



SCALING UP AND INSTITUTIONALIZING CONTINUOUS QUALITY IMPROVEMENT IN THE FREE MATERNITY AND CHILD CARE PROGRAM IN ECUADOR

JORGE HERMIDA, M.D.
MARÍA ELENA ROBALINO, M.H.S.
LUIS VACA, M.D.
PATRICIO AYABACA, M.D.
PATRICIO ROMERO, M.SC.
LUIS VIEIRA, M.D., M.P.H.
QUALITY ASSURANCE PROJECT

LACHSR REPORT No. 65

CONTENTS

LIST OF FIGURES AND TABLES	II
ACKNOWLEDGEMENTS.....	IV
EXECUTIVE SUMMARY	V
ACRONYMS.....	VIII
I. INTRODUCTION	1
II. CONCEPTUAL MODEL FOR CQI INSTITUTIONALIZATION	2
PHASES OF QA INSTITUTIONALIZATION	2
ESSENTIAL ELEMENTS FOR INSTITUTIONALIZATION OF QA.....	5
III. METHODS.....	6
RESEARCH OBJECTIVES.....	6
MEASUREMENT OF OUTCOMES	6
DATA SOURCES	6
IV. THE CONTINUOUS QUALITY IMPROVEMENT INTERVENTION	7
V. STAGE ONE OF THE EXPANSION: JANUARY – SEPTEMBER 2003.....	9
INTRODUCTION OF THE CQI MODEL IN 14 SELECTED HEALTH AREAS OF EIGHT PROVINCES	9
DEVELOPMENT OF POLICIES SUPPORTIVE OF CQI.....	9
LEADERSHIP	10
RESOURCES FOR QUALITY IMPROVEMENT	12
STRUCTURE.....	13
BUILDING TECHNICAL CAPACITY	16
INFORMATION AND COMMUNICATION.....	18
INCENTIVES FOR QUALITY	18
RESULTS OF STAGE ONE OF THE EXPANSION PHASE.....	19
VI. STAGE TWO OF THE EXPANSION: OCTOBER 2003 – AUGUST 2004.....	25
DEVELOPMENT OF POLICIES CONDUCIVE TO CQI.....	26
LEADERSHIP	26
RESOURCES FOR QUALITY IMPROVEMENT	27
STRUCTURE.....	29
BUILDING TECHNICAL CAPACITY IN QUALITY IMPROVEMENT	31
INFORMATION AND COMMUNICATION.....	32
RESULTS FROM STAGE TWO OF THE EXPANSION PHASE.....	34
VII. STAGE THREE OF THE EXPANSION: JANUARY-MARCH 2005.....	38
DEVELOPMENT OF POLICIES CONDUCIVE TO CQI.....	39
LEADERSHIP	39
RESOURCES FOR QUALITY IMPROVEMENT	40
STRUCTURE.....	40
INFORMATION AND COMMUNICATION	40
VIII. DISCUSSION AND CONCLUSIONS.....	40
FUTURE PERSPECTIVES	43
IX. ANNEXES	45

LIST OF FIGURES AND TABLES

Figure 1: Phases in the Institutionalization of Quality Assurance	3
Figure 2: Essential Elements for Institutionalization of QA	5
Figure 3: The Three Stages of CQI Expansion	7
Figure 4: Mode of Designating Staff for CQI Implementation, Stage One	11
Figure 5: Role of Local Authorities in Support of CQI Activities, Stage One.....	11
Figure 6: Activities Conducted by Improvement Teams, Stage One	14
Figure 7: Organizational Structure for CQI at the Provincial Level, Stage One	15
Figure 8: Percentage of Trained CQI Facilitators Active at the End of Stage One	15
Figure 9: Means of Technical Support Offered by CQI Facilitators, Stage One	16
Figure 10: Activities Performed by CQI Facilitators, Stage One	16
Figure 11: Percentage of Technical Meetings during which CQI Was Discussed, Stage One ...	21
Figure 12: Antenatal Care: Percentage of Essential Inputs that Are Available in Ob-Gyn Consulting rooms, Nov. 2002 – Sept. 2003	21
Figure 13: Percentage of Pregnant Women for whom all the Standard Tasks Were Carried Out in their First Antenatal Consultation, Nov. 2002 – Sept. 2003	22
Figure 14: Percentage of Pregnant Women who Used Outpatient Services for Prenatal Care and Who Were Satisfied with the Care Received, Nov. 2002 – Sept. 2003	22
Figure 15: Percentage of Women in Labor for whom Standard Labor Monitoring Tasks Were Performed, Nov. 2002 – Sept. 2003	22
Figure 16: Percentage of Attended Births in which the Partograph Was Correctly Drawn, Nov. 2002 – Aug. 2003	23
Figure 17: Percentage of Women Who Delivered in the Facility who Were Satisfied with the Care Received, Nov. 2002 – Sept. 2003	23
Figure 18: Percentage of Newborns for whom at Least 7 Standard Tasks Were Performed, Nov. 2002 – Sept. 2003	23
Figure 19: Percentage of Normal Deliveries that Received the Immediate Postpartum Care during the First Two Hours after Delivery, Nov. 2002 – Sept. 2003.....	24
Figure 20: Percentage of Working Days per Month in which the Facility's Pharmacy Had in Stock at Least 3 of the 5 Essential Family Planning Methods, Nov. 2002 – Sept. 2003	24
Figure 21: Percentage of Women of Child-bearing Age Attending the FP Clinic that Recognize at Least 4 FP Methods, Nov. 2002 – Sept. 2003	24
Figure 22: Percentage of Sick Child First Visits in which the IMCI Protocol Was Followed for Children 2 Months to 4 Years of Age, Nov. 2002 – Sept. 2003	25
Figure 23: Percentage of Mothers or Caretakers of Sick Children who Knew at Least 4 Danger Signs, Nov. 2002 – Sept. 2003	25
Figure 24: Role of Local Authorities in Support of CQI Activities, Stage Two.....	27
Figure 25: Organizational Structure for CQI at the Provincial Level, Stage Two	29

Figure 26: Activities Performed by the Provincial Facilitator to Support CQI Teams, Stage Two.....	30
Figure 27: Communication Methods Used to Provide Technical Support to Teams, Stage Two.....	30
Figure 28: Activities Conducted by CQI Teams, Stage Two.....	31
Figure 29: Flow of Reporting Indicators on Compliance with Quality Standards	33
Figure 30: Availability of Inputs, Medical Supplies and Essential Drugs for Maternal Care in Each Health Facility, Oct. 2003 – Dec. 2004	35
Figure 31: Percentage of Pregnant Women for whom all the Standard Tasks Were Carried Out in their First Antenatal Consultation, Oct. 2003 – Dec. 2004	36
Figure 32: Percentage of Pregnant Women who Used Outpatient Services for Prenatal Care and who Were Satisfied with the Care Received, Oct. 2003 – Dec. 2004	36
Figure 33: Percentage of Attended Births in which the Partograph Was Correctly Drawn, Oct. 2004 – Dec. 2004	36
Figure 34: Percentage of Vaginal Births in Which Oxytocin Was Administered, Oct. 2003 – Dec. 2004.....	37
Figure 35: Percentage of Normal Deliveries that Received the Immediate Postpartum Care during the First Two Hours after Delivery, Oct. 2003 – Dec. 2004.....	37
Figure 36: Percentage of Women Who Delivered in the Facility who Were Satisfied with the Care Received, Oct. 2003 – Dec. 2004	37
Figure 37: Percentage of Newborns for whom the 10 Standard Tasks Were Performed, Oct. 2003 – Dec. 2004	38
Figure 38: Percentage of Sick Child First Visits in which the IMCI Protocol Was Followed for Children 2 Months to 4 Years of Age, Oct. 2003 – Dec. 2004	38
Table 1: Costs of the CQI Institutionalization Process during Stage One (USD\$).....	12
Table 2: Facilitating Factors for Workshop Replication.....	18
Table 3: Costs of CQI Institutionalization during Stage Two	28
Table 4: State of Expansion of CQI at the End of Stage Two.....	34

ACKNOWLEDGEMENTS

This paper was prepared by the Quality Assurance and Workforce Development Project (QAP) as part of an operations research study supported by the U.S. Agency for International Development's Latin America and Caribbean Regional Health Sector Reform Initiative (LACHSR). The report documents the institutionalization of a quality assurance mechanism in public sector healthcare facilities participating in the Free Maternity Program, a major recent health sector reform initiative in Ecuador designed to extend coverage and improve the quality of priority health services. A companion report, *The Law for the Provision of Free Maternity and Child Care in Ecuador*, describes the development, implementation, and early results of the law that created the Free Maternity Program.

QAP is funded by the United States Agency for International Development (USAID) under Contract Number GPH-C-00-02-00004-00. The project serves developing countries eligible for USAID assistance, USAID Missions and Bureaus, and other agencies and nongovernmental organizations that cooperate with USAID. QAP offers technical assistance in the management of quality assurance and workforce development in healthcare, helping develop feasible, affordable approaches to comprehensive change in health service delivery. The project team includes prime contractor University Research Co., LLC (URC), Initiatives Inc., and Joint Commission Resources, Inc.

RECOMMENDED CITATION

Hermida, J., Robalino, M.E., Vaca, L., Ayabaca, P., Romero, P., and Vieira, L. 2005. Scaling Up and Institutionalizing Continuous Quality Improvement in the Free Maternity and Child Care Program in Ecuador. LACHSR Report Number 65. Published for the U.S. Agency for International Development (USAID) by the Quality Assurance Project.

EXECUTIVE SUMMARY

The Law for the Provision of Free Maternity and Child Care (LFMC) was passed by the Ecuadorian Congress in 1994 but only began to be operationalized following amendments to the law in 1998. The LFMC seeks to reduce maternal and infant mortality and improve women and children's health by guaranteeing access to free prenatal care, labor and delivery, and basic child health services.

The Ministry of Public Health has applied the LFMC throughout its facilities since 1999. The number of individuals who received health services covered by the LFMC has also steadily increased: in 1999, the number of individuals covered was 1,600,000, while in 2002 it reached 2,248,000 women and children. Women are the main beneficiaries of the LFMC, accounting for 70% of the population served by the program.

The mechanisms employed by the LFMC have become increasingly important tools for the improvement of healthcare coverage and quality in Ecuador. Among these mechanisms are the publication of clinical guidelines, calculation of costs for reimbursement of services, reimbursement to facilities based on service volume, implementation of a continuous quality improvement system with practical tools to measure and improve quality, management agreements with municipalities for co-management of healthcare services, and the organization of users' committees to ensure the quality and responsiveness of services.

The present document reports on an operations research study conducted by the Quality Assurance Project (QAP) to examine the process of institutionalizing a Continuous Quality Improvement (CQI) process within the context of the reforms introduced by the Law for the Provision of Free Maternity Services and Child Care. The objectives of the study were: a) Describe and document the process, methods, and results of scaling-up and institutionalizing a quality assurance mechanism within the Free Maternity Program of the Ministry of Health of Ecuador; b) Explore associations between the degree of institutionalization achieved and the presence of reforms introduced by the Law, believed to be favorable to the QA institutionalization process; and c) Synthesize lessons learned that can be adapted and applied in other Latin American countries.

The main research questions of the study were: a) Is it possible to achieve expansion of CQI through a decentralized intervention involving staff from provincial offices of the MOH (CQI facilitators), who replicate training sessions and locally support and monitor the work of quality improvement teams?; b) Which are the main factors that facilitate or constrain the application of the CQI model?; c) What is the model's cost?; d) What are the results in terms of the extent of CQI expansion and quality improvement of healthcare?

The study relied on official documents of the MOH and the Executive Unit of the LFMC and primary data collection. For information on progress on institutionalization in Stage One, surveys were applied to 38 provincial and local facilitators, as well as to 14 improvement teams in each of the health areas that initiated CQI institutionalization. For data on progress of institutionalization in Stage Two, surveys were applied to 27 health areas that were selected in five provinces, as well as to 10 provincial facilitators. Cost information was collected by a QAP staff member through visits to a sample of health areas.

The model for CQI expansion involved three stages. Stage One included initial activities in 14 selected health areas of 8 selected provinces and the formation of a cadre of CQI facilitators. In Stage Two, the facilitators extended the CQI model to all health areas in the initial provinces. In Stage Three, which is currently ongoing, the CQI model is being extended to new health areas in new provinces.

The expected outcomes of this three-staged intervention were: a) Geographical expansion of the CQI model to a larger number of health areas and provinces; b) Development of essential elements in the institutionalization process: policies, leadership, resources, organizational structure for CQI, technical capacity, information and communication, and incentives; and c) Changes in compliance with quality standards in facilities participating in the CQI model.

The expansion strategy, which relied on provincial and local facilitators, was successful. After QAP trained 38 facilitators from 14 health areas in eight provinces, they were capable of creating a CQI team in each of the areas and provinces and of replicating the training received. CQI teams initially measured a baseline of compliance with quality standards, identified deficient healthcare processes, and then planned and directed improvement activities. Monthly monitoring of compliance with standards of care proved an effective way to orient teams' work, since standards cover both required supplies and care processes themselves (prenatal, delivery, immediate postpartum, newborn care, and management of obstetric complications). Problems related to the lack of specific supplies and materials were relatively easy to solve, since the Free Maternity Law provides facilities with funds for the acquisition of such materials.

Stage Two involved an expansion to all health areas in the eight initial provinces. Based on the experience gained through the creation of an initial CQI team in each province, provincial facilitators successfully fulfilled the task of creating teams in every health area. The strategy of employing provincial facilitators was consolidated and enhanced, to the extent that the Ministry of Health and its provincial offices formalized and supported the role of facilitators as an integral component of their regular work as Ministry officers. Facilitators created improvement teams in every health area, provided training to conduct a quality baseline study, and provided ongoing technical assistance in all the problem areas addressed by teams. The expansion goals were achieved largely with resources of the Provincial Health Directorates themselves and of central offices of the Ministry of Health. The Quality Assurance Project provided technical support and training materials, particularly low-cost office supplies.

In the third stage of expansion, four new provinces (Orellana, Chimborazo, Carchi, and Loja) with all of their health areas adopted the CQI model. Provincial facilitators strengthened their role in the provinces, and some of them started to travel to nearby new provinces to support CQI teams. The Executive Unit of the Free Maternity Program began to adopt a new role in the CQI program by assuming ownership of the program and demanding increased quality from facilities. The Executive Unit of the Free Maternity Program and the Association of Municipal Governments of Ecuador developed a mechanism and guidelines for a formal role of local municipal governments in monitoring and fostering quality of care from facilities in their respective counties (*cantones*). QAP signed cooperation agreements with the United Nations Fund for Population Activities and Family Care International under which these international organizations would both technically and financially support CQI activities in selected provinces.

The study tested the feasibility and effectiveness of a decentralized intervention wherein a cadre of provincial MOH staff were trained as CQI facilitators to expand a model for continuous quality improvement as part of the institutionalization process. In terms of the geographical expansion of the CQI model, the strategy was successful, since it allowed the CQI model to be spread from an initial 14 health areas (districts) in eight provinces, to 70 health areas in eleven provinces. This represents an expansion of 500% in two years.

The CQI program is now active in half of the total of provinces in Ecuador, and in 42% of the 168 health areas of the country. Given that the Free Maternity Program covered 855,491 antenatal care consultations and 102,756 deliveries in 2004, it may be argued that the effects of the CQI program are reaching a considerable proportion of the Free Maternity Program's beneficiaries. This result is important because it has demonstrated the successful scale-up of a

CQI program that showed clear benefits in small pilot stage, to a level of expansion that reaches national coverage.

This expansion has been produced at a low cost, because the major part of the direct costs of the expansion are labor costs of the facilitators and CQI teams at facilities, which are already covered by MOH salaries. In Stage One of the expansion the additional cost per CQI team (10 months) was USD \$1,151 while in Stage Two of the expansion it decreased to USD \$876. However, the initial higher cost was incurred only in the 14 start-up health areas, where the capacity of the facilitators and CQI teams was being developed. The lower cost of the second and third stage was incurred in 56 health areas. Based on these data, we are able to project that the expansion of the CQI program to the remaining 98 health areas in Ecuador would have a direct cost of approximately USD \$86,000 per one year of establishing the CQI program. Even more interesting is the fact that the vast majority of all these costs, not only labor, but also the “additional new costs” specific to the CQI activities, were paid from the budgets of the MOH’s health areas, provincial offices, or the central Free Maternity Program. QAP paid only for the salaries of its technical advisors, copies of CQI documents, and occasionally meeting expenses for training sessions or quarterly meetings of CQI facilitators.

All of these accomplishments would have little meaning if the quality of the services provided under the Free Maternity Program had not improved. As documented in this report, the CQI program was able to show important quantitative improvements in quality of care through objective and verifiable measures. CQI teams in almost all of the seventy facilities participating in the CQI program were able to increase compliance with evidence-based quality standards, thus objectively improving the quality of prenatal, delivery, postpartum, and immediate newborn care and care for obstetric complications for tens of thousands of the poorest mothers and children in Ecuador.

ACRONYMS

AME	Association of Municipalities of Ecuador
CONAMU	National Women's Council
CONASA	National Health Council
CQI	Continuous Quality Improvement
DPAIS	National Directorate for Integral Healthcare and Promotion
EUFMP	Executive Unit for the Provision of Free Maternity and Child Care Program
FP	Family Planning
IMCI	Integrated Management of Childhood Illness
INNFA	National Institute for Women and Children
LFMC	Law for the Provision of Free Maternity and Child Care
LACHSR	Latin America and Caribbean Regional Health Sector Reform Initiative
MCH	Maternal and Child Health
MOH	Ministry of Public Health
OB-GYN	Obstetrics and Gynecology
PAHO	Pan American Health Organization
QA	Quality Assurance
QAP	Quality Assurance Project
SMC	Support and Monitoring Committee of the LFMC
UNFPA	United Nations Fund for Population Activities
URC	University Research Co., LLC
USAID	United States Agency for International Development

I. INTRODUCTION

The Law for the Provision of Free Maternity and Child Care (LFMC) was originally passed by the Ecuadorian Congress in 1994 but did not begin to have an important impact on the healthcare system in the country until 2000, after several amendments to the law were introduced that strengthened its financing and implementation mechanisms. The package of services guaranteed by the LFMC that are delivered to Ecuadorian mothers and children by Ministry of Public Health facilities have served as a major initiative to increase coverage of critical health services. Moreover, because of the reforms the LFMC has introduced to the health system for the management and oversight of the covered services, the Law has been a driving force for reform in Ecuador's health system.

Because the LFMC included an explicit emphasis on assuring the quality of the services guaranteed to the population under the Law, the Quality Assurance Project (QAP) saw the opportunity to study the introduction of a systematic approach to quality improvement on a national scale, as part of the natural evolution of the Free Maternity Program.

Many developing countries in Latin America and throughout the world are currently making efforts to institutionalize Quality Assurance models at their institutions. As part of these efforts, governments and institutions invest considerable amounts of financial and human resources. The present study was aimed at documenting factors that benefit or complicate the process of CQI institutionalization, as well as explore cost-effective strategies to overcome obstacles.

For purposes of the present document "quality institutionalization" is defined as the process by which a health organization progressively establishes continuous quality improvement (CQI) as an integral and sustainable component of its daily work routine¹. *Continuous quality improvement* is understood as the group of activities, structures, and values that an organization develops, allowing it to systematically measure, report and improve the quality of its main healthcare processes. Quality of healthcare involves technical criteria for quality based on scientific evidence, as well as the definition of quality from the users' perspective.

Within this framework, the Quality Assurance Project (QAP) decided to launch an operations research study on the process of institutionalization of a CQI model in Ecuador. The study's objectives were:

1. To describe and document the process and methodology for the institutionalization of quality improvement within the "Program for the Provision of Free Maternity and Child Care" of Ecuador's Ministry of Health.
2. To test a three-stage strategy for the expansion of the CQI model based on the work of provincial and local facilitators of the Ministry of Health (MOH).
3. To explore associations between the quality institutionalization process in health areas and enabling elements introduced by the Law for the Provision of Free Maternity and Child Care.
4. To synthesize lessons learned which could be adapted and applied to other experiences of institutionalization of quality improvement in Latin American countries.

¹ Franco, L.M. et al. 2002. Sustaining Quality of Healthcare: Institutionalization of Quality Assurance. *Quality Assurance Monograph Series*. Chevy Chase, MD: Published for the U.S. Agency for International Development by the Quality Assurance Project. Available at <http://www.qaproject.org>.

For the Quality Assurance Project, which has successfully contributed to the development of methods and tools for quality assurance, the present study of institutionalization processes is another step toward its goal of supporting countries and institutions in their improvement efforts.

The present report documents and describes the process of CQI institutionalization in the Ministry of Health of Ecuador, placing special emphasis on the expansion phase of this process. In particular, authors analyze specific aspects such as the development of policies in support of quality assurance, leadership, the use of human and financial resources, the creation of an organizational structure for quality assurance within the MOH, capacity building among the staff, certain aspects of rewarding quality, and the average cost of the process for a typical MOH district. The document also describes the role of various actors involved in this process: the Executive Unit of the Law for the Provision of Free Maternity and Child Care, the national Directorate for Integral Healthcare and Promotion (DPAIS), Provincial Health Directorates, and health areas' management teams.

The report is intended for managers of health institutions in Latin American countries who are engaged in efforts to institutionalize quality improvement models, users' organizations and institutions that represent their interests, and agencies that offer their technical or financial support to these efforts.

II. CONCEPTUAL MODEL FOR CQI INSTITUTIONALIZATION

PHASES OF QA INSTITUTIONALIZATION

In order to describe the phases of the institutionalization process, the present study used the model proposed by QAP in its monograph on quality assurance institutionalization.² Quality assurance (QA) institutionalization is defined as an evolving process wherein organizational changes occur progressively while quality is conceptually and operatively integrated into the organization's functional structure. In this way, the institutionalization process undergoes a series of chronological phases from an initial state of awareness of QA, to a final state of maturity in QA functions and structure. As depicted in Figure 1, the Quality Assurance Project has identified four major transitional phases: initial awareness, experiential phase, expansion, and consolidation.

The **Awareness Phase** is characterized by the fact that individuals, especially leaders, become conscious of the need to improve the quality of healthcare and recognize the possibility of implementing some concrete and systematic actions to this end.

In Ecuador, awareness of the need to systematically improve the quality of healthcare began to exist inside Ecuador's Ministry of Public Health probably since the mid-1990s. In fact, the Political Constitution of the Republic of Ecuador establishes in its 42nd article that "...the Ecuadorian State will guarantee the right to health, its promotion and protection, ...according to the principles of equity, solidarity, universality, **quality** and efficiency...". Around 1994-95, the Pan American Health Organization (PAHO) and QAP supported quality assurance activities implemented by the MOH in several health care facilities of various provinces. As a result, PAHO, CARE, and QAP published the document "Total Quality Management in Healthcare"³ in 1995. Also in August of 1995, the MOH and the QAP organized in Quito the Latin American

² Franco L. M., 2002. *ibid.*

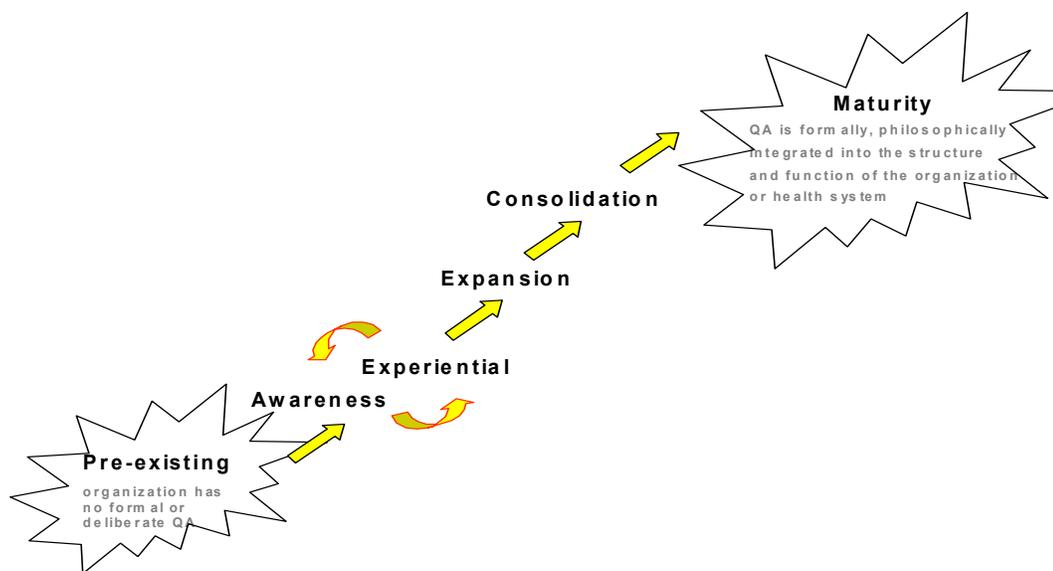
³ Vanormelingen K., et al. "Total Quality Management in Healthcare". PAHO, CARE. Quito, 1995.

Conference on Quality of Health Services, where delegates from thirteen Latin American countries and eight international organizations discussed their experiences.

At the **Experiential Phase**, quality improvement actions begin to be implemented on a small scale inside the organization. Improvement activities are carried out to learn from the experience and develop evidence (documented results) that demonstrates that quality assurance leads to improvements in healthcare. By the end of this phase, when achievements of improvement activities can be demonstrated, sufficient impetus is developed so that an organization can continue to the expansion phase.

In 1993-95, the MOH, with technical support from QAP, conducted quality management activities for cases of cholera and acute diarrhea detected in hospitals and ambulatory units of Babahoyo and La Troncal⁴ districts. In 1995, the General Health Directorate of the MOH and QAP coordinated activities related to the introduction of quality management principles. As a result, the National Program for Quality Improvement⁵ was created, implementing initial QA activities in 7 hospitals and 16 health areas located in the provinces of Pichincha, Chimborazo, Azuay, Guayas, Bolívar, Carchi, and Cotopaxi in 1997. Quality improvement teams were formed and trained at these locations that later proceeded to identify and analyze operational problems that required improvement interventions. In 1997, the MOH and QAP published the manual, “Methods and tools for solving quality problems in health services”.⁶ As part of this program, the National Directorate for Health Services of the MOH, with support from QAP, launched in 1998 the implementation of the quality management model in 17 district hospitals.

FIGURE 1: PHASES IN THE INSTITUTIONALIZATION OF QUALITY ASSURANCE



⁴ Hermida J., et al. 1994. Quality assurance methods improve the quality of healthcare provided by Ecuador’s health services in cases of cholera and acute diarrhea. *Quality Assurance Brief*. Chevy Chase, MD: Published for the U.S. Agency for International Development by the Quality Assurance Project.

⁵ Republic of Ecuador, Ministry of Health. 1996. Ministry’s Decree No. 3339.

⁶ Ministry of Public Health of Ecuador; Quality Assurance Project; USAID; PAHO. 1997. “Methods and tools for solving quality problems in health services”, Modules One and Two (in Spanish). Quito, Ecuador.

In 1999, the Quality Assurance Unit of the MOH, together with QAP, carried out the Operations Research study: “Redesigning hospital documentation systems to improve the quality of obstetric patient records in Ecuador”⁷. The research’s main objective was to develop and test a method to redesign processes and improve the hospital documentation system.

As a result of the Ministry’s increasing experiences in Quality Assurance, the series “Quality Management in Decentralized Health Units” was published with support from QAP in September 2000, and applied in 17 hospitals throughout Ecuador⁸.

In 2001, the MOH, the Executive Unit of the Program for the Provision of Free Maternity and Child Care (EUFMP), and QAP, carried out the operations research study: “Quality Assurance in the new model introduced by the health sector’s reform (Program for the Provision of Free Maternity and Child Care)”⁹. This study was carried out in 8 hospitals (4 intervention hospitals and 4 control hospitals). The research’s objective was to demonstrate that the application of the Quality Improvement model to the Program for the Provision of Free Maternity and Child Care improves the quality of its services. The study showed evidence of an important improvement in intervention hospitals, compared to control hospitals with respect to compliance with maternal and child care clinical standards.

The **Expansion Phase** is characterized by a larger scale increase in the number of health facilities that implement quality improvement activities. At this stage, strategies for the expansion of quality improvement are developed and put into practice based on knowledge and experiences acquired in prior phases. The expansion can be geographical, but it can also be related to the type of facility or department involved or the health problems targeted. An important aspect in the expansion phase is the decision the organization makes concerning the deliberate investment of financial, material, and human resources in QA activities.

In October 2001, the Ministry of Public Health of Ecuador requested that QAP support the expansion of CQI activities to the services provided under the Program for the Provision of Free Maternity and Child Care¹⁰ to the entire population of Ecuador. The Minister’s request was made via an agreement with the Executive Unit and the MOH establishing QAP support in the following areas: a) development protocols and evidence-based standards for services covered by the Law; b) validation of these standards and protocols; c) creation of a quality improvement training program; and d) application of the model in eight initial provinces. This expansion phase has been developed in Ecuador since 2003 and is the focus of the present report.

In the **Consolidation Phase**, the organization examines accomplishments of the previous phase and strengthens those QA areas whose development has been weaker. Adjustments to the structure and functions established in previous phases are also carried out based on the experience acquired. At this phase, institutional policies and regulatory mechanisms will be further developed so that the organization can incorporate quality assurance mechanisms into its normal operations at different levels.

⁷ Bermeo A. and Romero P. 2002. Redesigning hospital documentation systems to improve the quality of obstetric patient records in Ecuador. *Operations Research Results* 2(6). Chevy Chase, MD: Published for the U.S. Agency for International Development by the Quality Assurance Project.

⁸ Ministry of Public Health of Ecuador; Quality Assurance Project; USAID. Document 1: “Introduction and conceptual basis for quality management”. Document 2: “Situational appraisal for quality management”. Document 3: “Strategic Planning for quality management”. Quito, Ecuador. September 2000.

⁹ Hermida J. and Robalino M.E. 2002. Increasing compliance with maternal and child care standards in Ecuador. *International Journal for Quality in Health Care* 14 (Suppl. 1).

¹⁰ Official letter 07668, October 18th, 2001.

ESSENTIAL ELEMENTS FOR INSTITUTIONALIZATION OF QA

In each of these phases many factors influence the organization's ability to institutionalize quality assurance, either facilitating it or blocking it. Based on a literature review and its own international experience, the Quality Assurance Project has identified the following essential elements for QA institutionalization and grouped them into three categories, listed in Figure 2 and described below:

- 1) The category "**Internal Enabling Environment**" refers to the necessary conditions within the organization's internal environment, which benefit and facilitate the process of quality assurance institutionalization. The specific essential factors considered in this category are:
 - a) **institutional policies** which are conducive and help guide the process;
 - b) **development of leadership** which establishes priorities and guides the staff;
 - c) availability of human, financial and material resources for the implementation of quality assurance; and
 - d) **organizational values** that emphasize quality and improvement.
- 2) The category "**Organizing for Quality**" makes reference to a clear definition of roles, responsibilities, and accountability mechanisms. This essential element is known as the **Structure for Quality Assurance**, but this does not refer to the creation of a vertical program with its own team and resources functioning independently from other programs. The concept of a Structure for Quality does not imply the existence of an office or department in the physical sense, but concerns the roles and responsibilities that organizational levels and personnel have for assuring quality of care.
- 3) The category "**Support Functions**" includes the following essential elements:
 - a) **Capacity building**, which involves training, supervision, and technical support for quality improvement directed at teams and facility staff;
 - b) **Information and Communication**, which includes collecting and disseminating experiences and results of the quality assurance process, in order to promote mutual learning and the interaction between improvement teams, communities that receive assistance, and other actors (including policy makers) in the health system;
 - c) **Rewarding quality**, which includes the development of mechanisms for acknowledging and rewarding the efforts of individuals and teams who work in quality improvement.

FIGURE 2: ESSENTIAL ELEMENTS FOR INSTITUTIONALIZATION OF QA

Internal enabling environment:

Policy
Leadership
Core values
Resources

Organizing for quality:

Structure

Support functions:

Capacity building
Information and Communication
Rewarding quality

The following sections of this report systematically describe the implementation of the Expansion Phase as part of the institutionalization of CQI in the MOH of Ecuador, within the framework of the Law for Provision of Free Maternal and Child Care. The discussion will address the development of each of the above-mentioned essential elements.

III. METHODS

RESEARCH OBJECTIVES

The objective of the study was to document the process, methods, and results linked to the institutionalization of continuous quality improvement within the “Program for the Provision of Free Maternity and Child Care” of Ecuador’s Ministry of Public Health. The general hypothesis stated that an intervention carried out by the Ministry of Health, with technical support from the Quality Assurance Project, would produce verifiable institutionalization outcomes along two dimensions: a) expansion of CQI practice to a larger number of health areas (districts) of the MOH, at a low cost; and b) strengthening the use of CQI in the daily practice of facilities and managerial levels.

The main research questions were:

1. Is it possible to achieve expansion of CQI through a decentralized intervention involving staff from provincial offices of the MOH (CQI facilitators) who replicate training sessions and support and monitor the work of local quality improvement teams?
2. Which are the main factors that benefit or obstruct the application of this model, mainly in terms of the essential elements for institutionalization described above?
3. What is the model’s cost?
4. What are the results in terms of the extent of CQI expansion and quality improvement of healthcare?

MEASUREMENT OF OUTCOMES

The following expected outcomes were measured:

1. Geographical expansion of the CQI model to a larger number of health areas and provinces.
2. Development of essential elements in the institutionalization process:
 - Internal enabling environment for CQI (policies, leadership, and resources)
 - Organizational structure for CQI
 - Support functions (building technical capacity, information and communication, and incentives)
3. Changes in compliance with quality standards in facilities participating in the CQI model

DATA SOURCES

Information on policies and use of resources was obtained from official documents of the MOH and the Executive Unit of the LPMC. To measure progress in institutionalization in Stage One, surveys were applied to 38 provincial and local facilitators, as well as to 14 improvement teams in each one of the health areas that initiated CQI institutionalization. Surveys contained questions regarding the work carried out by facilitators and improvement teams, aspects related to authorities’ participation in the quality improvement process, usefulness of methodological contents on quality, and factors which facilitated or hindered the replication of the training.

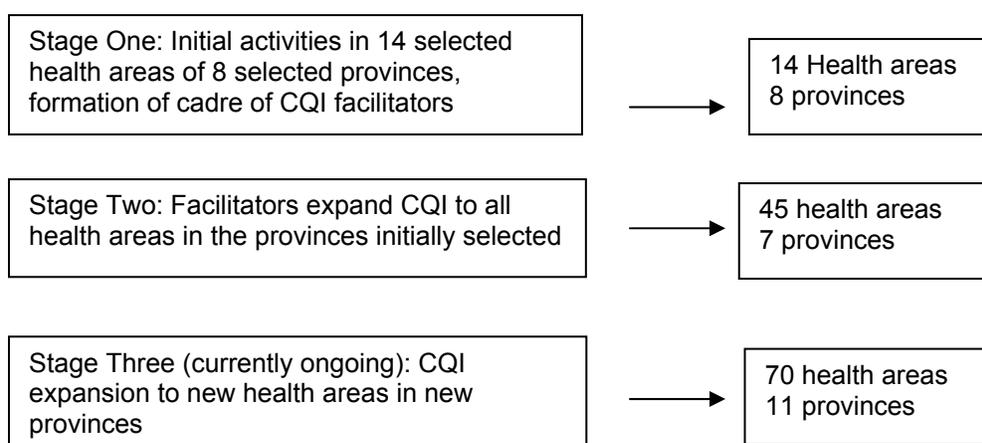
Surveys were sent by regular and electronic mail; 86% (33) of facilitators and 71% (10) of improvement teams answered them.

For data on progress of institutionalization in Stage Two, surveys were applied by regular mail and electronic mail to 27 health areas that were selected in five provinces, as well as to 10 provincial facilitators.¹¹ Information on costs was collected through visits to health areas by a QAP staff member.

IV. THE CONTINUOUS QUALITY IMPROVEMENT INTERVENTION

The model for CQI expansion involved three stages, as depicted in Figure 3.

FIGURE 3: THE THREE STAGES OF CQI EXPANSION



Stage One (January–September 2003): Training of first CQI Facilitators and teams in 14 health areas of 8 selected provinces¹².

a) Selection of provinces and health areas: the MOH, the EUFMP and QAP used the following criteria to select the initial group of provinces and health areas that would be exposed to the CQI model:

- Districts where Management Committees of Local Solidarity Health Funds existed
- Districts with high rates of maternal and infant mortality
- Provinces that had previously worked on quality improvement

b) Appointment and training of provincial and local facilitators for CQI:

Officials responsible for the Maternal and Child Care program in selected Provincial MOH offices and from each selected health area received training to act as provincial and local CQI facilitators. QAP staff trained facilitators of selected provinces and health areas during three

¹¹ Criteria for selection of these health areas were: a) availability of documentation on CQI activities; b) availability of names and roles of staff who participated in CQI activities; c) availability of information on time dedicated to CQI; c) availability of documentation on expenses incurred by the health area for CQI activities.

¹² There are 168 health areas in Ecuador's 22 provinces.

workshops conducted in 2003. Workshops took place at intervals of 8-10 weeks, each one lasting approximately 16-20 hours.

c) Creation of quality improvement teams in selected health areas:

Facilitators formed CQI teams with staff from district hospitals or health centers in each of the 14 health areas. Teams were composed of physicians, nurses, midwives, and administrative and statistics staff who attended three training workshops on quality improvement methodology replicated by facilitators at their respective health areas. Facilitators also followed up the work of teams in every health area through monthly support visits to support monitoring and improvement activities. Every health area reported monthly measurements of compliance with standards, as well as improvement plans and team activities.

Stage Two (October 2003 –December 2004): Expansion to all health areas in the eight provinces initially selected.

a) Creation of a Steering Group at the central level of the MOH: In order to provide more constant follow-up by the MOH to provinces active in the process, a Steering Group was created at the national level, composed of MOH officials (DPAIS and EUFMP) and QAP representatives.

b) Technical visits to provinces in order to plan the expansion: A QAP representative and MOH officials visited the eight provinces initially selected, holding expansion planning meetings attended by the Provincial Director and Coordinators from all health areas. CQI methods, as well as the experience gained by facilitators and improvement teams of the initial health areas were presented. The legal framework that supports the CQI process and the leadership commitment of the MOH to expand CQI to new health areas were also presented. The visit ended with the formulation of a work plan for the expansion of CQI to all health areas of each province.

c) Creation and training of CQI teams in all health areas of the eight initial provinces: Improvement teams were created in every health area of the eight provinces and trained in CQI methodology by experienced facilitators who had participated in Stage One. The new teams conducted a baseline assessment, initiated the implementation of rapid improvement cycles, and began monthly monitoring of compliance with standards for clinical processes as well as user satisfaction. Facilitators conducted visits to provide technical support to teams. Workshops conducted in provinces were self-funded by the health areas and provinces.

d) National meetings to update facilitators: In November 2003 and March 2004, facilitators from the eight provinces participated in workshops to update their knowledge and to strengthen their functions. Facilitators shared achievements, difficulties, and solutions taking place at their respective provinces.

e) “Facilitator’s toolkit” with technical tools for continuous quality improvement created and disseminated to all facilitators

f) Review of standards, indicators and tools: Initial standards and indicators were reviewed and modified by personnel from technical programs of the MOH and the Steering Group, based on guidelines for reproductive healthcare and taking into account local experiences and recommendations.

g) System for monitoring and reporting compliance with quality standards: The MOH and QAP developed an electronic system based on an EXCEL spreadsheet, which enables facilitators and CQI teams to easily enter the numerators and denominators to build the 16 quality indicators. The program automatically produces percentage compliance for each standard and a run chart showing the indicator’s performance. The CQI team sends the

spreadsheet to the provincial facilitator, who consolidates the information from all areas of the province and sends it to the MOH central level for analysis and feedback.

Stage Three (January 2005 - ongoing): Expansion to new provinces:

In late 2004, with support from the United Nations Fund for Population Activities (UNFPA), two new provinces, Orellana and Chimborazo, adopted the CQI model. Two additional provinces, Loja and Carchi, started CQI in early 2005, bringing to 11 the total number of provinces (out of the country's 22) where the CQI model is now in practice. By the time this report was completed in 2005, seventy out of the 168 health areas in Ecuador (42% of the entire country) are implementing the CQI model. This scale-up, from 14 to 70 health areas (500%) has occurred in approximately one year and a half, and most of its operational costs have been paid by the MOH's own local funding, with the exception of QAP's technical assistance.

V. STAGE ONE OF THE EXPANSION: JANUARY – SEPTEMBER 2003

INTRODUCTION OF THE CQI MODEL IN 14 SELECTED HEALTH AREAS OF EIGHT PROVINCES

Thirty-six facilitators were trained in three consecutive workshops on methods and tools for CQI¹³. These facilitators returned to their work places and formed CQI teams in 14 selected health areas in the eight provinces. During Stage One, teams established a baseline, monitored indicators of compliance with standards on a monthly basis, and applied quality improvement activities for those healthcare processes that showed problems.

Throughout the nine months Stage One lasted, only two health areas in one province (Guayas) did not show progress in their CQI activities. In these two areas, both the work of the provincial facilitators and the support provided by the MOH Provincial Directorate were weak, and the CQI teams' activities progressively declined. By the end of this stage, 12 health areas from seven provinces had CQI teams firmly established, achieving significant improvements in the quality of maternal healthcare at their respective facilities.

Results achieved in each one of the seven essential elements for institutionalization will be discussed in the following pages, as well as outcomes in terms of the extent of the spread of the CQI model. Improvements in the quality of main clinical processes and client satisfaction are also presented and discussed.

DEVELOPMENT OF POLICIES SUPPORTIVE OF CQI

QAP supported the creation of the following policy tools through its participation in the Steering Committee of the Law for the Provision of Free Maternity and Child Care. This Committee includes representatives of the Ministry of Health, the Executive Unit of the LFMC, the Pan American Health Organization (PAHO), the United Nations Children's Fund (UNICEF), UNFPA, the National Women's Council (CONAMU), the Association of Municipalities of

¹³ The training's contents are described in more detail in the following sections; the training manual is found in Annex 2.

Ecuador, the National Health Council, and the National Institute for Women and Children (INNFA).

- *The Law for the Provision of Free Maternity and Child Care* is one of the most important policy documents that support quality of maternal and child healthcare. Approved by the National Congress in the year 1994, and reformed in 1998, Article 1 states that: “every Ecuadorian woman has the right to free and quality healthcare during her pregnancy, delivery and post-partum period, as well as access to sexual and reproductive health programs.”¹⁴
- In 2002, the National Congress issued the *Regulation of the Law for the Provision of Free Maternity Services and Child Care*¹⁵, which explicitly states that the Executive Unit of the Law, in coordination with the MOH, will “define the technical criteria, standards, and indicators for the quality of health services covered by the Law”. The Regulation also defines functions related to the quality improvement of healthcare for Provincial Directorates of the MOH, Local Management Committees of Health Funds, and Local Users Committees.
- *The Manual for Technical, Administrative, and Financial Procedures* for the application of the LFMC, issued in 2002, includes a chapter with clinical guidelines for evidence-based healthcare, as well as quality standards and indicators for the main health services covered by the Law.¹⁶ QAP provided technical assistance directly to the Executive Unit of the Free Maternity Law for the development of these guidelines, standards, and indicators.
- *The Organic Law of the National Health System*¹⁷ was issued by the National Congress in September 2002. It includes issues of quality healthcare and users’ satisfaction among the general principles for the creation of the National Health System. The *General Regulation* for this Law, issued in January 2003, explicitly mentions licensing and accreditation mechanisms, as well as functions of the Board of Directors of the National Health Council (CONASA) related to the creation of quality standards and indicators for Ecuador’s health services. It also establishes that the Planning and Monitoring Commission of the CONASA will “plan and promote actions and processes for the quality improvement of health services.”

LEADERSHIP

Leadership for the implementation of CQI in Stage One rested primarily on the Provincial Directorates of the MOH. At the national level, the Free Maternity Program provided leadership by including quality of care activities as a regular component of its Annual Operational Plan, as well as discussing its progress at many national meetings of its Technical Council. The central level of the MOH, however, did not play a leadership role during this stage. In the provinces, officers in charge of the maternal and child health program, as well as statistics personnel and/or provincial nurses in certain provinces, were trained as facilitators and officially assigned

¹⁴ Law for the Provision of Free Maternity and Child Care, approved by the National Congress and published in the Official Register No. 523 of September 9th, 1994. Modified in August 10th, 1998, and published in the Official Register No. 381.

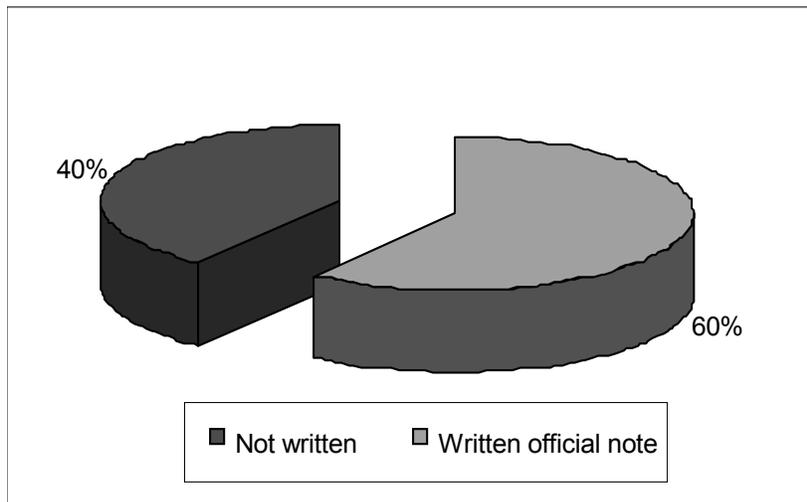
¹⁵ Published in the Official Register No. 595 of June 12th, 2002.

¹⁶ Manual for Technical, Administrative, and Financial Procedures. Program for the Provision of Free Maternity and Child Care. Ministry of Public Health of Ecuador, INNFA, CONASA, CONAMU, AME. Quito, Ecuador. 2002. Ministerial Decree No. 00537, September 18th, 2002.

¹⁷ Published in the Official Register No. 670 of September 25th, 2002.

responsibility by the central level of the MOH for the implementation of the CQI program. These provincial level facilitators provided leadership and training and actively supported CQI teams in district hospitals through periodic visits for technical support to teams, consolidation of provincial information on quality standards and indicators reported by health areas, and negotiation of financial resources inside their own province to support the expansion of CQI activities. The majority (60%) of these provincial facilitators at this stage of the expansion were appointed to this role through an official note of the MOH, as can be seen in Figure 4.

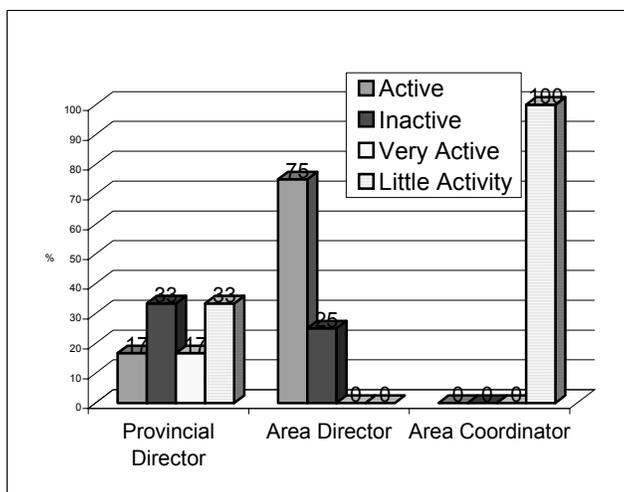
FIGURE 4: MODE OF DESIGNATING STAFF FOR CQI IMPLEMENTATION, STAGE ONE



Source: Survey on the enabling environment for CQI institutionalization

Ten of the 14 CQI teams responded to the survey on the perceived level of participation and leadership displayed by their own provincial and health area authorities in the process of CQI institutionalization. Results are shown in Figure 5. The survey established a definition of “active in support of CQI” as the degree to which a provincial or health area authority would participate in CQI through political support by decision making, personal participation in technical activities, or provision of funding for local costs. The graph shows that 34% of provincial directors and 75% of area directors provided their support, either “very actively” or at least “actively,” while 33% of MOH provincial directors and 25% of area directors provided no support to the CQI process.

FIGURE 5: ROLE OF LOCAL AUTHORITIES IN SUPPORT OF CQI ACTIVITIES, STAGE ONE



Source: Survey on the enabling environment for CQI institutionalization

RESOURCES FOR QUALITY IMPROVEMENT

The MOH and the Free Maternity Program paid for the majority of human, financial, and material resources required for CQI activities in Stage One of the expansion. The latter assigned approximately USD \$65,000 of its budget for the year 2002-2003 to cover costs of training provincial and local facilitators in the beginning of the CQI institutionalization process.¹⁸

The labor costs for provincial and local facilitators in training and supporting CQI teams in the initial 14 health areas were totally covered by the MOH. In addition, provincial MOH offices covered facilitators' trips and per diem for these workshops. QAP provided only the training materials required by facilitators to replicate workshops for CQI teams in every province, as well as technical assistance as needed by the facilitators.

Costs of CQI Institutionalization during Stage One of the Expansion

A QAP staff member visited the health areas and applied a survey to gather information on costs of CQI teams. Only direct costs related to CQI activities were determined: a) cost of labor hours invested by teams in CQI; b) cost of transportation, gasoline, and trip expenses for team members who traveled to meetings; c) office supplies; d) cost of CQI training (lunch/coffee breaks for workshop participants). Costs for Stage One are summarized in Table 1.

TABLE 1: COSTS OF THE CQI INSTITUTIONALIZATION PROCESS DURING STAGE ONE (USD\$)

CATEGORY	UNITS	UNIT COST (USD\$)	AVERAGE COST PER TEAM (COVERED BY MOH AS SALARIES)	ADDITIONAL COST PER TEAM, SPECIFIC TO CQI	SOURCE OF FINANCING
Average number of hours invested by each team (6 people) in CQI activities during ten months of Stage One	1,073 hours	2.95	3,165.35		Ministry of Health
Average cost of gasoline used for transportation during CQI activities	40 gallons	1.48		59.20	Free Maternity
Average cost of office supplies used in CQI activities				90.10	Free Maternity
Average cost of lunch/coffee breaks for teams during CQI activities				201.80	Free Maternity
Average cost of per diem received by teams during CQI activities				800	Free Maternity
Average total cost of CQI activities carried out by a team during Stage One			3,165	1,151	Total: 4,316

Source: Survey on costs of CQI institutionalization

The survey on costs was applied to four improvement teams who carried out continuous quality improvement activities on a regular basis and met the following criteria:

1. Documented all CQI activities conducted by the team (training sessions, measurements, discussions on indicators)

¹⁸ Annual Operational Programming. Free Maternity and Child Care Program, 2002.

2. Names and functions of individuals participating in CQI activities
3. Availability of information regarding labor time (hours) invested in CQI activities
4. Availability of documentation of expenses related to CQI activities
5. Sources of information available for review during survey

The average cost of labor time invested by a team in CQI activities during this phase was estimated by calculating the average number of hours invested by a CQI team (total hours worked by members of all teams in CQI activities during the ten months of this phase divided by number of teams): 1,073 hours. This number of hours was multiplied by the average cost of an hour of work (USD \$2.95). The average cost of an hour of work of a team member was obtained calculating the cost of one hour of work of all members of teams and dividing it by the number of members in the teams¹⁹.

The costs of the training (three workshops) for the initial cadre of facilitators was covered with funds of the Free Maternity Program, approximately USD \$65,000, while all the other direct costs of the replication of the training by facilitators to the CQI teams in each of the initial 14 health areas was covered with funds from the provincial MOH offices, Free Maternity Program, or the health areas themselves.

Eighty-two percent (82%) of the total annual costs for a CQI team went to labor time of the members of the team, but this was not an additional cost since CQI members in all cases were regular staff of the facilities, whose salaries were already covered and paid by the MOH. The additional cost the MOH provincial or district offices incurred to put in place the CQI program was in fact USD \$ 1,151 per CQI team per year, and all of these funds came from their regular training or transportation budgets.

STRUCTURE

At this initial stage, an organizational structure for CQI activities was created at the provincial level and in the health areas, based on the already existent organizational structure of the MOH in the province. CQI teams are the base of this organizational structure. A local district facilitator, who is usually also a team member, supports each CQI team. The provincial facilitator oversees the CQI work in the province, receives and consolidates monthly reports on compliance with standards, and visits the CQI teams to provide technical support for rapid improvement cycles.

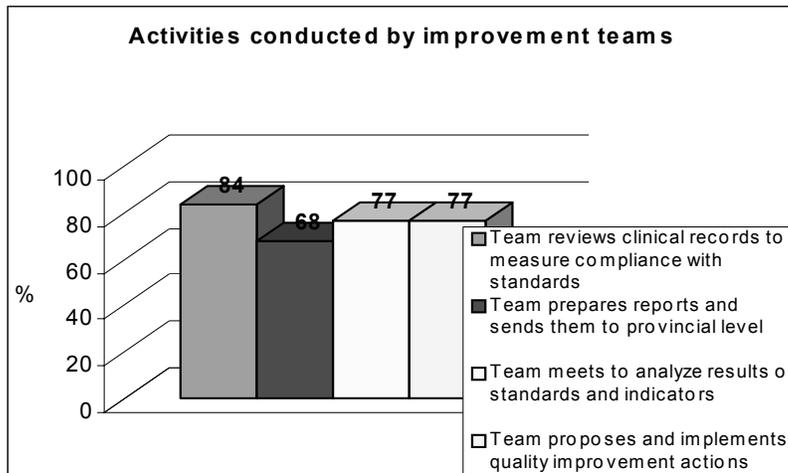
Quality Improvement Teams

During this stage of the expansion process, 14 improvement teams were formed in eight hospitals and six ambulatory care facilities in the eight provinces where the program was introduced. Improvement teams have approximately 4 to 6 members, including physicians, nurses, midwives, and administrative staff. Their responsibilities include monitoring the quality of healthcare and users' satisfaction, as well as planning and conducting activities to improve the quality of healthcare for selected processes. The majority of CQI teams were trained by provincial facilitators, with support from local facilitators.

Thirty-three facilitators were asked about the types of activities CQI teams carry out. Figure 6 shows the activities that were mentioned most frequently

¹⁹ These are approximate figures, since values were obtained in a sample of four of the fourteen teams.

FIGURE 6: ACTIVITIES CONDUCTED BY IMPROVEMENT TEAMS



Source: Survey on the enabling environment for CQI institutionalization

CQI teams generally meet once a month. At these meetings, the level of compliance with standards is determined by auditing a sample of maternal-perinatal clinical records. The CQI team examines each perinatal clinical record sampled and discusses if and how it complied or not with each one of the sixteen standards of care for prenatal, delivery, immediate postpartum, newborn care, and management of main obstetric complications. In fact, this process is not only a monitoring procedure, but also a form of collective supervision over the quality of care. Results of surveys on users' satisfaction are also analyzed periodically, since these surveys are to be conducted quarterly.

The CQI team determines the results of improvement actions implemented to enhance the quality of healthcare or to solve problems detected in weak areas. Based on this discussion, the CQI team will decide if the intervention was successful and deserves to be implemented at a larger scale in the health facility or area, or whether it is preferable to modify the intervention, or choose a new healthcare process for improvement. The CQI team is also responsible for sending monthly information on compliance with standards to the provincial facilitator at the MOH Provincial Directorate.

Provincial and Local Facilitators

In Provincial Directorates, the Head of Maternal and Child Health was appointed and trained as a provincial CQI facilitator, while in the health areas the Area Director and/or Coordinator was appointed and trained as a local CQI facilitator. The role of CQI facilitator was given to these physicians, nurses and/or social workers through a letter sent by the National Director of Maternal and Child Health and the Free Maternity Executive Unit. The letter stated that monitoring and improving quality of MCH care in their province or health area was considered part of their duties and that now the MOH was training and supporting them to adequately fulfill this role. The general structure for supporting CQI activities at the provincial level is depicted in Figure 7.

The role of Facilitators was decisive in this stage. Facilitators trained CQI teams, offered them technical support through visits and encouraged their work. Their duties include the implementation of a provincial quality plan, the consolidation of monthly information on indicators reported by Areas through their CQI teams, the report of consolidated provincial information to the MOH's central level, and advocating for CQI activities and its funding at the provincial MOH office. Provincial facilitators do not receive any additional compensation for these activities that are considered part of their role as responsible officers for the province's

Maternal and Child Health program. The operational expenses required for Facilitators' activities (transportation, gasoline, travel expenses) are covered by the regular budget of provincial Health Directorates.

FIGURE 7: ORGANIZATIONAL STRUCTURE FOR CQI AT THE PROVINCIAL LEVEL

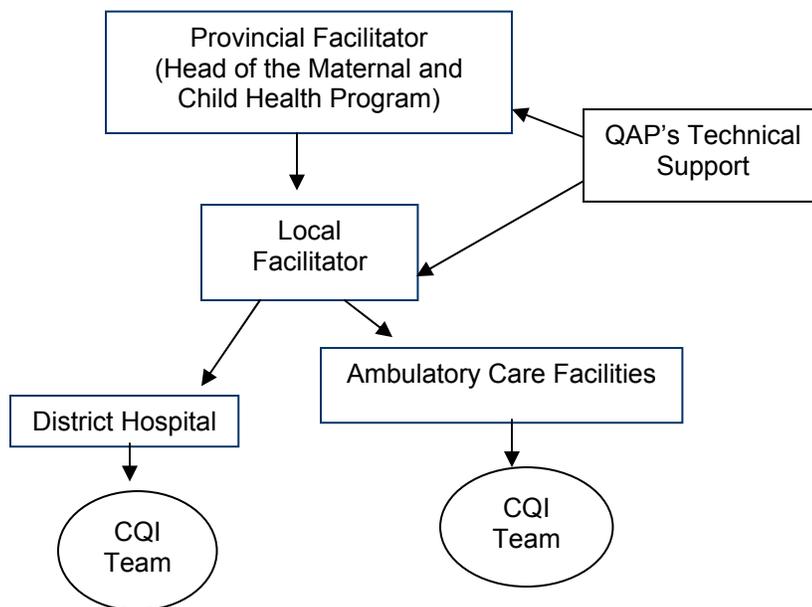
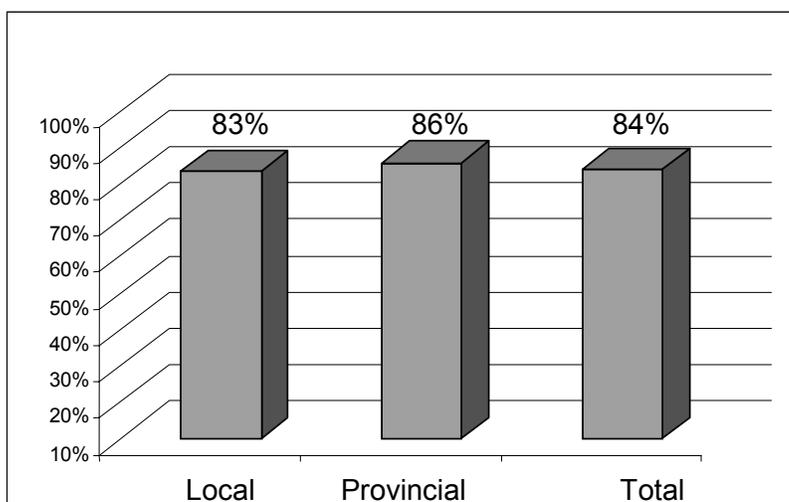


Figure 8 shows the percentage of provincial and local facilitators active at the end of Stage One of the expansion, out of the total number of facilitators trained. A facilitator was considered active if she or he regularly performed the following activities: offered technical support to teams, conducted visits, consolidated indicators from areas, and coordinated and put into practice continuous improvement plans.

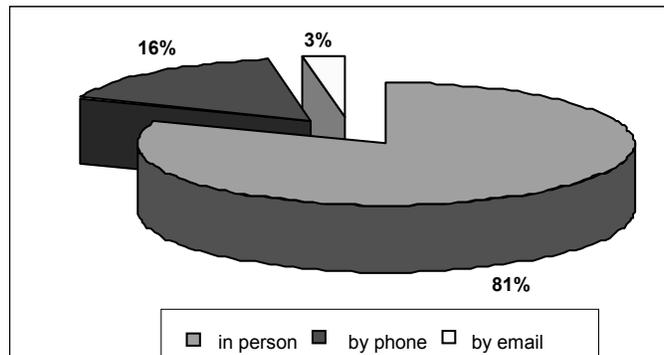
FIGURE 8: PERCENTAGE OF TRAINED CQI FACILITATORS ACTIVE AT THE END OF STAGE ONE



Source: Survey on the enabling environment for CQI institutionalization

Facilitators offered technical assistance to improvement teams either by visiting in person or by phone or email, as shown in Figure 9.

FIGURE 9: MEANS OF TECHNICAL SUPPORT OFFERED BY CQI FACILITATORS, STAGE ONE

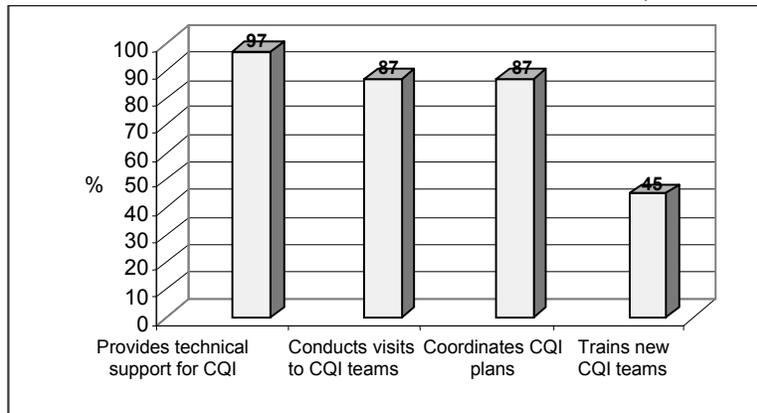


Source: Survey on the enabling environment for CQI institutionalization

Each improvement team relied on at least one local facilitator. In the majority of cases, local facilitators were physicians who acted as Area Coordinators, and/or area nurses. Local facilitators are members of the improvement team, participate in team activities, provide technical assistance, and coordinate improvement activities with other local organizations, such as the Municipal Government or Users' Committees. Twenty-nine local facilitators were trained to support the work of CQI teams in the 14 initial health areas.

Figure 10 shows the most frequent roles performed by facilitators in support of CQI teams.

FIGURE 10: ACTIVITIES PERFORMED BY CQI FACILITATORS, STAGE ONE



Source: Survey on the enabling environment for CQI institutionalization

BUILDING TECHNICAL CAPACITY

A program consisting of three workshops (learning sessions) and three action periods between workshops was designed to train provincial and local facilitators in continuous quality improvement. Workshops were conducted at intervals of approximately six to ten weeks and included the following topics:

Learning Session 1: Concepts of quality, quality assurance, quality standards, and indicators; planning baseline assessments; exercises for building standards and indicators; exercises for evaluating compliance with standards based on real data from clinical records and other sources; and basic concepts and techniques to evaluate users' satisfaction.

Action Period 1:

a) Once facilitators were trained, they went back to their health area, met with the staff from the main facility (county hospital or health center), and presented the methodology on continuous quality improvement, inviting all interested individuals to be part of the CQI team.

b) After forming the CQI team, facilitators replicated Learning Session #1, training CQI teams with special emphasis on the use of standards and indicators to measure quality of care.

c) CQI teams conducted a baseline assessment of compliance with quality standards.

Learning Session 2: Continuous quality improvement methods; identification of problems; implementing solutions. In the subsequent phase of the expansion (Stage Two), the rapid improvement cycles approach was adopted.

Action Period 2:

a) Facilitators replicated Learning Session #2 for CQI teams.

b) CQI teams put in practice a continuous quality improvement method for problems identified and prioritized after measuring compliance with standards.

c) Facilitators provided technical support to teams.

Learning Session 3: Presentation of experiences related to the measurement of compliance with quality standards, monitoring systems, and the role played by facilitators.

Action Period 3:

a) Facilitators replicated Learning Session #3 for CQI teams.

b) Selection of a new problem for improvement, or modification of the improvement approach applied to the original problem.

c) Facilitators provided technical support to teams.

The extent to which the facilitators would actually carry out these trainings and technical assistance activities was unknown prior to this intervention. Several MOH central level officials were doubtful that these facilitators would actually do so on their own, considering that they would not be provided with a special compensation, nor with a special budget for transportation or per diem for these activities (with the exception of training supplies provided by QAP), since these were to be paid with the operating funds of the provincial MOH offices and health areas.

The overwhelming majority of the facilitators did indeed replicate the trainings, formed CQI teams in the main facilities in the selected areas in each province, and actually got a CQI program up and running with resources from their own districts or provincial MOH offices. Of the eight provinces and 14 areas initially selected, only one province, Guayas, and its two areas did not succeed in building the CQI program. In 87% of the provinces or areas initially selected, facilitators succeeded in replicating the CQI training and forming CQI teams that continue to be active.

Facilitators identified enabling factors that allowed them to replicate training workshops in their respective provinces and health areas, as shown in Table 2. They also identified factors that were obstacles to replicating the training workshops in the health areas. These obstacles included competing parallel activities programmed by participants, difficulties in identifying financial resources to conduct workshops, initial lack of motivation among participants, the short time programmed to replicate workshops, strikes organized by health workers, and lack of punctuality among certain participants.

TABLE 2: FACILITATING FACTORS FOR WORKSHOP REPLICATION, STAGE ONE

FACTOR WHICH MOST ENABLED FACILITATORS TO REPLICATE WORKSHOPS	PERCENTAGE OF FACILITATORS WHO CITED THIS FACTOR
Team motivated to receive training	24
Support from the Area Director to conduct training	17
Materials provided for training	16
Staff's collaboration to conduct training	9
Support from the provincial level to conduct training	9
Support from facilitators during workshops	7
Previous training of facilitators	5
Technical support provided by QAP	4
Coordinated work to conduct training	4
Financial support to conduct workshops	4
Total	100

Source: Survey on the enabling environment for CQI institutionalization

To help facilitators replicate training workshops in provinces and health areas, QAP provided them with a set of PowerPoint transparencies for each training unit, both in the form of overhead transparencies and in a CD format for use with a computer projector. They also received a CD with audiovisual aids for conducting training in the use of the partograph and a set of standards, indicators, tools, and guidelines for data collection (see Annexes 1, 2, and 4 in the CD that accompanies this report).

INFORMATION AND COMMUNICATION

During this stage, provincial facilitators sent their monthly data on indicators for compliance with standards either by mail (diskette), fax, or electronic mail to QAP in Quito. A QAP staff member reviewed the data and communicated with facilitators by phone to discuss any errors or problems. QAP also entered data in an Excel spreadsheet and produced run charts that were sent back to facilitators. Most communication at this stage was done through phone calls from QAP to provinces and through face-to-face meetings with facilitators during training sessions and periodic visits. Use of electronic mail and Internet was very limited at this stage.

INCENTIVES FOR QUALITY

The technical-administrative manual for the Free Maternity Program, published in 2002,²⁰ established a financial incentive for Local Management Committees that meet coverage and quality goals established for their area. This mechanism was not applied during this phase, due

²⁰ Technical, Operational and Financial Manual. Program for the Provision of Free Maternity and Child Care. Ministry of Health of Ecuador, Quito, 2002. Available at <http://www.mortalidadmaterna.org/> in the section, "Biblioteca".

to a lack of allocation of funds for this purpose in the Free Maternity budget and because the incentive mechanism lacked a regulation that clearly spells out the operational procedures for providing this incentive. Also, the Free Maternity Program did not advocate strongly for the implementation of the incentive mechanism, perhaps not wanting to embark on a discussion with its financial sources concerning the potential legal conflicts of the implementation of such an incentive mechanism.

RESULTS OF STAGE ONE OF THE EXPANSION PHASE

Expansion of CQI Activities

The expansion strategy based on provincial and local facilitators was successful. After QAP trained 38 Facilitators from 14 health areas in eight provinces, they were capable of creating 14 CQI teams at each of their respective areas and provinces and of replicating the training received. The exception was Guayas Province, where facilitators did not assume their role. Although initially formed, CQI teams in this province did not receive follow up and eventually disappeared.

The strategy of combining local and provincial facilitators worked well. The local facilitator was a member of the CQI team and as such, organized and led team meetings and constantly oversaw the team's work. His or her permanence within the facility allowed him/her to be aware of all the details that could be an opportunity or a constraint for the work of the CQI team. The provincial facilitator maintained constant contact with the local facilitator of each team, mostly by phone but in some cases also by electronic mail. He or she periodically visited CQI teams in the province, especially those that had difficulties or needed support, reviewed and consolidated data on compliance with standards and improvement activities sent monthly by each team, and negotiated support (both political and financial) from the MOH provincial office. By the end of Stage One of the expansion, most local facilitators had become more like "team leaders," and the status of facilitator was left for the provincial ones. As work progressed, provincial facilitators came to increasingly integrate CQI work into their regular duties and came to develop a strong sense of pride in the progress in quality of care in their respective provinces, as well as in their own technical role, experience, and knowledge.

Twelve CQI teams formed by facilitators worked regularly throughout Stage One, fulfilling tasks that included monitoring, continuous improvement of healthcare processes, and the reporting of indicators. Frequent strikes of workers from health areas constantly interfered with the functioning of CQI teams. The closing of facilities in times of strikes lasted in some cases longer than a month. Another difficulty in the work of CQI teams was limited support of certain provincial MOH directors, who in the beginning did not understand the importance of CQI activities or their connection to provincial goals regarding healthcare.

Technical assistance provided by QAP involved the initial training of facilitators and regular field visits to provinces and/or health areas, especially those that experienced difficulties. QAP developed a close relationship with each provincial facilitator, maintaining constant contact by phone and electronic mail and constantly updating them with literature and new developments on CQI. Facilitators called or wrote QAP staff weekly to ask for technical support in relation to specific difficulties they had with CQI teams' work. QAP also helped to generate political support at the MOH's central level for the provincial facilitators. Several facilitators began to have problems with their Provincial Directors because some of these did not understand or fully approve of the new CQI tasks taking up a good amount of time of the facilitators, who continued to be in charge of the MCH and Free Maternity programs in the province. In many instances,

QAP staff visited the MOH Provincial Directors to advocate for CQI and to explain how doing CQI in MCH was a better way to make the program achieve its objectives.

QAP also invested a substantial amount of its technical assistance to the central level of the MOH. Undoubtedly, much more resistance to the institutionalization of CQI was found here than in the provincial or area offices. Time and effort was needed to persuade technical officers of the MOH's central level about issues such as the inclusion of CQI in the MOH and Free Maternity policy documents; the role of provincial MCH officers as CQI facilitators; the use of provincial and local funds for CQI; the need to develop national standards and indicators for quality of MCH care; and the need to constantly monitor quality of care at all levels of the system, including the central level.

By the end of Stage One of the expansion, MOH central level was favorable to CQI activities and had appointed one of the MCH officers to work with QAP and oversee the development of the CQI expansion strategy. QAP took this officer to every province where CQI was being developed; this experience made him a decided advocate of the CQI process, and his recommendations to the MOH central level paved the way for the next stage of the expansion.

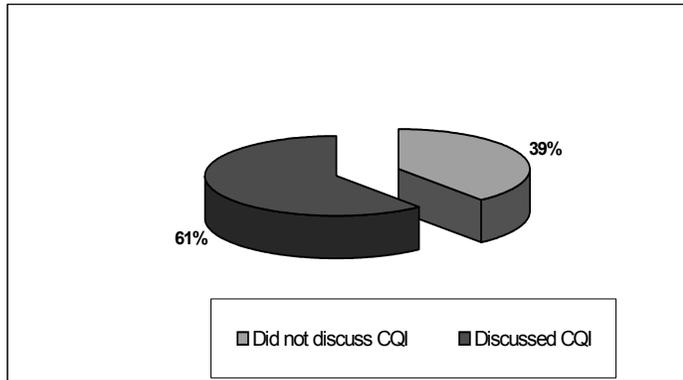
Quality Improvement Results

CQI teams initially measured a baseline of compliance with quality standards, identified deficient healthcare processes and focused on them, planning and carrying out improvement actions. Monthly monitoring of compliance with standards of care proved an effective way to orient teams' work, since standards covered both a list of required supplies and the care processes themselves (prenatal, delivery, immediate postpartum, newborn care, and management of obstetric complications). Problems related to the lack of specific supplies and materials were relatively easy to solve, since the Free Maternity Law reimburses facilities based on service volume and provides funds for the acquisition of such materials. Other improvements related to certain elements of the facilities' infrastructure, including consultation areas, bathrooms, and waiting areas.

The hardest task for CQI teams had to do with the continuous improvement of healthcare processes as such, because this involved necessarily a change in behavior of the providers themselves. Among the different professionals, physicians were the most resistant to adopting new ways of doing care processes in compliance with standards. For example, the use of the partograph was initially deemed by many physicians as something unnecessary that perhaps would be useful for practitioners who were not secure about their own clinical capabilities. To overcome resistance to change, CQI teams used an array of approaches, including distributing evidence-based technical literature, focused on-the-job training, discussion meetings, and one-on-one conversations. Even so, there were a few cases—not the majority—where resistance to change was not possible to overcome.

District management teams also began to include reports on compliance with quality standards in their periodic technical meetings. These meetings typically include a review of progress of programmed district activities, family planning, antenatal and vaccination coverage, and the productivity of facilities in the district. Data on quality of care, quality improvement, and users' satisfaction began to be discussed by the end of Stage One, as shown in Figure 11.

FIGURE 11: PERCENTAGE OF TECHNICAL MEETINGS DURING WHICH CQI WAS DISCUSSED, STAGE ONE



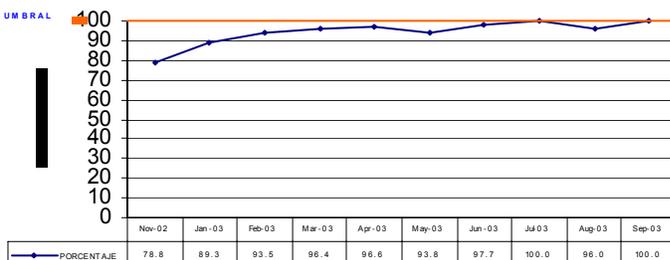
Source: Survey on the enabling environment for CQI institutionalization

The progressive integration of quality as an objective of the work of district management teams, besides access and coverage of services, was an important step towards institutionalization at the local level. District management teams supported CQI teams at facilities and in many cases partially paid for activities such as local CQI training or improvements that required some expenses.

CQI teams achieved important results in terms of compliance with quality standards for most of the care processes provided under the Free Maternity Law. The following run charts, developed with consolidated data from the 12 facilities where the initial CQI teams were active, show clear progress in quality of care during Stage One of the expansion.

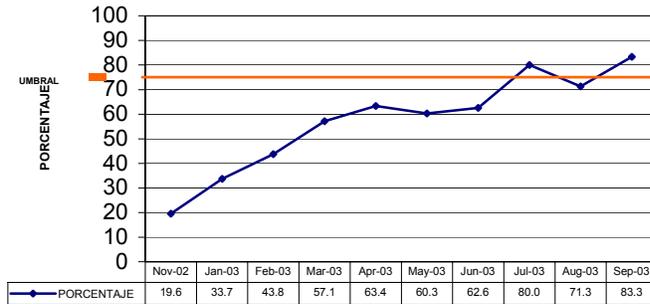
Antenatal Care

FIGURE 12: ANTENATAL CARE: PERCENTAGE OF ESSENTIAL INPUTS THAT ARE AVAILABLE IN OB-GYN CONSULTING ROOMS, NOV. 2002 – SEPT. 2003



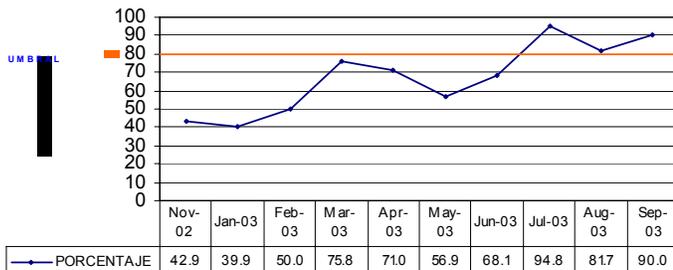
The teams' baseline assessment showed that lack of supplies was not a serious problem for quality of antenatal care. With funds from the Free Maternity program, and oriented by the results of the CQI assessments, facilities were able to buy supplies that were lacking, or get them from provincial or central warehouses.

FIGURE 13: PERCENTAGE OF PREGNANT WOMEN FOR WHOM ALL THE STANDARD TASKS WERE CARRIED OUT IN THEIR FIRST ANTENATAL CONSULTATION, NOV. 2002 – SEPT. 2003



The initial baseline assessments showed that antenatal care was being performed with poor compliance with the standard that established thirteen basic tasks. An antenatal session would not be considered a quality one if all thirteen tasks were not completed for each patient. Tasks that were most difficult to comply with were examination of the breasts and lab tests such as hemoglobin and blood Rh determination. By the end of Stage One, quality of prenatal care had improved significantly.

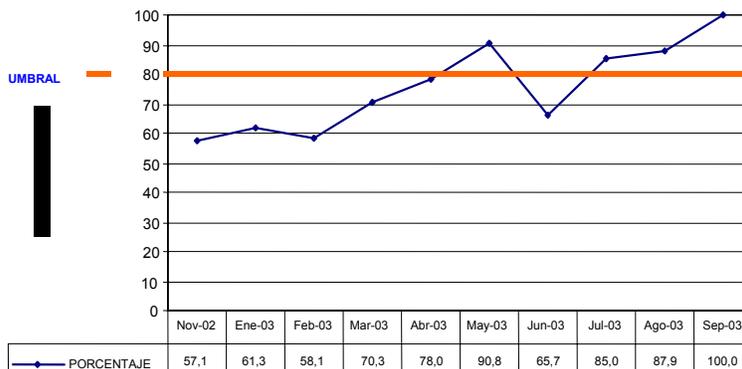
FIGURE 14: PERCENTAGE OF PREGNANT WOMEN WHO USED OUTPATIENT SERVICES FOR PRENATAL CARE AND WHO WERE SATISFIED WITH THE CARE RECEIVED, NOV. 2002 – SEPT. 2003



Initial client satisfaction surveys showed that less than half of clients were satisfied with the care they received. The most frequent sources of dissatisfaction were waiting times, dirtiness of facilities, and lack of medicines. Contrary to the expectations of most teams and QAP, surveys did not reveal a significant lack of satisfaction with the personal interaction with providers. Client satisfaction surveys were carried out monthly during Stage One, however, this frequency proved to be too difficult and perhaps not necessary. Client surveys were carried out by local volunteers, for example, trained high school students or local leaders. CQI teams were instructed not to carry out surveys themselves to avoid potential biases.

Delivery Care and Immediate Newborn Care

FIGURE 15: PERCENTAGE OF WOMEN IN LABOR FOR WHOM STANDARD LABOR MONITORING TASKS WERE PERFORMED, NOV. 2002 – SEPT. 2003



Barely half of the women who had delivered in these facilities were being monitored for important vital signs during labor. After improvement activities, CQI teams were able to bring compliance with this standard to 100%.

FIGURE 16: PERCENTAGE OF ATTENDED BIRTHS IN WHICH THE PARTOGRAPH WAS CORRECTLY DRAWN, NOV. 2002 – AUG. 2003

Correct use of the partograph was improved from less than a fifth of the patients, to 71%. This was one of the most difficult standards to achieve because of the lack of previous training in the use of the partograph for most professionals. Very few facilities were actually using the partograph, which basically was introduced as a new element of delivery care.

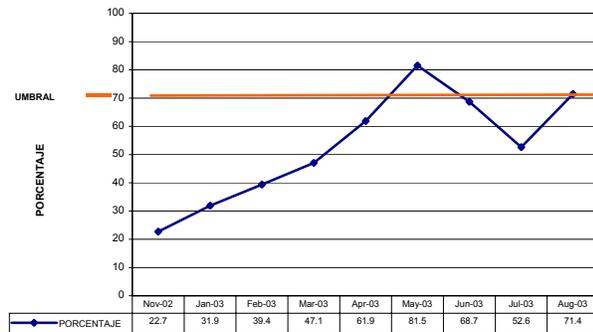
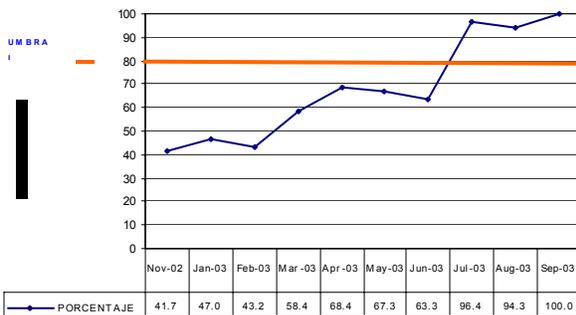
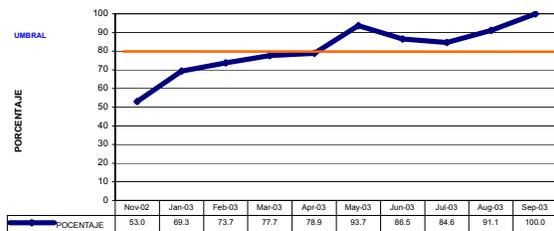


FIGURE 17: PERCENTAGE OF WOMEN WHO DELIVERED IN THE FACILITY WHO WERE SATISFIED WITH THE CARE RECEIVED, NOV. 2002 – SEPT. 2003



Users' satisfaction with care received during delivery in these CQI facilities went up from 40% to 100% during Stage One of the expansion.

FIGURE 18: PERCENTAGE OF NEWBORNS FOR WHOM AT LEAST 7 STANDARD TASKS WERE PERFORMED, NOV. 2002 – SEPT. 2003



Seven tasks were included in the standard for newborn care. From 53%, teams improved newborn care to 100% compliance with the standard at the end of this stage.

Postpartum Care

FIGURE 19: PERCENTAGE OF NORMAL DELIVERIES THAT RECEIVED IMMEDIATE POSTPARTUM CARE DURING THE FIRST TWO HOURS AFTER DELIVERY, NOV. 2002 – SEPT. 2003



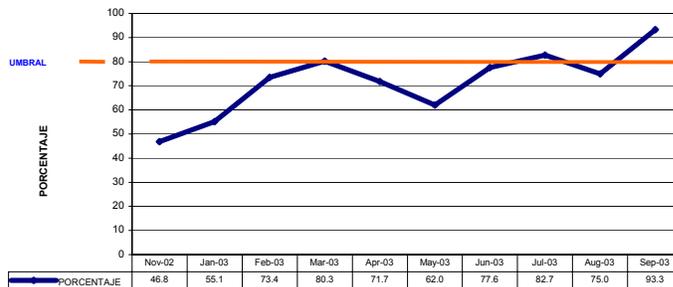
The baseline assessment showed that postpartum care was poorly performed at these facilities. By the end of this stage, performance had improved substantially from the initial level of 21%.

FIGURE 20: PERCENTAGE OF WORKING DAYS PER MONTH IN WHICH THE FACILITY'S PHARMACY HAD IN STOCK AT LEAST 3 OF THE 5 ESSENTIAL FAMILY PLANNING METHODS, NOV. 2002 – SEPT. 2003



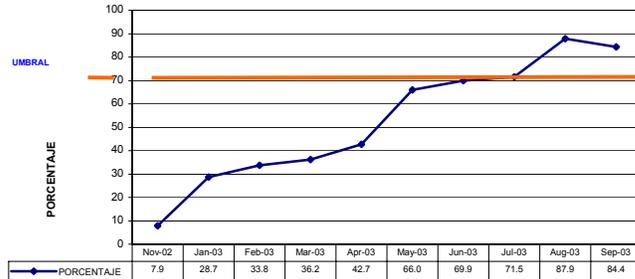
Availability of family planning (FP) methods was one of the criteria for program quality at each facility. At the baseline assessment, facilities lacked at least three of five basic FP methods 65% of the time. By the end of this stage, facilities had these methods available every single day.

FIGURE 21: PERCENTAGE OF WOMEN OF CHILD-BEARING AGE ATTENDING THE FP CLINIC THAT RECOGNIZE AT LEAST 4 FP METHODS, NOV. 2002 – SEPT. 2003



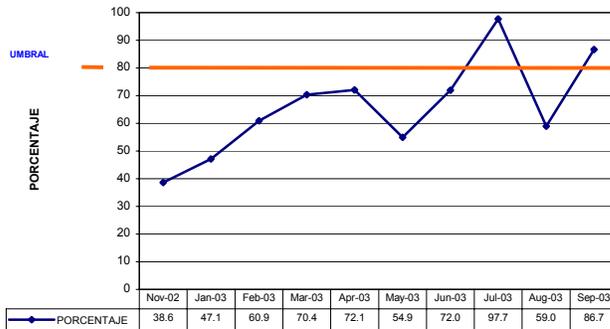
Knowledge of FP methods by women of reproductive age who were seen at the facility was another criteria for quality of the family planning program at the facility. From an initial 47%, at the end of this stage 93% of the women were able to mention at least four FP methods.

FIGURE 22: PERCENTAGE OF SICK CHILD FIRST VISITS IN WHICH THE IMCI PROTOCOL WAS FOLLOWED FOR CHILDREN 2 MONTHS TO 4 YEARS OF AGE, NOV. 2002 – SEPT. 2003



The Integrated Management of Childhood Illness (IMCI) strategy was not being routinely implemented at these facilities. Only 8% of the children seen in the pediatric outpatient clinics were examined using the IMCI approach. With the work done by CQI teams, this percentage climbed to 84%.

FIGURE 23: PERCENTAGE OF MOTHERS OR CARETAKERS OF SICK CHILDREN WHO KNEW AT LEAST 4 DANGER SIGNS, NOV. 2002 – SEPT. 2003



Recognition of danger signs by mothers of sick children was one of the criteria for quality of care. Only 38% of the mothers were able at the beginning to recognize at least 4 of 8 danger signs. This percentage went up to 87% by the end of this stage.

VI. STAGE TWO OF THE EXPANSION: OCTOBER 2003 – AUGUST 2004

Stage Two involved an expansion to all health areas in the eight provinces initially selected, with the exception of Guayas Province, which withdrew from participation in this stage. Based on the experience gained through the creation of an initial CQI team in each province, provincial facilitators successfully completed the task of creating a CQI team in every health area.

The strategy of relying on provincial facilitators was consolidated and enhanced, to the extent that the Ministry of Health and its provincial offices formalized and supported the role of facilitators as an integral component of their regular work as Ministry officers. Facilitators created improvement teams in every health area, provided training to conduct a quality baseline study, and delivered ongoing assistance in all technical areas worked on by the teams.

It is important to highlight that these expansion goals were achieved in their majority with resources from Provincial Health Directorates and central offices of the Ministry of Health, as

will be shown later. The Quality Assurance Project provided only technical support and training materials, particularly low cost office supplies.

Work carried out by the QAP team in support of the central level of the MOH was strengthened during this stage, allowing progress in several elements of the institutionalization process, as will be discussed below.

DEVELOPMENT OF POLICIES CONDUCTIVE TO CQI

The National Policy for Sexual and Reproductive Health was approved in September 2004 during the National Congress for Health and Life. This national policy highlights the importance of quality health services provided to women in Ecuador.

Management Agreements for the application of the Law were continued during this stage. These agreements, which currently reach 51 throughout the country, are signed between the Ministry of Health and local municipal governments. Agreements insist on the need for services offered by local providers in the municipality to comply with approved quality standards featured in official documents of the Executive Unit of the Law.

In August 2004, the Support and Monitoring Committee of the Law for the Provision of Free Maternity Services (Technical SMC) requested an official presentation from Tungurahua's Provincial Health Directorate concerning details of the implementation of the CQI model in the province's health facilities. The Technical SMC approved the presentation and sent official congratulations to the Province of Tungurahua.

In the beginning of 2004, the Technical SMC approved its *Operational Plan and Annual Budget*, which included expansion and reinforcement activities for the CQI program applied to services covered by the Law.

LEADERSHIP

In the beginning of 2004, an inter-institutional work team was created at the central level of the Ministry of Public Health to act as the Steering Group for the CQI process. This Steering Group includes technical staff from the Directorate for Health Promotion and Integral Care, the Executive Unit of the Program for the Provision of Free Maternity Care, and the Quality Assurance Project. The Steering Group's function is to lead CQI activities from the central level, in coordination with Provincial Health Directorates, in order to create and direct policies, a national quality plan, and quality standards. Additionally, it must negotiate necessary resources for quality activities featured in the Annual Operational Plan of the Executive Unit of the Law, and provide inter- and intra-institutional technical assistance.

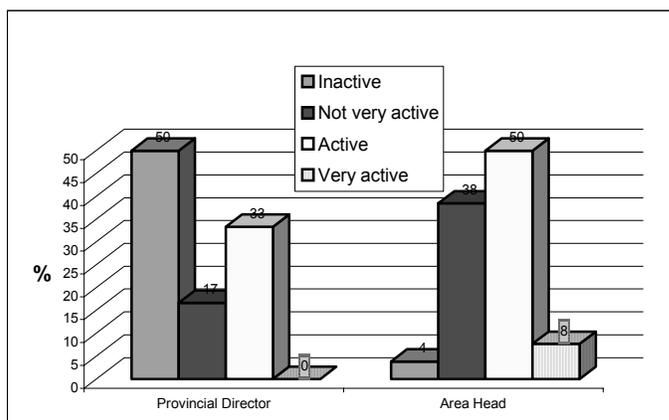
The Steering Group held technical meetings every trimester to discuss aspects related to the organization and progress of CQI activities, the revision of standards and indicators, the evaluation of tools and guidelines for data collection, the planning of support visits to CQI teams in different provinces, the training of provincial facilitators, and the use of a communication system to convey results of measurements of compliance with standards and indicators.

On various occasions, the Director of the Maternal and Child Care Program of the MOH directly participated in visits to Provincial Directorates where the CQI program was being implemented. The Steering Group also designated two of its members to participate in provincial meetings of the CQI program. Progress achieved by facilitators and improvement teams formed in Stage One was presented during these visits, attended by the Provincial Health Director, as well as Coordinators of every health area in each province.

The leadership role played by the central level of the MOH through its Steering Group was an important development in relation to Stage One, when leadership was limited to the provincial and local setting. The leadership role of provincial facilitators was strengthened through an official letter sent from the General Health Directorate, which informed the Facilitator of his/her designation as the person responsible for the process in the province.

The level of support and participation of authorities (Provincial Directors and Area Directors) in the process of CQI expansion improved in Stage Two, according to a survey applied to twenty-seven improvement teams. However, half of the Provincial Directors were described as “inactive” with respect to their support. In contrast, the majority of Area Directors supported the expansion process and participated in it to different degrees (see Figure 24).

FIGURE 24: ROLE OF LOCAL AUTHORITIES IN SUPPORT OF CQI ACTIVITIES, STAGE TWO



Source: Survey applied to CQI Teams

RESOURCES FOR QUALITY IMPROVEMENT

During Stage Two of the expansion, Provincial Directorates and new health areas entering the program financed CQI activities with funds from their own budgets, covering travel expenses of provincial facilitators to visit new facilities in order to form and train new CQI teams, or to visit health facilities to provide technical support to teams of different health areas. The cost of work carried out by provincial facilitators to provide technical support to teams at their facilities was fully covered by the MOH.

Health areas covered with their own funds travel expenses for members of improvement teams who attended training events, as well as the cost of time invested by team members in CQI activities, for example, measuring indicators periodically and holding meetings to discuss results. The cost of improvement actions was also covered with funds assigned to each health area. With respect to costs of acquiring needed supplies and materials, such as medicines, forms, thermometers, stethoscopes, or supplies such as gauze, tongue depressors, gloves, etc., health areas acquired them with funds coming from reimbursements made under the provisions of the LFMC. On occasions, changes were made to the physical structure, particularly improvements to restrooms and waiting areas. In other cases, changes were made in care processes to improve the quality of specific services.

QAP only covered the cost of transportation of one of its experts to offer technical support to local and provincial facilitators regarding specific activities in provinces or health areas, whenever such support was required. QAP also covered the reproduction of materials for different training sessions, and the design of an Excel database to enter data from the

measurement of standards and indicators. Technical assistance by QAP was provided through expert visits, but increasingly by means of telephone conversations and electronic mail.

By mid-2004, QAP contracted with three of the most active provincial facilitators to support CQI work in other provinces during their free time. These facilitators still maintain responsibilities in their own province, where they perform their CQI-related work as part of their regular duties as officers of the Provincial Directorate. Instead of sending an expert from Quito to a certain province, technical assistance from a neighbor provincial facilitator was tested. Results were quite positive and very low cost.

Costs of CQI Institutionalization during Stage Two

As in Stage One, expenses of quality improvement teams during Stage Two were calculated through a survey designed to collect information on different activities carried out by teams during this stage and the costs incurred through such activities. The estimated costs are presented in Table 3.

TABLE 3: COSTS OF CQI INSTITUTIONALIZATION DURING STAGE TWO

CATEGORY	UNITS	UNIT COST (USD\$)	COST PER TEAM (COVERED BY MOH AS SALARIES)	ADDITIONAL COST PER TEAM (FOR CQI WORK)	FINANCING SOURCE
Average number of hours invested by each team in CQI activities during Stage Two	402.4 hours	3.90 / hour	1,569.36		Ministry of Health
Gas for transportation related to CQI activities	43.7 gallons	1.48		64.68	Ministry of Health
Office materials used for CQI activities				39.50	Ministry of Health
Coffee breaks/lunch provided to teams during CQI activities				84.50	Ministry of Health
Per diem provided to teams in order to attend training sessions				688	Ministry of Health
Total average cost of CQI activities for a single team during Stage Two			1,569	876.68	Total: 2,446

Source: Survey on costs of CQI institutionalization

Information was gathered regarding number of hours invested by teams in improvement activities, costs of transportation, gas and travel expenses covered for team members in order to receive CQI training; purchase of office materials for different activities and food-related expenses during training workshops. Only direct costs were determined. The sample included 16 health areas that had carried out continuous improvement activities on a regular basis and which met the following criteria:

- Maintained records of CQI activities (training sessions, measurements, discussion of indicators)
- Registered names and roles of participants in CQI activities
- Had available information on the time (hours) invested in CQI activities

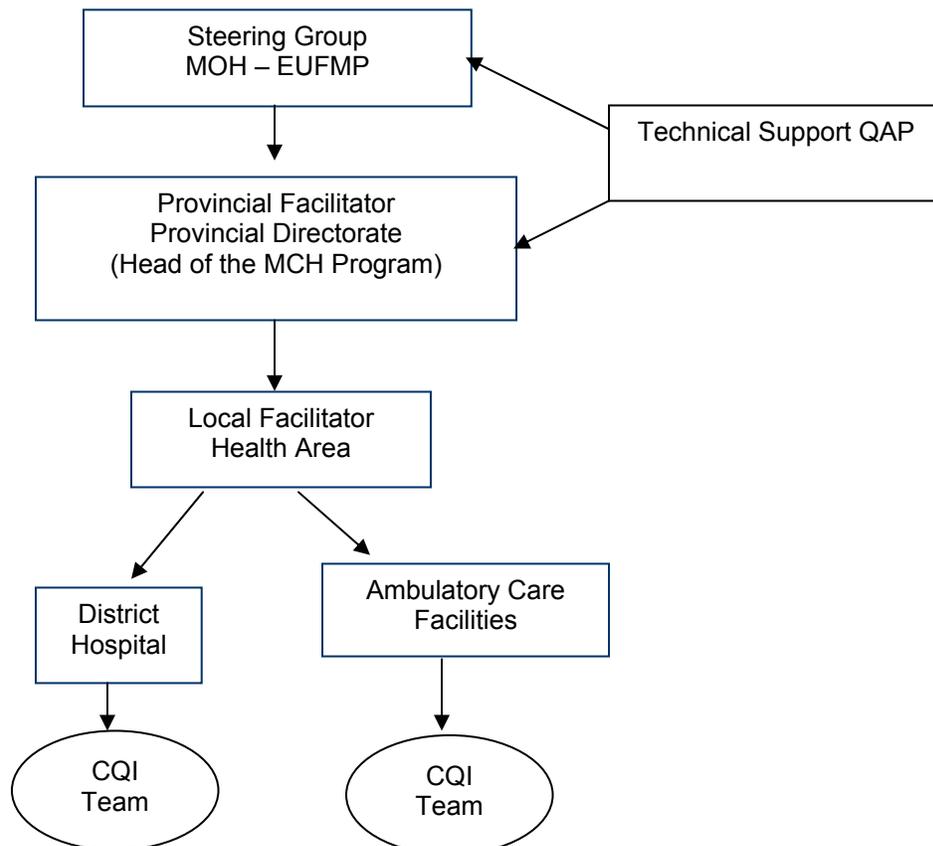
- Had records of expenses related to CQI activities
- Had sources of information available for review at the time of data collection

The average cost of time invested by teams in CQI activities during Stage Two was obtained by calculating the average number of work hours invested by a team in CQI activities (total number of hours invested by all teams surveyed, divided by the number of teams). This average number of hours was multiplied by the average cost of a work hour during Stage Two (USD \$3.90). The average cost of an hour of work of a team member was obtained calculating the cost of one hour of work of all members of teams and dividing it by the number of members in the teams.²¹

STRUCTURE

In Stage Two the organizational structure was strengthened due to the creation of the Steering Group at the central level of the Ministry of Health, which allowed more constant monitoring of provinces participating in the CQI process. Figure 25 shows how the Steering Group, formed with technical staff of the MOH, plus delegates from the Executive Unit of the Free Maternity Law, related to the rest of the organizational structure established in Stage One. QAP continued in its role of provider of technical assistance both to the Steering Group and to provincial facilitators.

FIGURE 25: ORGANIZATIONAL STRUCTURE FOR CQI AT THE PROVINCIAL LEVEL, STAGE TWO

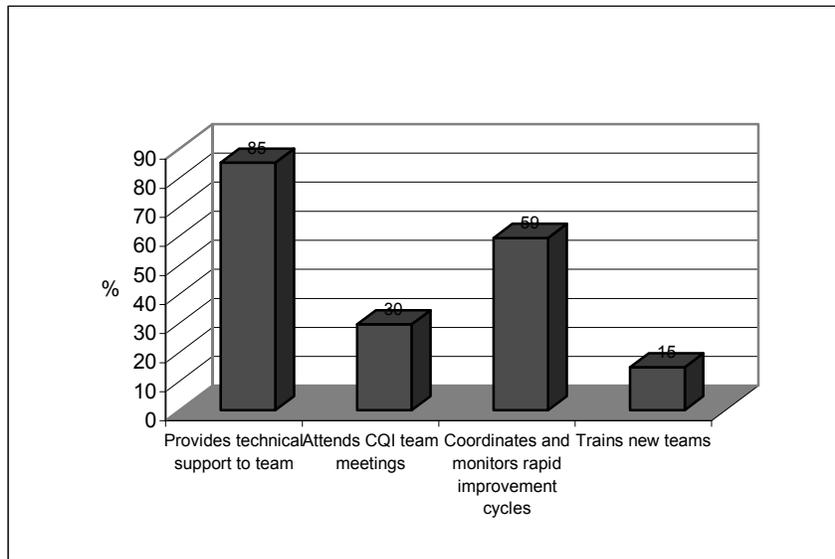


²¹ These are approximate figures, since values were obtained in a sample of four of the 14 teams.

Provincial facilitators continued providing important support to the work of CQI teams during Stage Two, as can be observed from the answers given by 27 improvement teams to questions regarding the type of activities performed by provincial facilitators.

As shown in Figure 26, the main activity carried out by facilitators is the local technical assistance provided to CQI teams, in addition to participating in their meetings and training new teams. The majority of teams surveyed (85%) acknowledged the role of technical assistance played by facilitators, although to a lesser extent compared to Stage One, where this role was acknowledged by 97% of teams. It is possible this is due to increased independence or autonomy of teams.

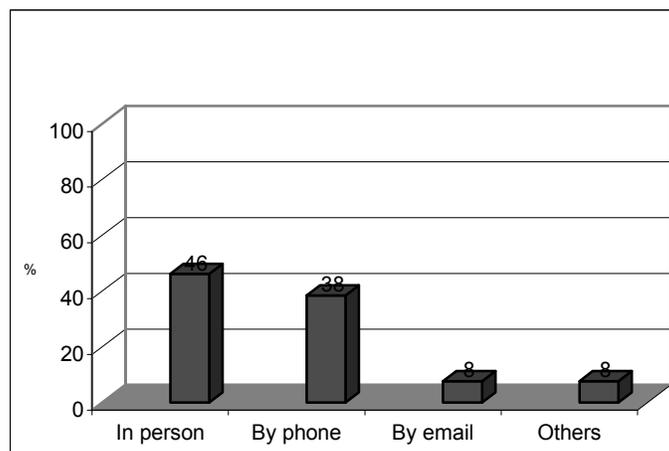
FIGURE 26: ACTIVITIES PERFORMED BY THE PROVINCIAL FACILITATOR TO SUPPORT CQI TEAMS, STAGE TWO



Source: Survey applied to CQI teams

Technical assistance provided by facilitators to teams via telephone increased during this stage, and personal visits decreased, as seen in Figure 27. It is possible that this decline is due to the fact that provincial facilitators may have sought more cost-effective means to provide support to the greater number of CQI teams for which each was responsible in Stage Two.

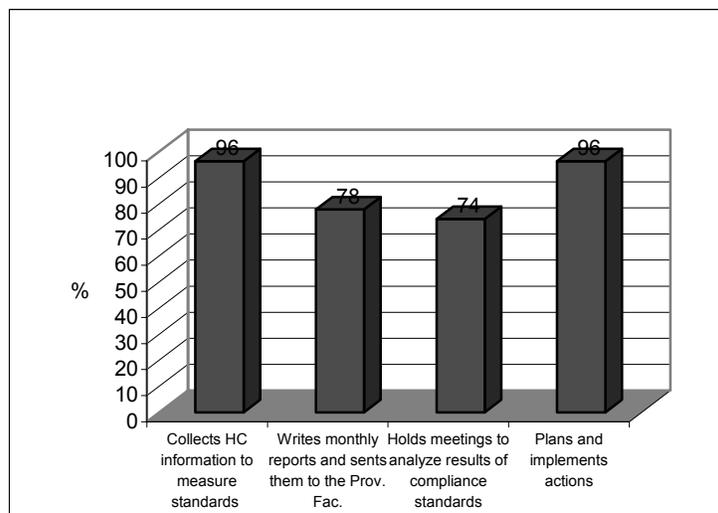
FIGURE 27: COMMUNICATION METHODS USED TO PROVIDE TECHNICAL SUPPORT TO TEAMS, STAGE TWO



Source: Survey applied to CQI teams

Within the various activities of CQI teams, improvement activities occupy more of teams' time than in Stage One. It is possible that it was easier for CQI teams to implement the methodology for improvement through rapid cycles than the problem solving methodology applied in Stage One.

FIGURE 28: ACTIVITIES CONDUCTED BY CQI TEAMS, STAGE TWO



Source: Survey applied to CQI teams

BUILDING TECHNICAL CAPACITY IN QUALITY IMPROVEMENT

The improvement approach was modified in Stage Two, abandoning the problem solving approach used in Stage One and adopting the rapid improvement cycle approach. This innovative approach, adapted from the Institute for Healthcare Improvement in the United States, turned out to be more useful for teams since it focused on progressive changes and measurement of immediate results of each change to determine whether the change should be implemented on a larger scale.

Another important change was reducing to the extent possible the duration of the three learning sessions or workshops: duration was reduced from two to three days per session in Stage One to one day and a half per session in Stage Two. This increased cost-effectiveness and facilitated the local replication of workshops in provinces. Additionally, the use of electronic mail, Internet, and the web page of the Maternal Mortality Reduction Initiative improvement collaborative was included in Learning Session 2.²²

Experience gained in Stage One of the expansion showed the need to adjust standards and indicators, eliminating some which were not useful and including new ones. Technical staff from QAP and the Ministry of Health made some modifications based on national norms and international recommendations, as well as experiences of facilitators and teams during Stage One. The modified set of standards and indicators was thoroughly discussed with national authorities from the Ministry of Health and the Free Maternity Executive Unit and then presented for discussion to provincial facilitators.

²² See Annex 6 for more information on how CQI facilitators could use the Maternal Mortality Reduction Initiative website to enter quality monitoring data.

National meetings were held in November 2003 and March 2004 to update provincial facilitators with respect to changes made to standards and indicators and the use of the Internet. In addition to the training, facilitators were able to share and discuss their experiences as providers of local technical assistance to teams in their respective provinces.

To help facilitators replicate training workshops in provinces and health areas, QAP supported technically and financially the development of a "Facilitator's Toolkit", given to each facilitator, with the following contents:

- A training guide for the CQI facilitator²³, that helps the facilitator to easily replicate the Learning Sessions and provide local technical assistance to teams. Facilitators actively participated in the validation of this guide by testing and adapting it to the reality of health services.
- Set of standards and indicators, tools and guidelines for data collection (see Annex 3).
- A set of PowerPoint transparencies for each training unit, in case the facilitator would need to use an overhead projector (see Annex 4).
- The same transparencies in a CD format for use with a computer projector.
- A CD with audiovisual aids for training on the use of the partograph.
- Electronic formats for reporting of rapid improvement cycles (see Annex 5).
- Monitoring system for quality indicators, including Excel databases for reports of Areas and province (see Annexes 7 and 8).

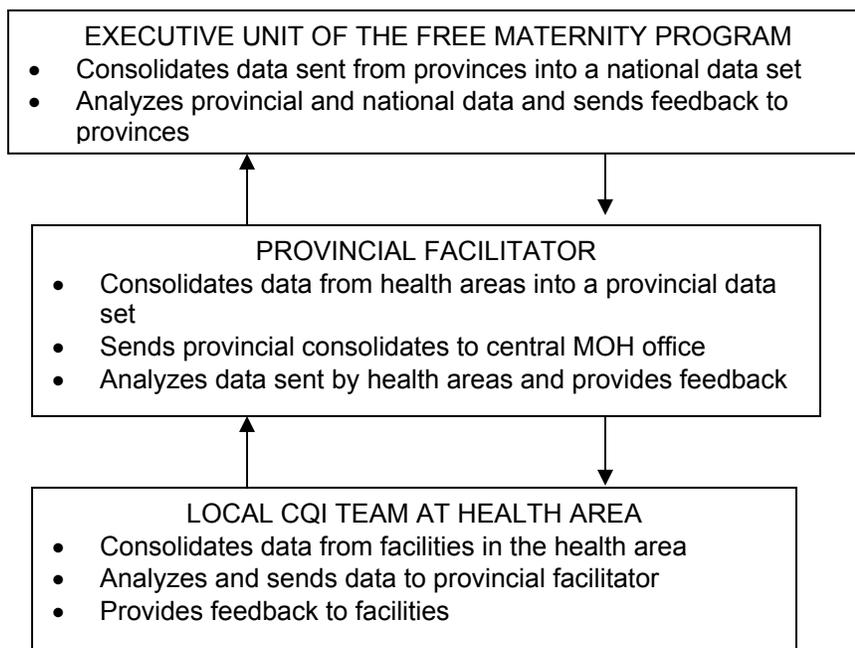
INFORMATION AND COMMUNICATION

QAP created a system for monthly monitoring of compliance with quality standards at three different levels of aggregation and reporting (facility, provincial, and national). Indicators of compliance with standards produced by the CQI team at the facility level are reported monthly to the respective Provincial MOH office, where the provincial facilitator analyzes quality of care in the main facilities of each health area and consolidates indicators into a single report for all facilities in the province. The provincial facilitator sends the consolidated report to the central level of the Ministry of Public Health in Quito, who analyzes the quality of care in provinces and consolidates indicators into a national report. This process is depicted in Figure 29.

QAP developed an Excel spreadsheet that allows CQI teams to easily enter numerators and denominators for each indicator (see Annex 7 of this report). The spreadsheet automatically produces percentages as well as run charts with monthly measurements for each indicator. A disk with the spreadsheet and the corresponding training were provided to the provincial facilitator and all the CQI teams in every province. The Excel spreadsheet, once filled out, is sent by CQI teams to the provincial facilitator by electronic mail and/or fax; the provincial facilitator then consolidates the information and sends it to the central level for analysis and feedback. Provincial MOH offices and many health areas in Ecuador have one or more computers with Microsoft Office installed.

²³ Ministries of Health of Ecuador, Nicaragua and Honduras. Quality Assurance Project, QAP. Training guide for the CQI facilitator. Regional Initiative for the Reduction of Maternal Mortality. Collaborative Project. Quito, 2003. The training manual is found in Annex 2 on the CD that accompanies this report.

FIGURE 29: FLOW OF REPORTING INDICATORS ON COMPLIANCE WITH QUALITY STANDARDS



During the initial stage of the expansion, the monitoring and reporting system worked only up to the provincial level and required significant technical support from QAP. The most frequent problems were errors on the part of CQI teams related to entering data for indicators and lack of continuity in sending the reports. At the provincial level, difficulties included errors in the creation of consolidated provincial reports and the limited ability of some provincial facilitators to systematically identify errors of CQI teams.

Throughout the initial stage of the expansion, the central level of the MOH did not assume its technical role in the analysis and feedback of quality data from provinces, despite support and technical assistance provided. Thus, QAP had to assume this role on many occasions, although it was not part of its functions. The main causes for this difficulty involved institutional weakness of the central level, the extreme instability of officials in their posts, and the resulting lack of interest in the CQI system being developed.

Another important advance was the publication of the Free Maternity Program newsletter *Boletín Informativo Maternidad Gratuita*, with a broad national distribution. Each of the three newsletter issues that were published during this stage featured a section on progress of the CQI program.²⁴

²⁴ Boletines Informativos del Comité de Apoyo y Seguimiento a la Ley de Maternidad Gratuita, No. 1 Septiembre 2003; No. 2 Mayo 2004; No. 3 Nov. 2004. Quito, Ecuador.

RESULTS FROM STAGE TWO OF THE EXPANSION PHASE

Scale-up of the CQI Model

During Stage Two, which lasted approximately one year, facilitators managed to increase to more than double (236% increase) the number of CQI teams formed and functioning.²⁵ They implemented the CQI program in 26% of MOH health areas (43/168), and within these areas in 35% of district hospitals (30/86) and 54% of maternal care centers (15/28). These health facilities annually provide approximately 123,142 antenatal controls; 15,461 deliveries; and serve a total population of approximately 2,626,460 inhabitants. In spite of all efforts and of being the most populated province in the country, work in Guayas Province could not be carried out. The coverage of the CQI model by the end of Stage Two is summarized in Table 4.

TABLE 4: STATE OF EXPANSION OF CQI AT THE END OF STAGE TWO

PROVINCE	# HEALTH AREAS	# CQI TEAMS STAGE ONE	# ADDITIONAL CQI TEAMS STAGE TWO	TOTAL CQI TEAMS, STAGES ONE AND TWO	# CQI TEAMS BY FACILITY TYPE	
					HOSPITAL	HEALTH CENTER
Azuay	10	2	4	6	5	1
El Oro	9	2	8	10	7	3
Bolívar	4	2	2	4	2	2
Tungurahua	7	2	6	8	4	4
Cotopaxi	7	1	5	6	3	3
Imbabura	4	2	2	4	3	1
Morona Santiago	7	1	6	7	6	1
Guayas	32	2	0	0	0	0
Total	80	14	33	45	30	15

The expansion allowed quality improvements to reach a greater number of patients. For example, compliance with the standard for antenatal care was measured in a sample of 14,305 mothers, and the standard of care of using the partograph during delivery was measured in a sample of 6,549 mothers during Stage Two.²⁶ In 2004, the Free Maternity Program paid facilities for 855,491 antenatal care consultations and 102,756 deliveries. The quality improvement activities were, at this stage of the expansion, already covering approximately a third of all facilities in the country.

During Stage Two, the central level of the Ministry of Health displayed more solid support for the expansion of the CQI model, which facilitated the work of the provincial facilitators. In order to train new CQI teams, in some provinces (Bolívar and Cotopaxi), facilitators conducted separate workshops in each one of the new health facilities, while in other provinces (Azuay, El Oro, Tungurahua, Imbabura, Morona Santiago), workshops were held jointly for all facilities. In some provinces, an expert from QAP was requested to support the facilitator in the training of new CQI teams in new health facilities.

²⁵ A "functioning" CQI team is one that reports its quality indicators monthly to the Provincial Directorate and holds a monthly meeting to plan and implement improvement actions.

²⁶ See Figures 31 and 33; sample sizes cited represent the sum of denominators for the 15-month period of Stage Two.

Costs of staff time, transportation, and travel expenses for facilitators and team members were covered by the regular budget of provincial Health Directorates and health areas. QAP only covered technical assistance, training materials, and, on a few occasions, food-related expenses. During this stage, facilitators improved their ability to identify available resources in their own operating budgets (i.e., in line items for training or transportation) that could be used to support the CQI expansion.

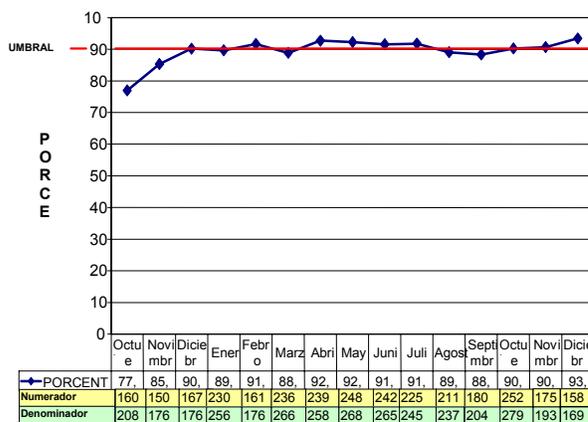
Results in Improvement of Quality of Healthcare

The incorporation, starting in October 2003, of thirty-three new health facilities (62% of which were hospitals and 38% health centers) in Stage Two of the expansion initially caused a decline in the overall levels of compliance with standards, which had been at high levels by the end of Stage One. Nevertheless, expertise gained by facilitators and the use by QAP of better methods for training, measurement, reporting, and process improvement allowed for compliance levels to again reach high levels for most healthcare processes by the end of Stage Two.

At this stage, QAP and some Provincial Health Directorates introduced through the CQI program and for the first time on a large scale in Ecuador, the practice of active management of the third stage of labor. At the beginning of this stage, very few facilities were applying this evidence-based practice. By the end of the stage, thanks to the work of facilitators and CQI teams, more than half of the deliveries in the participating facilities benefited from active management. Despite the evidence presented, the central level of the MOH was strongly opposed to making this practice official, pointing that the national norms do not include it. The central level would not permit a revision of national delivery care norm unless the entire set of national healthcare norms was revised—a task which was not possible to accomplish during this stage. What is interesting in this case is that health facilities where CQI was being practiced progressively started to use active management, in spite of the central level’s opposition.

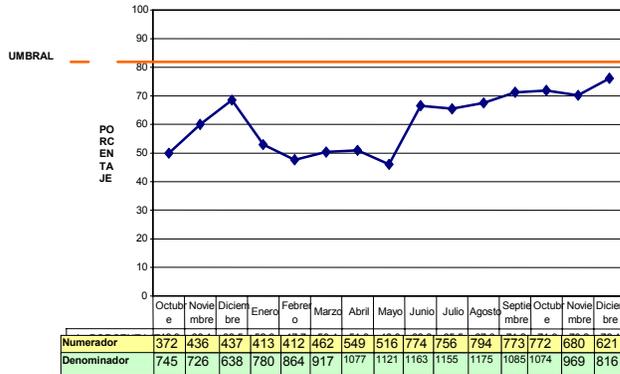
Figures 30-38 show the evolution of compliance with selected standards during Stage Two.

FIGURE 30: AVAILABILITY OF INPUTS, MEDICAL SUPPLIES AND ESSENTIAL DRUGS FOR MATERNAL CARE IN EACH HEALTH FACILITY, OCT. 2003 – DEC. 2004



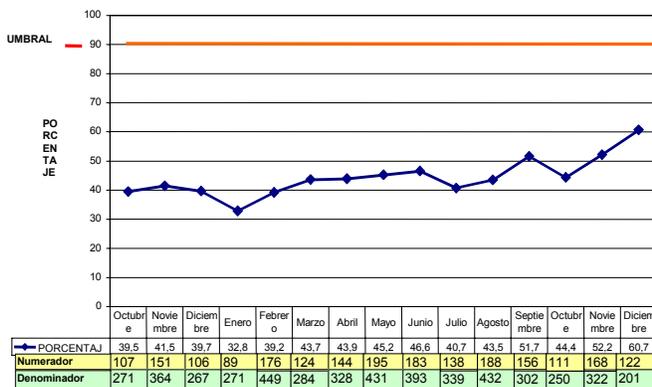
Availability of a standardized list of basic supplies and medicines for maternal and child care was monitored throughout this stage. From a level of 77%, CQI teams went up to 93% of compliance with this standard. The monitoring system allowed facility teams to easily and objectively identify the missing items and use local Free Maternity funds to buy them.

FIGURE 31: PERCENTAGE OF PREGNANT WOMEN FOR WHOM ALL THE STANDARD TASKS WERE CARRIED OUT IN THEIR FIRST ANTENATAL CONSULTATION, OCT. 2003 – DEC. 2004



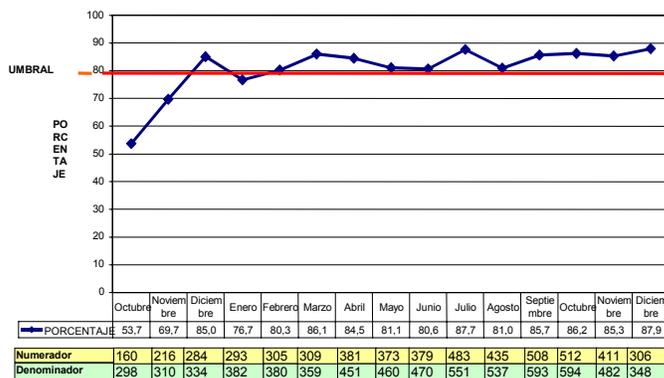
Quality of antenatal care was operatively defined as compliance with 13 activities considered essential. Omission of any of these essential tasks would render the consultation to be considered “not compliant” with the quality standard. CQI teams went up from an initial level of 50% to 76% compliance at the end of Stage Two.

FIGURE 32: PERCENTAGE OF PREGNANT WOMEN WHO USED OUTPATIENT SERVICES FOR PRENATAL CARE AND WHO WERE SATISFIED WITH THE CARE RECEIVED, OCT. 2003 – DEC. 2004



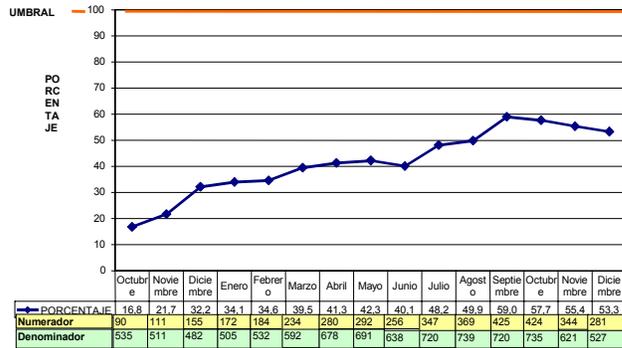
CQI teams also worked to increase users' satisfaction, measured through exit interviews. This indicator went from an initial level of 40% to 61% by the end of this stage. Long waiting times, cleanliness of facilities, and availability of medicines were the aspects that most impacted user satisfaction with care.

FIGURE 33: PERCENTAGE OF ATTENDED BIRTHS IN WHICH THE PARTOGRAPH WAS CORRECTLY DRAWN, OCT. 2004 – DEC. 2004



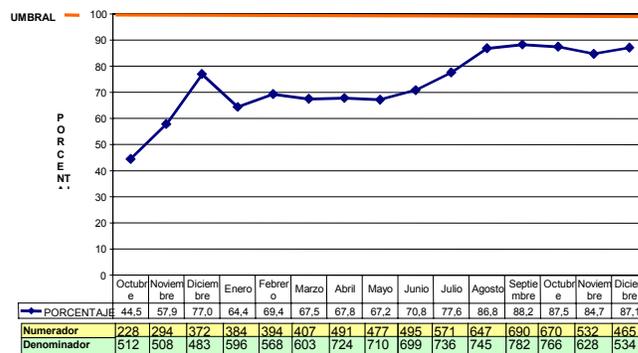
At the end of the previous stage of the expansion, this indicator was already at a high level of compliance (71%). The incorporation of new facilities made the overall indicator to decline to 54%. However, CQI teams were able to increase the correct use of the partograph rapidly (in two months), to end the stage at 88% compliance.

FIGURE 34: PERCENTAGE OF VAGINAL BIRTHS IN WHICH OXYTOCIN WAS ADMINISTERED, OCT. 2003 – DEC. 2004



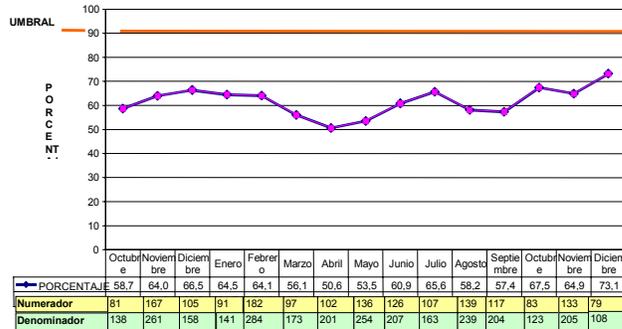
Active management of the third stage of labor was introduced by the CQI program and the Free Maternity Program. The indicator measures administration of oxytocin to the mother after delivery to prevent postpartum hemorrhage. At the start of this stage, active management was being practiced in only 16% of all deliveries. However, CQI teams increased the use of this practice to 55%, even in the absence of a formal MOH decision to incorporate the practice in national norms.

FIGURE 35: PERCENTAGE OF NORMAL DELIVERIES THAT RECEIVED IMMEDIATE POSTPARTUM CARE DURING THE FIRST TWO HOURS AFTER DELIVERY, OCT. 2003 – DEC. 2004



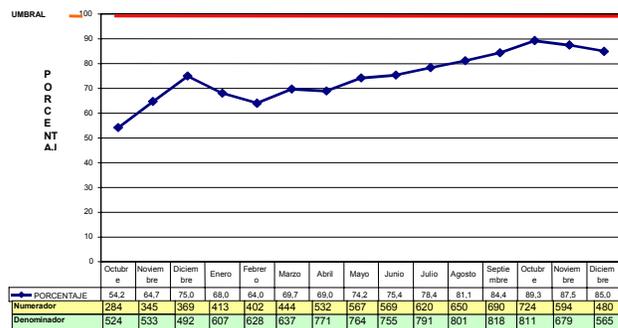
An important share of all maternal deaths occur during the immediate postpartum period. This indicator measures how many mothers who had just delivered received a control every 30 minutes during the first two hours after delivery. At the start, only 44% of deliveries were receiving this level of monitoring, but CQI teams improved compliance to 87% by the end of Stage Two.

FIGURE 36: PERCENTAGE OF WOMEN WHO DELIVERED IN THE FACILITY WHO WERE SATISFIED WITH THE CARE RECEIVED, OCT. 2003 – DEC. 2004



CQI teams also worked on improving satisfaction of women who delivered at the facilities. The indicator was measured through interviews to mothers when they were discharged. Satisfaction went from an initial 58% to 73% at the end of Stage Two.

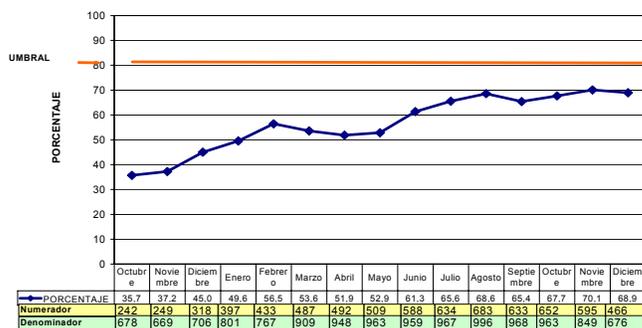
FIGURE 37: PERCENTAGE OF NEWBORNS FOR WHOM THE 10 STANDARD TASKS WERE PERFORMED, OCT. 2003 – DEC. 2004



This indicator measures quality of immediate newborn care through compliance with 10 essential activities in the immediate period after birth. To be classified as “compliant”, all 10 activities needed to be carried out for every child. Initially, only 50% of babies were being cared for in accordance to the standard, but CQI teams increased it to 85%.

FIGURE 38: PERCENTAGE OF SICK CHILD FIRST VISITS IN WHICH THE IMCI PROTOCOL WAS FOLLOWED FOR CHILDREN 2 MONTHS TO 4 YEARS OF AGE, OCT. 2003 – DEC. 2004

INDICADOR # 8: Primeras atenciones de morbilidad de niños/as de 2 meses a 4 años de edad, en los/as que se brinda atención integrada de acuerdo a la norma de AIEPI, en las U.S. del País. Octubre del 2003 a Diciembre del 2004



The Free Maternity Program adopted the use of IMCI for care of sick children. This indicator measures the use of the IMCI approach. At the end of Stage One, this indicator was already at 84% compliance. However, the incorporation of new facilities made this decrease to 36%. CQI teams improved performance on this indicator to 69% of all sick child first consultations.

VII. STAGE THREE OF THE EXPANSION: JANUARY-MARCH 2005

Stage Three of the expansion began in 2005; this report covers only the first three months of this ongoing stage. This stage of the CQI expansion has several distinguishing characteristics:

- New provinces entered the CQI program that incorporated from the start all of their health areas. As of March 2005, four new provinces—Orellana, Chimborazo, Carchi, and Loja—had entered the CQI program (Orellana had actually entered the program in the third trimester of 2004, due to the great interest the program sparked in this province). When the provinces of Chimborazo, Carchi, and Loja entered the program in 2005, the total number of health facilities implementing CQI activities increased to **70** hospitals and health centers.
- The role of provincial facilitators was strengthened in the seven initial provinces, and four of them began to provide support to neighboring provinces in their free time. QAP provided a financial incentive for their work in the new provinces in their free time.

- c) The Executive Unit of the Free Maternity Program at the central level started assuming a new role in relation to the CQI program, becoming an increasingly vocal advocate for quality in the services it financed in the Ministry's health facilities, based on the agreements signed and the payments made.
- d) With QAP's support, the Executive Unit of the Free Maternity Program and the Association of Municipalities of Ecuador (AME) formally developed a role in quality improvement of healthcare for Municipal Management Committees of Local Solidarity Funds.
- e) QAP signed agreements with UNFPA and Family Care International (FCI) under which these organizations would provide technical and financial support for CQI activities in selected provinces.

During the initial three months of this stage, covered in the present report, elements of the institutionalization process have developed important characteristics described below.

DEVELOPMENT OF POLICIES CONDUCTIVE TO CQI

In January 2005, a Technical Group was assembled to create a National Plan for the Reduction of Maternal Mortality, in response to a request from the Minister of Health. Technical experts in maternal health from the MOH, the EUFMP, and representatives of UNFPA and QAP participate in the group. Currently the Technical Group has written a draft of the plan. The plan includes the CQI strategy for strengthening essential obstetric care as a key element to elevate the effectiveness of services and reduce maternal deaths.

At the beginning of 2005, the EUFMP, AME, and QAP created a document that formally proposes a role in continuous quality improvement for Management Committees of Local Solidarity Funds, led by mayors (see Annex 9 for the draft document). The EUFMP, AME, and QAP are currently field testing the proposed approach and programming training activities for municipalities around the country, to help them assume their supporting role regarding the quality of services provided by the Law.

In March 2005, the President of Ecuador approved through an official decree the National Policy for Sexual and Reproductive Health, which contains clear references to the importance of quality reproductive health services. QAP actively participated in the creation of this national policy and is a member of the National Committee for Sexual and Reproductive Health.

LEADERSHIP

At this stage, the Executive Unit of the Free Maternity Law, particularly its Director and technical team, assumed the direction of CQI activities with greater intensity. The Director of the Free Maternity Program and staff from UNFPA made visits to Carchi, Loja, Chimborazo, Orellana, and Manabí, where national authorities insisted on the need and importance of giving continuity to CQI activities and their process of institutionalization.

Alliances were established, through management agreements, with UNFPA and FCI to promote CQI activities as well as activities for the cultural adaptation of maternity care.

RESOURCES FOR QUALITY IMPROVEMENT

During this stage, Provincial Health Directorates and health areas have continued to invest funds from their regular budgets in CQI activities. Furthermore, additional resources of approximately USD \$40,000 were assigned by the UNFPA for CQI activities in Chimborazo, Orellana, Manabí, and Bolívar. The Executive Unit of the Free Maternity Law also assigned a sum of approximately USD \$60,000 so that its technical team could support CQI activities in different provinces throughout the country. Finally, FCI has assigned USD \$8,000 for the component concerning the cultural adaptation of obstetric services in Tungurahua.

STRUCTURE

The role of provincial facilitators has been strengthened during this stage. Additionally, the Executive Unit of the Free Maternity Law has assigned one staff member to be responsible for the management of CQI activities in the country. This individual has been trained by QAP to manage the system for monitoring and reporting quality indicators.

INFORMATION AND COMMUNICATION

At the time of the writing of this report, the Executive Unit of the Free Maternity Law was preparing to publish several important technical documents: 1) Facilitator's Guide for Training CQI Teams (see Annex 2), and 2) Subsystem for Monitoring the Quality of Services covered by the Law for the Provision of Free Maternity Services (see Annex 8).

VIII. DISCUSSION AND CONCLUSIONS

The present study tested a decentralized intervention wherein a cadre of provincial MOH staff was trained as CQI facilitators to expand and institutionalize a model for continuous quality improvement. In terms of the geographical expansion of the CQI model, the strategy was successful, since it allowed the CQI model to expand from an initial 14 health areas in eight provinces, to 70 health areas in 11 provinces. This represents an expansion of 500% in two years. The CQI program is now active in half of all provinces in Ecuador and in 42% of its 168 districts. The Free Maternity Program covered 855,491 antenatal care consultations and 102,756 deliveries in 2004, which indicates that the beneficial effects of the CQI program are reaching a considerable number of users. This result is important because it has demonstrated a successful methodology to scale up a CQI program that has shown clear benefits in a previous small pilot stage, to a level of expansion that reaches national proportions.

This expansion has been produced at a low additional cost, because the major share of the direct costs of the expansion are labor costs of the facilitators and CQI teams at facilities, which are already covered by MOH salaries. In Stage One of the expansion, the additional cost per CQI team was USD \$1,151 while in Stage Two it decreased to USD \$876. Moreover, the initial higher cost was incurred only in the 14 start-up health areas, where the capacity of the facilitators and CQI teams was being developed. The lower cost of the second and third stage was applied to 56 health areas.

A clear finding in relation to the evolution of CQI costs was that they decrease with the increase in experience of teams and facilitators in doing CQI. This inverse relationship between the average cost of a CQI team and its level of experience may be attributable in this particular

case to the streamlining of the size of teams (from 4-8 people per team in Stage One to 3-5 people per team in Stage Two), to the shortening of the training activities (from an average of 16-20 hours per workshop in Stage One to 12-14 in Stage Two), to the more expensive training of the initial national core cadre of facilitators in Stage One as opposed to local training activities in Stage Two, to the development of training materials in Stage One, and to the shorter and more effective team meetings and thus more cost-effective CQI activities in Stage Two. It also had to do with the fact that the Executive Unit of the Free Maternity Program allocated a special budget of USD \$65,000 for the start-up of CQI activities in Stage One, while most of the direct costs of CQI activities in Stage Two had to be paid out of local district or provincial MOH offices, which had smaller and more restricted budgets.

Based on these figures, we project that the expansion of the CQI program to all of the remaining health areas in Ecuador (98) would have a direct cost of approximately USD \$86,000 per year. Even more interesting is the fact that the vast majority of these costs, not only labor, but also the “additional costs” specific to the CQI activities, have been financed from the budgets of the MOH’s health areas, provincial offices, or the central Free Maternity Program. QAP paid only for the time of its resident technical advisors in Ecuador, copies of CQI documents, and occasionally lunches for a training session or quarterly meetings of facilitators.

All of this would really have little meaning if the quality of the services provided under the Free Maternity Program had not improved. The CQI program was able to show objective and verifiable quantitative improvements in measures of quality of care. To review just a few indicators reported in this document, by the end of Stage Two of the expansion, all thirteen standardized tasks were being performed in 76% of all prenatal consultations, from an initial level of 19%, a four-fold improvement; the partograph was being correctly used in 88% of all deliveries, from an initial level of 22%, a four-fold improvement; and active management of the third stage of labor was being practiced in 53% of deliveries, from an initial level of 17% (a three-fold improvement).

With respect to the postpartum period, by the end of Stage Two of the expansion, 87% of mothers received appropriate care, up from an initial level of 21% (more than a four-fold increase); and 85% of newborns were receiving appropriate care, up from an initial level of 53%. Client satisfaction with prenatal care went up from 43% to 61%, and satisfaction with delivery care from 42% to 73%. Undoubtedly, tens of thousands more Ecuadorian mothers, newborns, and children are now receiving quality care because of the expansion of the CQI program.

The strategy of “carving out” a CQI function within the various levels of the MOH’s existing management structure was successful for the institutionalization of CQI. The approach used was “bottom to top”: in the initial months, the emphasis was placed on the health area (district) management team, from where one or two local CQI facilitators were selected and trained; in the subsequent stage, the person responsible for the MCH and the Free Maternity programs at the provincial MOH office was trained as a CQI facilitator and given the main responsibility for the expansion within his or her province. In the most recent stage of the expansion, the emphasis was put on the central level of the MOH and the Executive Unit of the Free Maternity Program, which has assumed an important degree of ownership of the CQI activities and strongly began to demand quality as an indispensable feature of the services it was paying the facilities for.

Two main reasons caused us to choose this “bottom to top” approach: one was that we were convinced that managers would need to see CQI in place and actually producing results in order to really believe and support it, and the other was that we believed it is much easier to work at the local operational level than at the increasingly political and more unstable higher levels of the MOH. At the end of Stage Two, it seemed that both assumptions were proven

correct. However, there were several moments in the institutionalization and expansion process where a further level of development of the CQI model at the local levels became impossible without increased political support at the next higher management level. This dynamic taught and guided QAP, as an external source of technical assistance, to gauge and fine tune both our technical approach to the CQI program and our efforts to cultivate political and managerial support for the CQI expansion at various levels of the MOH. With the expansion of the base of the CQI system to almost a half of the country, the need for increased political support and allocation of resources from the higher central level of the MOH and Free Maternity Program became critical. The sustainability of the CQI system, as well as its integration with other important reforms in the Ecuadorian health system, will depend on the extent and direction of this political support.

The institutionalization framework developed by QAP proved to be a useful guide not only as a tool to continually assess the pace and balance of the development of the various essential elements of institutionalization, but also and more importantly, to orient actions to boost those elements that began to lag behind others.

In this experience, the **development of policies** supportive of quality of healthcare had a steady, progressive growth: from general policy instruments such as the Free Maternity Law, to more specific policies such as the official issue of quality standards for services covered under the Free Maternity Program. The active role of QAP in the development of these policies by participating in multi-institutional bodies allowed us to establish strategic alliances with other social actors who were also interested in supporting quality of care, perhaps from different angles. These actors included women's rights groups such as CONAMU, indigenous groups such as the National Directorate for Indian Health, and the Ecuadorian Association of Municipal Governments. These alliances, in turn, were extremely valuable for lobbying for policies in favor of CQI.

Leadership was one of the most critical elements needed for the development of the CQI program. Local leadership by CQI facilitators, recognized clinical leaders, facility directors, and health area directors played an important positive role. More difficult to secure was leadership from Provincial Directors and central MOH authorities. One of the difficulties was the high turnover of officers because of the instability of these posts. However, in those moments or places where there was strong leadership from a high position, the beneficial effect over the strength and pace of the CQI program was very clear. On the opposite side, when leadership was absent, or worse, opposed to CQI, it became very difficult to progress.

One of our concerns at the beginning of this effort was that enough **resources for CQI** would be difficult to find, becoming an insurmountable obstacle. However, as discussed previously, most of the direct costs were paid out of MOH budgets at different levels. From the second stage of expansion onwards, with every province or health area that had interest in participating, one of the first things to be clearly spelled out was that most of the operational costs would have to be funded by the health area and province themselves. In most of the cases this was accepted, to our surprise and satisfaction. One particular discovery was that human resources who are already working at the MOH are perfectly capable of becoming champions for the expansion of CQI in their role of facilitators. The procurement of supplies and medicines that the CQI system showed that facilities lacked, was financed from the regular reimbursements from the Free Maternity Program for health services provided by facilities.

In fact, an **organizational structure** specific for CQI was not developed as such, more appropriately, specific CQI functions were developed within the already existing official structure of the MOH at the district, provincial, and central levels. These functions (for example: establishing quality standards based on scientific evidence; CQI training; monitoring of

compliance with standards; planning and implementing improvement actions; reporting of indicators; aggregating indicators at provincial and national levels; analyzing quality indicators and providing feedback; advocating for CQI in national policies; identifying sources and securing funding for CQI; disseminating results and activities; building strategic alliances) were performed by existing staff at different levels of the MOH's organizational structure, with varying degrees of acceptance and commitment to carry them out.

This study was successful in developing a practical approach and tools for **building technical capacity in CQI**. As described in this report, a training program in CQI based on three consecutive workshops and three action periods proved effective to produce CQI teams with a high degree of functionality and sustainability. A manual in Spanish for training CQI teams was developed (included as Annex 2 to this report), complete with a full set of PowerPoint presentations for each one of the training sessions (included as Annex 4). The manual is a practical guide for replicating CQI training with little or no expert support and may be readily used or adapted in other countries.

QAP's role concentrated on providing technical assistance to strengthen facilitators' and teams' capacity to do CQI. As much as possible, QAP staff tried not to do CQI but to teach how to do it, through coaching, training, and other forms of technical support.

The present study explored **information and communication** in two different respects: information related to monitoring and reporting of quality indicators, and information related to the progress of the CQI expansion itself. In the first respect, QAP was able to develop a subsystem for monitoring and reporting a basic set of quality indicators of compliance with standards for the most important services provided under the Free Maternity Law. Under the CQI program, health areas report monthly to provincial MOH offices where data are consolidated into provincial aggregates, and these are sent to the EUFMP at the MOH's central level in Quito. An Excel spreadsheet that was developed to automatically produce percentages and run charts proved to be easy to use and analyze by CQI teams and facilitators. Documentation and dissemination of the progress of the expansion and experiences of CQI teams proved a more difficult task and was achieved through periodic facilitators' meetings, training sessions where CQI teams met and shared their work, meetings of the Technical Council of the Free Maternity Program where reports were presented, and through a periodic newsletter.

The least developed of the essential elements for quality assurance institutionalization probably was the existence of **incentives for quality**. Although the Technical, Operational, and Financial Manual of the Free Maternity Program established a financial incentive for health areas that reached a certain annual goal in coverage and quality of care, this incentive has not yet been implemented, mainly because of concern by the Executive Unit about potential legal conflicts related to the use of funds for this purpose. The incentives that were provided were intangible, such as the pride of the CQI teams in demonstrating increases in the quality of the care they provided in a facility, or the professional interest in learning the use of the CQI methodology.

FUTURE PERSPECTIVES

At the time of this report's writing, additional provinces have asked to participate in the CQI program. UNFPA and Family Care International have signed an agreement with QAP by which these international organizations will support the introduction of the CQI model in the provinces where they are supporting the Free Maternity services. The EUFMP, QAP, and the Association of Municipalities have approved guidelines to train local Municipal Health Committees that

manage Free Maternity funds and pay local facilities for their services, to have an active role in a local quarterly procedure for the health area to present their progress in quality of care to the Committee and discuss ways to improve and solve problems (see Annex 9). The local users' committee will also be part of this procedure, which is aimed at creating a formal process for assuring accountability for the quality of care and for including local governments and users as active proponents of quality improvement. A description of the proposed procedure by which institutional actors will recognize and reward superior quality in healthcare delivery is found in Annex 10.

All of these recent developments seem to indicate a positive direction for the expansion and institutionalization process. However, political instability within the MOH and the Free Maternity Program is a serious threat to its growth and sustainability. The recent change of Ecuador's Government has the potential of slowing down this process, as has happened in the past. At the same time, it may also open a window of opportunity for scale-up of CQI to an even larger degree, if the success of the CQI model is recognized and implemented within the new social insurance system that the President of Ecuador has promised to create. It seems logical that the Free Maternity Program would be one of the basic building blocks of such an insurance system, given that the CQI system now seems to be firmly established as an integral part of the Free Maternity Program.

IX. ANNEXES

The following annexes to this report—documents in Spanish that were developed to support the institutionalization of continuous quality improvement within the Free Maternity Program in Ecuador—may be found in electronic format on the compact disk included with this report. The electronic files are included to facilitate their use and adaptation in other settings.

Annex 1: Quality Standards and Indicators for Stage One (*Sistema de Mejoramiento Continuo de la Calidad de las prestaciones que contempla la Ley de Maternidad Gratuita y Atención a la Infancia. Estándares e indicadores/Etapa Uno*)

Annex 2: Manual for Training CQI Teams: Introduction (*Manual de capacitación para equipos de Mejoramiento Continuo de la Calidad: Introducción*)

Annex 2: Manual for Training CQI Teams: Basic Concepts of Continuous Quality Improvement (*Manual de capacitación para equipos de Mejoramiento Continuo de la Calidad: Unidad Uno: Bases para el Mejoramiento Continuo de la Calidad*)

Annex 2: Manual for Training CQI Teams: Unit Two: Quality Measurement (*Manual de capacitación para equipos de Mejoramiento Continuo de la Calidad: Unidad Dos: Medición de la calidad: Estándares e indicadores*)

Annex 2: Manual for Training CQI Teams: Unit Three: Continuous Quality Improvement through Rapid Cycles (*Manual de capacitación para equipos de mejoramiento continuo de la calidad: Unidad Tres: Mejoramiento Continuo de la Calidad a través de ciclos rápidos*) Annex 2: Manual for Training CQI Teams: Unit Four: Continuous Quality Improvement and Client Satisfaction (*Manual de capacitación para equipos de mejoramiento continuo de la calidad: Unidad Cuatro: Mejoramiento Continuo de la Calidad y satisfacción de usuarias / os*)

Annex 3: Quality Standards, Instruments and Instructions for Collection of Indicators/Stage Two (*Instructivos e instrumentos de recolección de información para indicadores/Etapa Dos*)

Annex 3: Standards and Indicators/Stage Two (*Estándares e indicadores/Etapa Dos*)

Annex 4: PowerPoint presentation for the Training Manual Unit One (*Presentación de PowerPoint: Unidad Uno*)

Annex 4: PowerPoint presentation for the Training Manual Unit Two (*Presentación de PowerPoint: Unidad Dos*)

Annex 4: PowerPoint presentation for the Training Manual Unit Three (*Presentación de PowerPoint: Unidad Tres*)

Annex 4: PowerPoint presentation for the Training Manual Unit Four (*Presentación de PowerPoint: Unidad Cuatro*)

Annex 5: Format for reporting Rapid Improvement Cycles (*Formato para informe de los ciclos rápidos para el mejoramiento de la calidad*)

Annex 6: Users Manual for the Web page www.mortalidadmaterna.org (*Manual del usuario de la página web Mortalidad Materna*)

Annex 7: Excel data base for reporting data and producing run charts on indicators, with data for Ecuador (*Matriz de reporte de la medición del cumplimiento de estándares e indicadores de calidad para la atención materno infantil y de cuidado obstétrico esencial: País: Ecuador*)

Annex 8: Draft Document on the Quality Monitoring System (*Subsistema de monitoreo de la calidad de las prestaciones de la Ley de MGYAI. Documento Borrador*)

Annex 9: Guide to Quality Assurance for Local Management Committees (*Guía para el aseguramiento de la calidad de las prestaciones de la Ley de Maternidad Gratuita y Atención a la Infancia por los Comités de Gestión*)

Annex 10: Draft Document on the “Prize for Quality” proposed for services delivered under the Law for the Provisión of Free Maternity and Child Care (*Premio a la Calidad de la atención que ofrecen las unidades de salud del Ministerio de Salud Pública en prestaciones cubiertas por la Ley de Maternidad Gratuita y Atención a la Infancia. Documento Borrador*)

QUALITY ASSURANCE PROJECT

University Research Co., LLC
5404 Wisconsin Ave., Suite 800
Chevy Chase, MD 20815 USA
Tel: (301) 654-8338
Fax: (301) 941-8427
www.qaproject.org