining which problems to consider.

The integration of PMA activities is a good example of process improvement that all interviewed field workers

noted as a product of QA efforts. An illustration of this is the integration of immunization into the daily activities of all the centers visited by the evaluation team.

The average length of the problem-solving cycle was six months—a minimum of three and maximum twelve. Regular coaching (comments are below), which is vigorous in the target areas (especially at the CSI level), shortens the cycle.

Community participation varies in the target areas depending on the CSI. Since commitment from the community leads to longer lasting-solutions, the CSIs should integrate community involvement into their QA activities.

The sometimes dramatic improvement in coverage and utilization rates—along with user satisfaction—following problem-solving cycles shows that problems are not always caused by a lack of means but sometimes by poor service organization and management problems.

The problem-solving teams' work generates an optimal impact when teams are effectively supported by: (a) a supervision and coaching system that the DS manages and (b) a district coordination structure, such as the Quality Regional Council.

Using the problem-solving cycle, the teams have constantly improved the quality of healthcare and services, although records of progress vary from team to team. The main problem that they encountered pertains to the analysis of the problem, specifically data collection and interpretation.

Regular CRQ meetings at the DDS level and problem-solving team meetings at the DS and CSI levels are important for the continuity of QA activities. Information sharing by coaches helps resolve priority problems. Two major problems that may endanger QA continuity are discontinuing training and follow-up (supervision, coaching, and quarterly meetings).

3. Main Factors Limiting QA

The evaluation team identified several factors that will limit the success of QA unless improvements are made. They include:

- Personnel mobility and motivation
- Old refrigerators, maintenance problems, gas shortages, unreliable car/motorbike pool
- Inaccurate and/or out-of-date demographic data
- Access to healthcare limited by the dispersed nature of the population
- Wide use of several versions of clinical standards confuses health workers
- Unmet salary payments for health workers (five months in 1997 and three months in 1998) were often compensated with QAP per diem payments for supervision, coaching, and training activities
- Time spent away from the center to attend training sessions. Some workers were away from their centers for several months during the year when they attended training organized by MPH or other partners

4. Recommendations

Recommendations are listed in Table 7-1 by level of government (Ministry, Department or District) and by area of concern (Norms & Standards, IMCI, Supervision, Coaching, ERPA, Quarterly Meetings, Problem-Solving Cycle, Sustainability, and Dissemination/Documentation). Where there is no recommendation for a level/concern, the word “none” is entered.

**Table 7-1
Recommendations**

LEVEL/Area	Recommendation
MINISTRY	
Norms & Standards	■ Establish an official inventory of existing, consistent standards and guidebooks on child health and CSI management. ■ Release this inventory as a reference.
IMCI	■ Ensure that the new IMCI standards effectively replace the previous child care management standards (example: SPT). ■ Improve procurement, especially for IMCI forms, chronometers, and baby scales. ■ Expand the training of managers and health workers in essential generic drug (MEG) stock management techniques. ■ Closely monitor health workers' performance in terms of completing forms and providing therapeutic and nutritional advice to mothers. ■ Improve the referral system and strengthen district hospitals by establishing standards. ■ Maintain the cold chain by repairing and replacing refrigerators .
Supervision	■ Pursue efforts to integrate supervision activities.
Coaching	■ Improve the regional coaches' performance by providing them with regular, ongoing QA training.
ERPA/Monitoring Workers' Performance	■ Adapt the quality indicators used in ERPA and integrate them into the SNIS support system. ■ Complete the DDS and ECD staff training in operational research.
Quarterly Meetings	■ Continue and support these meetings as they provide workers with ongoing training, motivation, and an opportunity to evaluate themselves and share experiences (benchmarking). ■ Schedule periodic meetings at all levels on the functions of management teams.
Problem-Solving Cycle	■ Complete DDS and ECD staff training in operational research in such areas such as population census techniques.
Sustainability	■ Support the rapid implementation of a QA curriculum in training schools, such as ENSP and the medical school. ■ Support distribution of QA documents and distribute a QA skills and methodologies guide. ■ Encourage local participation in covering costs for fundamental QA activities, such as fuel and food expenses, supplies for quarterly meetings, and coaching and supervisory activities. ■ Investigate methods of using cost-recovery techniques to finance these essential activities. ■ Explain and show the QA cost/activity system to various sponsors. ■ Establish an ongoing training system to solve staff transportation problems.
Dissemination/Documentation	■ Organize regular forums to share QA experiences. ■ Ensure coordination of various operational research activities to disseminate results achieved. ■ Establish QA/IMCI operations research with a sample group to use the experiences and progress in Tahoua and Boboye. Service provider satisfaction should also be studied as it has not been documented.
DEPARTMENT	
Norms & Standards	■ None
IMCI	■ Improve the archive system for completed IMCI forms to facilitate data analysis and service evaluation. ■ Closely monitor health workers' performance in terms of completing forms and providing therapeutic and nutritional advice to mothers.
Supervision	■ Establish a minimum of biannual supervisory visits. ■ Regularly update the supervisory system to take into account changes in health programs, such as IMCI. ■ Reinforce the DDS supervision system in the district by promoting the use of a central supervision checklist for DDS. ■ Simplify the supervision checklist, especially the patient interview section. ■ Institutionalize a follow-up system for requests and suggested solutions from supervisory visits and establish focal points for each health center at the DDS and district levels.
Coaching	■ Ensure that all supervisors are trained in coaching techniques. ■ Conduct monthly coaching activities at the department and district levels when there are new cycles. ■ Provide guidance for DDS district coaches to continually update their knowledge.

continued on next page

Table 7-1 (continued)
Recommendations

LEVEL/Area	Recommendation
DEPARTMENT	
ERPA/Monitoring Workers' Performance	■ Provide surveyed workers with continuous feedback on the ERPA results as quickly as possible so they can use it to improve their performance. ■ Conduct the ERPA on a semiannual basis.
Quarterly Meetings	■ None
Problem-Solving Cycle	■ Conduct regular problem-solving cycles to improve support systems. This will help the central teams retain personnel resources and prepare for other, higher-level QA techniques, such as process design/redesign.
Sustainability	■ Encourage personnel transfers within departments where QA is already in place. ■ Increase awareness among the other partners involved in the districts on QA/IMCI activities included in the yearly district action plan. ■ Establish a logistics transport system that includes cars in working condition, spare parts, and trained mechanics to ensure the viability of key QA activities such as coaching, supervision, or transfers required by IMCI.
Dissemination/Documentation	■ Organize regular forums to share QA experiences.
DISTRICT	
Norms & Standards	■ None
IMCI	■ None
Supervision	■ Combine supervisory and coaching visits to save time and thus promote optimal supervision. ■ Institutionalize a follow-up system for requests and suggested solutions from supervisory visits and establish focal points for each health center at the DDS and district levels. ■ Simplify the integrated supervision checklist, especially the patient interview section.
Coaching	■ Continue coaching meetings so that they can share experiences. ■ Train coaches in data collection, processing and interpretation techniques, given their importance in monitoring activities. ■ Follow rules pertaining to the composition norms of problem-solving teams. ■ Conduct monthly coaching activities at the department and district levels when there are new cycles. ■ Provide guidance for DDS district coaches to continually update their knowledge.
ERPA/Monitoring Worker's Performance	■ Provide surveyed workers with continuous feedback on the ERPA results as quickly as possible so they can use it to improve their performance. ■ Conduct the ERPA on a semiannual basis.
Quarterly Meetings	■ None
Problem-Solving Cycle	■ Systematically encourage better community participation within the problem-solving teams. ■ Conduct regular problem-solving cycles to improve support systems. This will help the central teams retain personnel resources and prepare for other higher level QA techniques such as quality design.
Sustainability	■ Encourage personnel transfers within departments where QA is already in place. ■ Increase awareness among the other partners involved in the districts on QA/IMCI activities included in the yearly district action plan. ■ Establish a logistics transport system that includes cars in working condition, spare parts, and trained mechanics to ensure the viability of key QA activities such as coaching, supervision, or transfers required by IMCI.
Dissemination/Documentation	■ None

Appendix A: Niger Overview

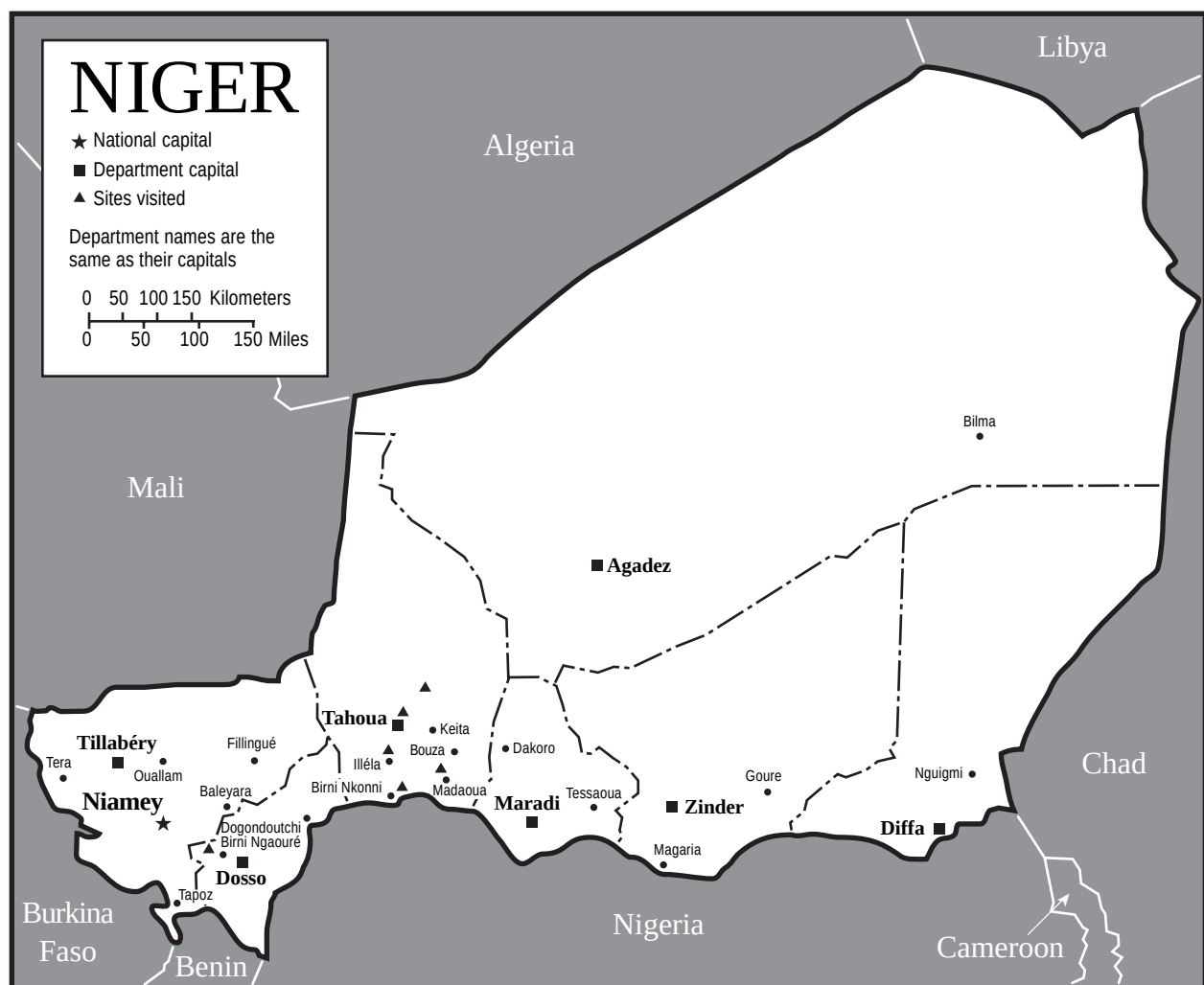
Background Information on Niger

1.1 Geography

Niger is located in the eastern part of West Africa in the Sahel-Saharan area. It covers 1,267,000 square kilometers and is bordered on the north by Algeria and Libya, on the south by Benin and Nigeria, on the west by Burkina Faso and Mali, and on the east by Chad.

The country is divided into seven large regions or departments (Agadez, Diffa, Dosso, Maradi, Tahoua, Tillabéry, Zinder), and Niamey and its suburbs, which is also considered a department. The departments are divided into 42 districts.

The sites visited by the evaluation team are marked with a triangle. In the Tahoua Department: Tahoua, Abalak, Illéla, Konni, and Madaoua. In the Dosso Department: Boboye.



1.2 Population Data

Niger's population is estimated at about 10 million, distributed unevenly with most of the population living on or near the southern border and only a small portion living in the north. In effect, three-fourths of the population live on one-fourth of the land. Agadez Department, which covers more than half the territory (56.6 percent) contains only 2.8 percent of the population while Tillabéry Department (which includes Niamey [Niger's capital] and its suburbs) covers only 8 percent of the territory has 10 times more inhabitants (28 percent) than Agadez. Maradi Department, which covers only 3 percent of the territory, has 20 percent of the population. Population densities vary from Tahoua Department at 11.5 inhabitants per square kilometer (1.8 million people, 113, 372 square kilometers) to Dosso Department at 46 inhabitants per square kilometer (1,476,611 people, 31,000 square kilometers). There are slightly more women than men: Women represent 50.5 percent of the population.

1.3 Social and Cultural Data

There are eight ethnic groups in Niger; their population percentages are shown in Table A-1.

In terms of religion, over 95 percent of Nigeriens are Moslems. Other religions are Christianity and Animism.

Table A-1
Ethnic Groups in Niger

Ethnic Groups	Percentage of the population
Houassa	56.0
Zarma-songhai	22.0
Peulhs	8.5
Touaregs	8.0
Kanouris	4.5
Arabs, Toubous, and Gourmantches	1.0

2. Niger's Healthcare System

2.1. Health Organization

The healthcare system is organized along the country's administrative divisions.

2.2 The Ministry of Public Health

The Ministry of Public Health (MPH) is divided into central directorates and a number of programs, including the National Health Information System (SNIS, attached to the General Secretariat) and external services.

The external services include:

- Regional Health Directorate (DDS)
- Departmental Hospital Centers (CHD)
- National Hospitals
- Specialized Centers and teaching schools such as
 - The Leprosy Center
 - The National Center for Tuberculosis
 - The Regional Medical Training and Research Institute (CimeFor)
 - The National Family Health Center (CNSF)
 - The National Public Health School in Niamey (ENSP)
 - The ENSP in Zinder

2.3 The National Health Information System

SNIS is responsible for collecting and analyzing the country's overall health information except data pertaining to national and departmental hospital centers. Data are collected through established collection systems that are reviewed every two years. Data are then forwarded quarterly from the local integrated healthcare center (CSI) to the healthcare district (DS), from the DS to the Regional Health Directorate (DDS), and from there to the SNIS. A preliminary analysis is performed at each level before data are forwarded to the next level.

The SNIS is also responsible for epidemiological surveillance. The health centers must submit a weekly epidemiological report to the SNIS on contagious diseases (cholera, measles, meningitis, diphtheria, tetanus, yellow fever, and poliomyelitis).

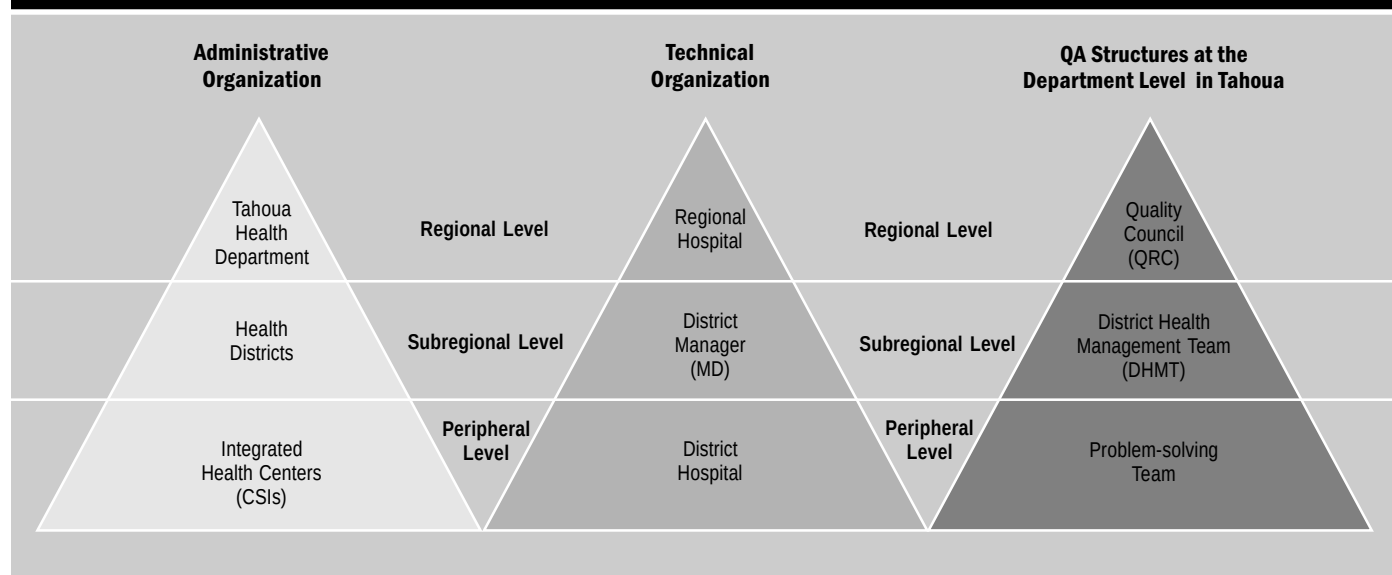
2.4 The Healthcare System

The healthcare system in Niger is organized around training and public and private healthcare institutions. It is structured as a three-level health pyramid:

The first level is composed of three echelons and corresponds to the health district (previous medical division):

- At the first echelon, there are village healthcare teams (ESV) made up of at least two first-aid workers and two matrons working out of a small cabin. The ESV members are volunteers

Figure A-1
Diagram of the Healthcare System in Niger



- At the second echelon are the integrated healthcare centers (CSIs), including the former rural dispensaries, the neighborhood clinics, and the medical posts
- The third echelon, which includes district hospitals (usually with a dispensary, hospitalization unit, maternity wing, mother and child welfare unit [SMI] and medical laboratory). Each health district covers an administrative district

The second or intermediate level includes reference centers for the department. This level includes the Department Hospital Center (CHD) with specialized care services such as surgery, pediatrics, internal medicine, and maternity (obstetrics).

The third level (national or central level) includes three national hospitals, two in Niamey and one in Zinder, as well as the Niamey Maternité Centrale, Maternité Poudrière (Maternity Clinic), National Family Health Center, National Center for Tuberculosis, and Leprosy Center. These are the country's referral centers. The MPH is supported by a supply center for medicine and equipment, the National Office for Pharmaceutical and Chemical Products (ONPPC). The country also has a national laboratory, the Laboratoire National de Santé Publique et d'Expertise (LANSPPEX), which is internationally known and sponsored by the World Health Organization.

3. Niger's Healthcare Situation and Health Indicators

Table A-2
Development Indicators

Average annual Gross Domestic Product	US \$ 290
Population	9,923,265
Women	50.3%
Women of fertility age	22%
Children < 15 years	45%
Children < 5 years	21.2%
Infants from 0 to 11 months	4.7%
Urban Development rate	153/1000
Fertility rate	232/1000
Fertility index	7.1
Birthrate	53/1000
Gross death rate	19/1000
Child death rate	123.1/1000
Death rate: Children < 5 years	318.2/1000
Maternal death rate	7/1000
Malnutrition rate: Children < 5 years	41/1000
Life expectancy at birth	48 years
Population growth rate	3.3%
Percentage of children in full-time education	27.5%
Literacy rate	14%
Access to health centers	
0 to 5 Km., Rural Areas	32%
0 to 10 Km., Rural Areas	50%
Access to drinking water	59%

Table A-3
Epidemiological Data

Main Causes of Morbidity Reported by Health Authorities (1997)	
Illness	New Cases (Percentages)
Acute respiratory infections	28.45
Malaria	24.58
Diarrheal diseases	10.36
Trauma/cuts/burns	6.94
Conjunctivitis	5.20
Skin diseases	3.96
Oral infections	2.44
Gynecological/obstetric infections	1.83
Urinary tract infections	1.31
Sexually transmitted disease	0.95
Measles	0.88
Meningitis	0.11

Other diseases also have a significant impact on public health, including schistosomiasis, leprosy, dracunculosis, AIDS, tuberculosis, malnutrition due to protein deficiency, Vitamin A deficiency, and nutritional anemia.

Poor sanitation and very low immunization coverage further aggravate this poor health situation.

Table A-4
Immunization Rates (1997)

Age Groups	Antigens	Percentage Covered
Under 1 year old	BCG	43.64
	DTC P1	45.11
	DTC P3	28.47
	Measles	41.78
Under 5 years old	BCG	10.90
	DTC P1	13.11
	DTC P	7.24
	Measles	17.63

Data Sources:
 1. Health Chart from the Republic of Niger: WHO/MPH/1994
 2. 1997 Directory of Statistics – Morbidity/DSNIS/SG/MPH

Appendix B: Visit Schedule and Comments

Table B-1
Schedule of Visits of the Evaluation Team

Monday November 2	Prepare the questionnaires Collect information and documentation (Sabou and SNIS)	Saturday, November 7 (Morning)	Madaoua (1 team) Sous-Préfet, community leader ECD 2 CSIs: Sabon Guida, Azarori with one team per CSI Y. Tawfik stays at the Konni CSI for a group-led discussion with IMCI and ERPA trainers and supervisors Return to Tahoua
Tuesday November 3	Trip to Tahoua Regional Health Directorate (DDS) Préfet: community leader District chief doctor, District Supervisory Team (ECD) 2 CSIs: Koufan-Tahoua, Kalfou (one team per CSI) Debriefing meeting. Write documents	Sunday, November 8	Consolidate data, write the draft
Wednesday November 4	Abalak (1st team) Sous-Préfet, community leader Health management committee ECD 2 CSIs: Abalak, Tabalak (one team per CSI) 5 PM: Quality Regional Council Debriefing meeting. Write documents Illéla (Second team) ECD, Sous-Préfet ERPA	Monday, November 9	Departure for Dosso DDS, ECD, 1 urban CSI Préfet, community leader
Thursday, November 5	Illéla Community focus group with women CSI users in Badaguichiri 2 CSIs: Tajae, Badaguichiri (one team per CSI) Departure and night spent at Konni Debriefing meeting and drafting of documents	Tuesday, March 10	Departure for Boboye 2 focus groups in Falmey, Koygolo with the women 2 CSIs: Falmey, Koygolo
Friday, November 6	Konni (call SG and DPS) Sous-Préfet, community leader ECD 2 CSIs: Malbaza, Dogeraoua (one team per CSI)	Wednesday, November 11	Boboye ECD
		Thursday, November 12	Final version of the evaluation report Prepare meeting for final debriefing/ validation of the mission
		Friday, November 13	Presentation of results, comments, recommendations to SG, DPS, DSF, ENSP, Medical School faculty End of mission, return of S. Legros to Washington

Table B-2
Comments on Health Facilities Visited by the Evaluation Team

	QA-Trained Individuals (#)	Identified Problems; Number of Cycles and Duration	Suggested Solutions and Implementation	Results	Related Costs	Supervision, Frequency, Duration, Report
Tahoua DDS	10	Secretarial Vehicle maintenance Gas for cold chain				Very infrequent, report established, 5 trained supervisors Established a 2-page checklist for the districts
Dosso DDS	4	No problems were treated			Reduced attendance in the beginning	3 months
Tahoua District	4. All of ECD					3 months 2 trained supervisors
Abalak District / CSI	4. All of ECD	CPN completion rate Malnutrition screening TBC screening 3 cycles, 1 year				No DDS supervision for 2 years
Konni District	5. All of ECD except the CSI chief					
Boboye District / CSI	3	No problem-solving activities			MEG available with increased frequency	3 months with reports written and delivered
Kalfou CSI	2	Drop-out rate from CRENA 1 st cycle, 1 year Low PF attendance Starts August 98	Matrons conduct nutrition presentations and home medical calls (VAD) Build a hangar	Drop-out rate falls from 60% to 40%		3 months, October 5, lasts the whole day
Koufan Tahou CSI	3	Negative rate at the postnatal consultation 2 cycles, 3 months	Neighborhood meetings VAD Weekly schedule	0 to 66% end of September 98	MEG available Attendance tripled despite an awareness problem in the beginning	3 months, 1 day Received reports
Tabalak CSI	2	Bad service given to the malnourished at CRENA 1 st cycle, 1 year, second for the last 3 months	Awareness raising Nutrition presentations Time-table changes			3 months
Tajae CSI	2	Low attendance CN 1 cycle 6 months	Awareness raising, ASV involvement	From 18 to 60 %, 25 children / month		3 months, August 98 Received report
Malbaza CSI	4	Poor welcoming system Withdrawal rate from CRENA Low CPN rate, 2 completed cycles, 1 year and 9 months 1 active cycle	Benches, chairs, RDV elimination Activity integration	Slightly higher attendance 18% to 0%		3 months (8/12/98) Supervision log book is full
Tsernaoua CSI	2	High rate of withdrawal from CRENA 1 cycle, 6 months	Activity integration		Increased attendance MEG available The community is getting involved	3 months, 1 year
Falmey CSI	3	Low immunization coverage	Has not arrived yet			3 months with full supervision log book
Fabigi CSI	3	Low rate of screening for malnourished 1 cycle, 3 months				ths

Appendix C: Utilization of Services

Table C-1
Utilization of Services in Konni

Indicators	1997	1998
Number of new patients < 5 yrs,	17,828	11,943
Number of new patients, all ages	52,578	30,328
Well-baby clinic	17,964	15,457
Prenatal consultations	8,160	6,935

January 1 to June 30 (SNIS T1 and T2)

Table C-2
Utilization of Services in Boboye

Indicators	1996	1997	1998
Number of new patients < 5 yrs,	17,099	18,133	14,196
Number of new patients, all ages	45,297	46,238	33,344
Well-baby clinic	9,464	13,510	10,238
Prenatal consultations	7,422	8,852	6,272

January 1 to June 30 (SNIS T1 and T2)

Table C-3
Utilization of Services at Urban CSI Dosso Toudobou

Indicators	1997	1998
Number of new patients < 5 yrs,	3,776	4,274
Number of new patients, all ages	9,000	9,341
Well-baby clinic	6,050	6,456
Prenatal consultations	1,849	1,631

1997-98 from January 1 to June 30 (SNIS T1 and T2)

Table C-4
Utilization of Services at Dosso CSI of Badaguichiri

Indicators	1997				1998			
	T1	T2	T3	Total	T1	T2	T3	Total
Number of new patients, all ages	4,181	4,292	4,359	8,832	2,679	2,073	3,680	8,432
Well-baby clinic	264	272	178	714	88	160	210	458
Prenatal consultations	320	308	160	788	184	163	435	782

January 1 to September 30 (T1, T2, and T3). SNIS figures. T1 is the first quarter of the year, T2 the second, etc.

Appendix D: Analyses of IMCI Form Utilization

Table D-1
Analysis of IMCI Forms in Three CSIs in Boboye

	Number	Percent	Proportion
Forms Studied	127		
Forms Completed Correctly During the First Visit/ Follow-up Visit	118	93%	118/127
Children with a General Danger Sign	11	9%	11/127
Transfers Reported	1	9%	1/11
Forms with the Nutrition Section Completed	112	88%	112/127
Underweight Children	11	10%	11/112
Children with Serious Anemia	29	26%	29/112
Notes: Fabigi, Falmey, and Tonkossarey: September and October 1998 Number of children under 5 admitted to the Boboye District Hospital in September and October 1998: Four Distance between the CSI and the hospital in Boboye: Fabigi: 25 km.; Falmey: 85 km.; Tonkossarey: 40 km.			

Table D-2
Analysis of IMCI Forms in Three CSIs in Konni

	Number	Percent	Proportion
Forms Studied	142		
Forms Completed Correctly During the First Visit/ Follow-up Visit	134	94%	134/142
Children with a General Danger Sign	15	11%	15/142
Transfers Reported	5	33%	5/15
Forms with the Nutrition Section Completed	100	70%	100/142
Underweight Children	33	33%	33/100
Children with Serious Anemia	44	44%	44/100
Notes: Malbaza, Yaya, and Dogueraoua: September and October 1998 CSI Malbaza transferred four children to the Galmi private hospital (15 km. from Malbaza) Distance between the CSI and the Konni District Hospital: Malbaza: 33 km.; Yaya: 57 km.; Dogueraoua: 45 km.			

Appendix E: Questionnaire Used by the Evaluation Team

QA/BASICS Evaluation, Niger
Tahoua, Dosso
Standard Multiple Part, Multilevel Questionnaire

Region, District, ECD, CSI, QA teams

Name of Person Surveyed _____

DD/District/CSI _____

Location _____

Date _____ Beginning/End Time _____

QA Training – Problem Solving

Analyze the follow-up forms developed by Saibu.

For District managers:

1. In this district, how many people were trained in quality assurance?
2. How long does the training last and what topics does it cover?
3. Is the duration of the QA training adequate, too long, or too short?
4. How many individuals have actually attended all the steps of the cycle and used the method correctly?
5. How many cycles has the team completed? How many are active now?

For the CSI/coaches/ECD/DDS:

6. How did you organize your problem-solving team?
7. To what extent was the community involved in the process? What role did it play?
8. What type of documents can you show us?
9. How were problems selected? Does this system seem adequate to you? Were they priority problems?
10. How was the problem expressed? Several versions of the problem were provided before the final version was selected.
11. What data did you use to identify the problem?
12. What tools did you use most among the available QA tools (brainstorming, process diagram, cause and effect diagram, selection tree)?
13. Which would be the most useful? Explain. Now that you are trained, do you intend to keep using the QA tools even if you are in an area outside the project area?
14. Do you have a message for the central office to ensure that such tools continue to be used?
15. Was the process diagram useful and did it correspond to the solution applied afterward?
16. What QA manuals do you have?

-
17. Which is the most useful?
 18. Were the causes identified satisfactory?
 19. Was the evolution of the teamwork quick, slow, or irregular?
 20. Were there any interruptions or disruptions? For what reason?
 21. Were there many staff member changes within the team? Why?
 22. In the past 6 months, how many health workers left the district after the training session? For what reason? Where did they go?
 23. How does this affect the smooth running of the service and teamwork?
 24. How did you adjust to these changes? How were the new participants trained? In the field, accelerated training, special role of the coach?
 25. How do you rate the teamwork? Good, improving constantly, disappointing, bad?
 26. How were solutions selected and implemented? Were you satisfied?
 27. What is the follow-up mechanism for the implementation of this solution?
 28. What are the means used to implement this solution?
 29. What type of difficulties did you encounter? How did you solve them?
 30. What changes did they lead to? Have these changes lasted?
 31. Did this situation generate actual improvements? Did this situation lead to new solutions to problems?
 32. Do you think that you have sometimes treated several problems at the same time? Why and how? Was it after one or 2 prior cycles?
 33. How long does a problem-solving cycle last? Less than 6 months? More than 6 months? Why is it so long? Can you reduce this period now?

Supervision in general:

34. When was the last supervision performed?
35. Is there a supervisory system in place? How often does it occur?
36. Is it followed? Were there many changes in program planning? What were the reasons?
37. Are there at least 2 trained supervisors per district?
38. How was the ECD trained in developing supervisory skills?
39. Do they show an improvement in supervisory techniques?
40. Do you systematically write a supervision report? To whom do you address it?
41. How do you determine if there is an improvement in healthcare quality at the centers because of your supervision?
42. What type of ongoing training were you able to provide to the healthcare staff?

For the CSI

43. Who is your supervisor? Is it always the same person?
44. How long does supervision last? Is it enough or too frequent?
45. What advantages do you get from supervision?

-
46. What role did supervision play in problem solving?
 47. See above.
 48. Did you feel you needed supervision? Did you ask for it?
 49. See above.
 50. Do you receive supervisory reports on a regular basis? What lessons can you draw from them? What decisions did you take? Give an example.

Supervisory Checklist

51. Which supervisory tool were you using before this supervisory checklist was implemented?

Supervisory checklist

52. What supervisory tool did you use before this checklist?
53. Why did you decide to use this supervisory checklist?
54. How do you use the supervisory checklist? Do you use the entire checklist, part of the checklist? What parts do you use most?
55. Do you use the part of the checklist on Quality Assurance always, often, regularly, never? What does it help you measure?
56. Was it hard to adjust to it in the beginning?
57. What elements do you prefer? What elements don't you like?
58. What advantages do you get from it?
59. How can you improve the supervisory checklist?
60. What type of improvements did the supervisory checklist bring you?
61. Do you use this supervisory checklist to assess the training at the IMCI? Always? Regularly? Never?
62. What does it help you measure?

Support systems

Coaching/ Facilitation

For the CSI:

63. Is the coach a significant element of the QA system?
64. What role does coaching play in problem solving?
65. How does the coach's presence change the performance of the problem-solving team?
66. Are there any story books available for the QA teams? Why not?
67. Does the coach visit you at the same time as the supervisor?

Documentation systems

68. What types of documents do you have? Which are the most useful? Why?
69. Do you wish to have other types of documents?

-
70. Do you have easy access to documents?
 71. Is the quantity of available documents sufficient?
 72. Are the format and layout of documents convenient?
 73. Are the documents easy to understand? Are they complicated?
 74. What are the problems with the documentation?
 75. Do you think that you have too many, enough, too few, or no documents?

Monitoring

76. What type of support do you have to collect data?
77. How do you conduct analysis at your level, with what methods and specialized support?
78. Do you have in-depth knowledge of the data and related indicators?
79. What lessons do you draw from the data analysis?

ERPA

80. How did ERPA facilitate the work of work teams?
81. How does ERPA improve your performance?
82. Are there any limitations with respect to ERPA implementation in the district?
83. Is ERPA a source of motivation for you?

Quarterly meetings

84. What do you think about the weekly meetings? What do they bring you?
85. What lessons do you take from these meetings?
86. What do you think about the organization and agenda of these meetings?
87. Do you think they should be continued, and how often should they be held?
88. How can they be made more efficient?
89. How are these meeting documented?
90. What do you think about the presence of observers from the central level at these meetings?

Training

91. Does the training meet your expectations?
92. Is the length of training sufficient?
93. Would you rather follow a training course or field training with a supervisor/ coach?
94. How are the current training sessions different from the previous ones?
95. When was your last training session?
96. Do you feel you need refresher training?

-
97. Did you contribute to or were you consulted in planning training or training needs?
98. Do the training programs answer all needs?

Standards

Adaptation, communication, compliance

At the central level (MPH, OMS)

99. How were healthcare standards of care developed or adapted in Niger?
100. Who was involved in the development of standards?
101. Are the users involved or consulted?

At the regional and district level:

102. What is the most cost-effective means to communicate standards?
103. What is the best format to use to remember the standards easily?
104. Do you think there are too many standards to handle?
105. How did you go from CCM standards to IMCI?

Expansion

106. How were the lessons learned from the QA/BASICS project released in at least 2 African countries?
107. How were the QA/BASICS equipment and program (management, training, supervision and community) shared with other providers and program directors?

Miscellaneous

108. Do you have accurate data to evaluate the total population? Has there been a significant change in population (exodus); how large?
109. Did the cost recovery have an impact on the use of your center? How?
110. Cite 2 major problems that are a threat to the continuity of the QA activity in your district.
111. How do you assess the impact of other partners' projects on the QA activity?
112. What impact did the cost recovery have on the QA activities? Positive, negative impact on MEG, on recovery rate, on general attendance?
113. Did the strikes disturb the development of activities at the district/CSI level? If they did, was the disturbance significant, slight, non-existent?
114. How do you intend to self-finance and pursue this QA/IMCI activity later? What are the means you can use?
115. Are there any questions that we have not asked you?

Other questions

Comments

Appendix F: Details of QA Training

Table F-1
Number of QA-Trained Health Providers by District

Structure	Trained	MED/DR	TSSI/ IDE	TSSO/ SF	TSAS/ AS	TL	THA/ AH	IC
MPH/ENSP	3	2	1	0	0	0	0	0
DDS TAHOUA	2	0	0	1	1	0	0	0
CHD	3	1	1	0	1	0	0	0
Maternite Tassigui	2	1	0	0	0	0	0	1
DDS Dosso	1	1	0	0	0	0	0	0
DS Boboye	25	1	9	2	6	1	3	3
DS B.Konni	13	0	3	1	2	1	1	5
DS Bouza	6	0	1	1	1	1	0	2
DS Abalak	6	1	2	1	1	0	1	0
DS Keita	9	1	1	2	1	0	3	1
DS Illéla	10	1	4	0	2	1	0	2
DS Tahoua	7	0	1	2	1	0	2	1
DS Madaoua	7	2	3	1	0	0	0	1
DS Tchinta	3	0	2	0	0	0	1	0
MPH RCI	3	0	3	0	0	0	0	0
Other	1	1	0	0	0	0	0	0
Total	101	12	28	10	15	4	10	16
October 1997 to June 1998								

Table F-2
QA Training Sessions (Dates, Types, Locations, Number Trained)

Dates	Sessions	Location	Trained (#)
June 16-20, 1997	QA modules review	Tahoua	11
	Training of QA trainers Level 1 (Education)	Tahoua	4
August 11-16, 1997	Training of QA trainers Level 2 (Education)	Tahoua	12
October 27-November, 1997	Basic training on the QA approach	Tahoua	23
February 22-28, 1998	Basic training on the QA approach	Tahoua	18
March 4-10, 1998	Basic training on the QA approach	Tahoua	18
March 30-April 6, 1998	Basic training on the QA approach	Tahoua	15
April 15-22, 1998	Basic training on the QA approach	Tahoua	21
July 20-25, 1998	Basic training on the QA approach	Tahoua	6
July 29-31, 1998	Coach refresher training	Tahoua	22

Appendix G: Summary of Problems Selected and Outcomes: Tahoua and Dosso CSI Centers (1993-98)

Table G-1
Summary of Problems Selected and Outcomes

Districts	CSI/Team	Problems	Level	Comments
Abalak	Abalak	1- CRENA	Dropped out	1995
		2- Low CPN completion rate	Continued	1997
		3- Low MPE detection rate	Continued	1998
	Ibécétane	1- Mothers of children with diarrhea have not mastered ESS/SRO (oral rehydration solution) preparation techniques at this CSI center yet	Continued	1996
		2- Low utilization rate of recovery services	Continued	1997
	Tabalak	2- Low utilization rate of PF services	Analysis	1998
		1- Low treatment rate of malnutrition detected at CRENA	Continued	1996
		2- Low detection rate of problem pregnancies	C-effect	1997
B.Konni	Team:	1- Low treatment rate of malaria cases	Continued	1994
		1- High number of multiple pregnancy cases	Questions	1995
		2- High withdrawal rate from CRENA	Analysis	1997
	Team:	1- High withdrawal rate from PF at the Konni CSMI (mother and child healthcare facility)	Withdrawal	1995
	Gounfara	1- Poor PF service provided	Continued	1996
		2- Low treatment rate of MPE cases	Continued	1997
		3- Insufficient knowledge of CPN time-table	Problem definition	1998
	Alléla	1- Low CN attendance	Continued	1996
		2- Cure treatment follow-up procedure not followed by patients	Continued	1998
		3- Low CPN coverage rate	Continued	1997
	Yaya	1- Low CRENA recovery rate	Continued	1996
		2- Low CPN utilization rate	Solutions	1998
	G.Idder	1- Decrease in the coverage rate for measles	Continued	1995
		2- Low CRENA recovery rate	Continued	1996
	Malbaza	1- Poor welcoming of women at CN	Continued	1995
		2- Tendency to stop CRENA activities	Continued	1996
		3- Low CPN attendance rate	Questions	1998
	Dogueraoua	1- Low utilization rate of curative services	Dropped out	1996
		2- High level of dropping out at CRENA	Continued	1997
		3- Decrease in the coverage rate for VAT2 and more	Evaluation	1998
	Tsernaoua	1- 9 th month pregnancy consultation	Dropped out	1996
		2- Rate of dropping out for CRENA	Questions	1998

Appendix H: Costs of QA Activities

Table H-1
In-Country Costs Associated with the
Joint QAP/BASICS Program (US Dollars)

Phase	1997 (9 Months)	1998 (12 Months)	Total
Training in QA and IMCI	\$32,684	\$67,472	\$100,157
Support (supervision, coaching and meetings)	35,568	38,643	74,211
Total	\$68,252	\$106,115	\$351,572
Training as a percentage of total essential QA activities	48%	64%	57%
Supervision, coaching and meetings as a percentage of total essential QA activities	52%	36%	43%
Exchange Rate: US \$1 : CFA 500			
Data are derived from final report on costs presented to the National Conference on Quality Assurance (Abdurahmane, October 1998)			

Table H-2
Details of Training Costs Associated with Quality Assurance (in CFA)

Phase	February	March	1998 QA March/April	April	Total
Per diem ¹	907,500	1,338,252	1,261,500	1,107,500	4,614,752
Training kit	315,000	315,000	270,000	360,000	1,260,000
Honorarium ²	272,000	135,000	—	—	407,000
Transport	218,500	218,500	200,000	200,000	837,000
Supplies	105,000	105,000	90,000	120,000	420,000
Refreshments	89,090	73,500	63,000	87,500	313,090
Technical assistance ³	—	—	273,000	273,000	546,000
Total	1,907,090	2,185,252	2,157,500	2,148,000	8,397,842
Number of providers	18	18	15	21	72
Cost per provider	105,949.44	121,402.89	143,833.33	102,285.71	116,636.69
Cost per provider (US \$)	\$211.90	\$242.81	\$287.67	\$204.57	\$233.27
Exchange rate: US \$1 : CFA 500					
¹ Per diem paid to all providers/participants and trainers					
² "Consultation fee" paid to (local) trainers for extra efforts to prepare and conduct training session					
³ Per diem paid to local technical experts for supervision and oversight of training events					

**Table H-3
Breakdown of Training Costs
Associated with IMCI (in CFA)**

Training Cost	August 1998 ¹
Per diem and honoraria	3,899,000
Training kit	1,485,000
Hall rental	720,000
Transportation	505,000
Lodging	300,000
Other copies	150,000
Total	7,059,000
Number of providers	33
Cost per provider	213,909
Cost per provider (US \$)	\$428

Exchange rate: US \$1 : CFA 500

¹ Two training sessions combined

**Table H-4
Details of Estimated QA
Training of Trainer (TOT) Cost**

	August 1997 CFA	US Dollars
Number of providers	11	11
"Standard" Costs		
Per diem	291,500	482
Per diem to QA counselors	58,944	97
Per diem to consultants	258,570	427
Refreshments	60,000	99
Supplies ¹	627,014	1,036
Subtotal	1,296,028	2,141
Average cost per provider	117,821	195
"Situational" Costs		
Hall rental ²	50,000	83
Accommodation ³	330,326	546
Subtotal	380,326	628
Average cost per provider	34,575	57
Total	1,676,354	2,769
Total average cost per provider	152,396	252

Exchange rate: US \$1 : CFA 500

¹ Average supply cost determined to be about 57,000 CFA on average, including reproduction of modules, exercises, flip charts, markers and overheads

² When incurred, expense averages 10,000 CFA per participant

³ When incurred, expense averages 30,000 CFA per participant

**Table H-5
Cost Components of Team-Based
Problem-Solving Techniques (US Dollars)**

Category	Description	Cost per Cycle
Data Collection		
Transport	Average cost of fuel to operate standard motorcycle for data collection purposes ¹	\$12
Data collector	2-3 analysts hired for 2-3 days, compensated at \$2 per day	\$8 - \$24
Reproduction of survey	Cost of photocopying 30 questionnaires at rate of US 10 cents per questionnaire	\$3
Other	Other supplies (e.g., pencils)	Negligible
Supplies		
Flipchart and stand	Imported flip-chart paper sufficient for one cycle	\$6
	One-time cost of tripod stand with a useful life lasting over multiple cycles	[\$14] one-time
Markers	Supply of 3-4 imported markers at \$3 each	\$9 - \$12
Record book ²	Single record book at \$8, sufficient for 2 cycles	\$4
Total fixed cost		[\$14]
Total recurrent cost		\$42 - \$61

Exchange rate: US \$1 : CFA 500

¹ Estimate based on average distance of 80 kilometers traveled per cycle and fuel mileage reimbursement rate of approximately US 15 cents per kilometer

² For meeting minutes and coaching instructors

**Table H-6
Labor Costs Associated with a Standard
Problem-Solving Cycle (US Dollars)**

Category	Average Monthly Salary ¹	Average Cost per Cycle
Head nurse	120	9 - 18
Assistant nurse	80	6 - 12
Janitor	40 - 50	3 - 7.5
Cook	40 ²	3 - 6
Midwives or traditional birth attendants (1 or 2) ³	15 - 25	15 - 25
Total average labor costs		\$36 - 68.50

Exchange rate: US \$1 : CFA 500

¹ Based on a 160-hour week

² Average salary, ranging from income of farmer to average salary of schoolteacher

³ Estimate determined per cycle, based on an estimated 6 to 10 births per cycle (3 months) and 500 CFA to 2000 CFA fee charged by midwife or traditional birth attendant

Table H-7
Annual Cost of Coaching Activities (1997: US Dollars)

District	Amount Budgeted	Actual Cost	Number of CSIs	Visits Scheduled	Visits Completed	Average Cost per CSI: Budgeted	Average Cost per CSI: Actual	Average Cost per Visit: Budgeted	Average Cost per Visit: Actual	Completion Rate	Consumption Rate	Consumption Rate Adjusted for Completion Rate
Districts Completing Coaching												
Konni	1,784	1,482	8	12	12	223	124	19	15	100%	83%	83%
Tahoua	2,384	2,534	14	12	12	170	211	14	15	100%	106%	106%
Average cost						197	167	16	15			
Districts Partially Completing Coaching												
Madaoua	1,148	626	7	12	9	207	52	17	10	75%	43%	58%
Keita	1,296	349	7	12	9	185	29	15	6	75%	27%	36%
Bouza	1,232	712	9	12	6	137	59	11	13	50%	58%	116%
Abalak	1,040	322	4	12	6	260	27	22	13	50%	31%	62%
Tchinta	1,880	1,244	5	12	6	376	104	31	41	50%	66%	132%
Illéla	1,760	469	10	12	6	176	39	15	8	50%	27%	53%
Average cost						215	90	18	15			
Exchange rate: US \$1 : CFA 500												

Table H-8
Annual Cost of Supervision Activities (1997: US Dollars)

District	Amount Budgeted	Actual Cost	Number of CSIs	Visits Scheduled	Visits Completed	Average Cost per CSI: Budgeted	Average Cost per CSI: Actual	Average Cost per Visit: Budgeted	Average Cost per Visit: Actual	Completion Rate	Consumption Rate	Consumption Rate Adjusted for Completion Rate
Districts Completing Supervision												
Tahoua	1,208	1,448	14	4	4	86	103	22	26	100%	120%	120%
Konni	884	1,052	8	4	4	111	132	28	33	100%	119%	119%
Illéla	840	984	10	4	4	84	98	21	25	100%	117%	117%
Madaoua	736	880	7	4	4	105	126	26	31	100%	120%	120%
Average Cost						96	115	24	29			
Districts Partially Completing Supervision												
Abalak	444	550	4	4	3	111	137	28	46	75%	124%	165%
Bouza	700	434	9	4	2	78	48	19	24	50%	62%	124%
Keita	672	408	7	4	2	96	58	24	29	50%	61%	121%
Tchinta	784	250	5	4	1	157	50	39	50	82%	103%	127%
Average Cost						103	96	26	33			
Exchange rate: US \$1 : CFA 500												

Table H-9
Cost of Coaching Activities (US Dollars)

	CSIs (Number)	Per Diem: Coaches ¹	Per Diem: Driver ²	Fuel Cost	Main- tenance Fee	Total Cost	Percentage per Diem: Coaches	Percentage per Diem: Driver	Percentage Fuel Cost	Percentage Main- tenance Fee	Total
Tahoua	14	\$ 252	\$ 70	\$ 1992	\$ 80	\$ 2,394	11%	3%	83%	3%	100%
Tchinta ¹⁴	5	180	50	1800	80	2,110	9%	2%	85%	4%	100%
Konni	8	144	40	1560	80	1,824	8%	2%	86%	4%	100%
Illéla	10	180	50	1512	80	1,822	10%	3%	83%	4%	100%
Madaoua	7	126	35	1248	80	1,489	8%	2%	84%	5%	100%
Bouza	9	162	45	1008	80	1,295	13%	3%	78%	6%	100%
Keita	7	126	35	888	80	1,129	11%	3%	79%	7%	100%
Abalak	4	72	20	912	80	1,084	7%	2%	84%	7%	100%
TOTAL		\$1,242	\$345	\$10,920	\$640	\$13,147					
Percentage of TOTAL		9%	3%	83%	5%	100%					

Amounts based on estimation and not actual costs; percentages may not total 100 due to rounding
Assumes fuel mileage rate of 25 liters per 100 kilometers traveled, at rate of CFA 340 per liter, CFA 500: \$1
Because of the distance between health centers in Tchinta, per diems are calculated at one visit per day
¹ Two coaches' per diem is CFA 1500 per two health centers visited
² Driver's per diem is CFA 1500 per health center visited (CFA 500 : US \$1)

Table H-10
Annual Cost of Supervision Activities (US Dollars)

	CSIs (Number)	Per Diem: Supervisors ¹	Per Diem: Driver ²	Fuel Cost ³	Total Cost	Percentage per Diem: Supervisors	Percentage per Diem: Driver	Percentage Fuel Cost	Total
Tahoua	14	560	168	664	1392	40%	12%	48%	100%
Illéla	10	400	120	416	936	43%	13%	44%	100%
Konni	8	320	96	504	920	35%	10%	55%	100%
Abalak	4	160	48	600	808	20%	6%	74%	100%
Bouza	9	360	108	336	804	45%	13%	42%	100%
Tchinta	5	200	60	520	780	26%	8%	67%	100%
Madaoua	7	280	84	304	668	42%	13%	46%	100%
Keita	7	280	84	296	660	42%	13%	45%	100%
TOTAL		\$2,560	\$768	\$3,640	\$6,968				
Percentage of TOTAL		37%	11%	52%	100%				

Exchange rate: US \$1 : CFA 500
Amounts based on estimation and not actual costs; percentages may not total 100 due to rounding
¹ Two supervisors' per diem is CFA 2500 each per health center visited (CFA 500 : US \$1)
² Driver's per diem is CFA 1000 per two health centers visited
³ Assumes fuel mileage rate to 25 liters per 100 kilometers traveled at a cost of CFA 340 per liter

Table H-11
Cost of Travel: Round-Trip Between CSIs and District Headquarters

District/CSI	Distance (Round-trip in kilometers)	Total Fuel Cost CFA	Rounded Fuel Costs CFA	Dollars
Tahoua	980	83300	83000	\$ 166
Bambeye	60	5100		
Takanamat	140	11900		
Barmou	60	5100		
Tebaram	184	15640		
Moggar	90	7650		
Taza	130	11050		
Affala	50	4250		
Kalfou	66	5610		
Samo	100	8500		
Wadata	0			
Kouffan Ta	0			
Eddir	100	8500		
Illéla	770	65450	65000	130
Tajae	56	4760		
Bagaroua	220	18700		
Dangona	108	9180		
Badaguichiri	32	2720		
Yama	70	5950		
Kaoura	124	10540		
Sahiya	160	13600		
Konni	746	63410	63000	126
Tsernaoua	28	2380		
Allela	134	11390		
Dogueraoua	90	7650		
Gounfara	264	22440		
Malbaza	66	5610		
Guidan Idder	50	4250		
Yaya	114	9690		
Madaoua	610	51850	52000	104
Arzerori	20	1700		
Sabonguida	50	4250		
Ourno	200	17000		
Bangui	130	11050		
Takorka	80	6800		
Manzou	130	11050		

Table H-11 (continued)

Cost of Travel: Round-Trip Between CSIs and District Headquarters

District/CSI	Distance (Round-trip in kilometers)	Total Fuel Cost CFA	Rounded Fuel Costs CFA	Dollars
Bouza	450	38250	38000	76
Deoule	50	4250		
Babankatami	50	4250		
Gradoume	50	4250		
Tama	40	3400		
Tabotaki	80	6800		
Karofane	40	3400		
Tadoupta	140	11900		
Keita	498	42330	42000	84
Tamaske	44	3740		
Ibohaman	40	3400		
Gadamata	80	6800		
Garhanga	130	11050		
Fararat	90	7650		
Insafari	114	9690		
Abalak	430	36550	37000	74
Chadawanka	160	13600		
Ibecetane	100	8500		
Tabalack	170	14450		
Tchinta	880	74800	75000	150
Tassara	240	20400		
Tillia	260	22100		
Kaou	110	9350		
Telemces	270	22950		
Exchange rate: US \$1 : CFA 500				

Notes
