

**PROPOSAL TO INTRODUCE A QUALITY IMPROVEMENT
PROJECT IN ARMENIAN MATERNITY HOSPITALS**

Master of Public Health Integrating Experience Project
Utilizing the Program Implementation Framework by

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Abbreviations

ANC – Antenatal Care

AUA – American University of Armenia

DHS – Demographic and Health Survey

FP – Family Planning

GDP – Gross Domestic Product

HIS – Health Information System

MM – Maternal Mortality

MC – Medical Center

MOH – Ministry of Health

MCH – Maternal and Child Health

MNH – Maternal and Newborn Health

NGO – Non Governmental Organization

PMR – Perinatal Mortality Rate

PHCR – Primary Health Care Reform Project

PHC – Primary Health Care

QA – Quality Assurance

QI – Quality Improvement

QIWC – Quality Improvement Working Committee

RH – Reproductive Health

RA – Republic of Armenia

CHSR – Center for Health Services Research and Development

USAID – United State Agency of International Development

WHO – World Health Organization

Executive summary

Since achieving independence in September 1991, Armenia has faced enormous difficulties in different spheres, including health care. Nevertheless, the country is becoming increasingly engaged in reforming the health system. Among various health spheres, Maternal and Child Health (MCH) has always been a top priority and has strategic importance for the country. Poor access to and insufficient quality of MCH services are of particular concern in Armenia. For many of the reproductive health and MCH indicators, Armenia is still far below average European levels.

The Ministry of Health (MoH) and international organizations have undertaken efforts to improve the quality of MCH, but the need for continuous improvement remains. The local non-governmental organization “Future Generation” has proposed a two-year pilot project aiming to introduce quality improvement (QI) approaches and improve maternal and newborn health (MNH) care in five Armenian maternities. “Future Generations” aims to improve MNH indicators by introducing hospital based data collection, supporting data analysis, and identify centers demonstrating best practices. Best practices will be determined by an analysis of relevant indicators, including incidence of postpartum hemorrhage, registration of pregnant women, and initiation of breastfeeding. A quality improvement working group will be established in each maternity which will be responsible for overall QI activities. The budget of the proposed project is 372, 257 US\$.

Evaluation of the project will utilize a quasi-experimental, two-group, pre-test/post-test study design. Six objectives will be measured. The project will strive to:

- 1) increase early registration of pregnant women by 10%;
- 2) increase the number of women having at least four antenatal care visits by 10%;
- 3) increase the number of infants who are breastfed within the 1st hour after delivery by 10%; and

4) decrease postpartum hemorrhage incidence by 3%, compared with baseline data.

In addition, five project-supported maternities will be established with functioning health information systems with at least 10 trained QI managers. Moreover, a qualitative study on patient satisfaction will be conducted in the project-supported and control maternities.

If the project is successful it can be adopted by the MOH and implemented in all MCH facilities throughout Armenia.

I. Situational Analysis

Since achieving independence in September 1991, Armenia has faced enormous difficulties. The earthquake in 1988 and the war in Nagorno Karabagh have had negative impacts on all spheres, including health. From the soviet era, the independent Republic of Armenia (RA) inherited outdated equipment, health facilities in need of renovation, health providers that lacked training, and other deficiencies. The population, especially those in need, has limited access to health services; those services which are available are often of questionable quality, as health care standards and quality assessment systems are absent. Many health facilities, especially in rural areas, lack modern medical technology, and what is available is not distributed efficiently (1).

Nevertheless, Armenia is actively engaged in transforming its healthcare system from one that emphasizes treating disease and responding to epidemics, to one that that emphasizes prevention, family care and community participation (1). The current long-term direction includes the following objectives for service organization and delivery:

- increase accessibility and utilization of health services;
- improve the system's organizational structure and governance;
- introduce evidence-based clinical standards and implement continuous quality improvement programs;
- enhance consumer's participation and responsibility in the clinical decision-making process;
- integrate patient safety programs and medical error management into the system;
- assure rational linkages between the different levels of health care delivery (2).

Among the different health areas, maternal and child health (MCH) has always been a top priority and has had strategic importance for the country. Poor access to and insufficient

quality of MCH services are of particular concern in Armenia. MCH indicators in Armenia paint the following picture (3):

- stable rates of maternal and newborn mortality;
- still high rates of perinatal death (deaths occurring during late pregnancy – at 22 completed weeks gestation and over, during childbirth and up to seven completed days of life);
- low percent of early registration of pregnant women for antenatal care (ANC);
- high level of anaemia during pregnancy;
- high weighted average of perinatal and neonatal deaths in the structure of children's mortality;
- significant differences in key indicators disaggregated by the income level, educational attainment of mothers, and rural versus urban location;
- decline in the main indicators of maternal and children's nutrition as measured by anaemia and breastfeeding rates; and
- low level of full and timely coverage of vaccinations.

The Maternal Mortality (MM) ratio in Armenia is high, 16.8 per 100,000 live births compared to 8 in the European Union (2007) (3). Based on the Ministry of Health (MOH) data the most common causes of MM are obstetric hemorrhage, indirect causes (death caused by non obstetrical disease developed during pregnancy) and hypertension in pregnancy. Hemorrhage during pregnancy is more dangerous for anemic women. In Armenia, anemia in pregnant women has been increasing over the last 15 years. In 2006, 19 percent of all pregnant women were anemic (3). The high MM ratio is also linked to the limited use of modern contraceptives and the high incidence of abortions. Only 53 percent of married women currently use contraceptives. Induced abortions – often in unhygienic conditions and outside of medical facilities – continue to be widely used to stop unwanted pregnancies. The

MOH estimates that five percent of MM is due to induced abortions (2008). According to the 2005 Demographic and Health Survey (DHS), the abortion rate is 1.8 and 45% of pregnancies end in induced abortion in Armenia.

One of the important factors contributing to MM is poor ANC. A crucial factor for positive outcomes in pregnancy is early registration of pregnant women. In 2006 in Armenia, only 46.7% of all pregnancies were registered during the first 12 weeks of gestation (3). The World Health Organization (WHO) recommends a minimum of four medical check-ups during the antenatal period. Based on the DHS data in Armenia, only 70.9% of pregnant women have four or more antenatal visits. For rural areas, this percentage is 53% (2005). Lack of ANC is a strong predictor of health risks for mother and child.

MOH data show that the Perinatal Mortality Rate (PMR) in Armenia remains as high as 20.6 per 1,000 live births in 2006 (3). Although PMR has decreased in recent years, it remains a significant concern in Armenia.

Infant nutrition is also a concern in Armenia. According to the DHS, only 28% of children were breastfed within the first hour of birth. Skin-to-skin contact between the mother and her baby immediately after birth is a crucial both for both mother and baby (2005). Skin-to-skin contact reduces crying, improves mother-infant interaction, keeps the baby warm, and helps the mother to breastfeed successfully (4). Moreover, early initiation of breastfeeding helps a newborn to become alert more immediately postpartum, while a mother benefits through the release of hormones that reduce postpartum hemorrhage (2).

The RA with MOH is striving to achieve two Millennium Development Goals by the year 2015: to reduce the Maternal Mortality Rate by 3/4 and to reduce the Infant Mortality Rate by 2/3. Many efforts to achieve these goals have begun. Several legislative initiatives and campaigns were implemented recently, including adoption of the “National Strategy on Mother and Child Health Care, 2003-2015” and the “National Program on Reproductive

Health Improvement.” These initiatives were approved by the RA Government in July 2007.

Still, several factors negatively impact the health system (3):

- low-level of resources allotted to health care from state budget (1.4% of GDP 2008 and 6.5% of State Budget);
- lack of access to and quality of maternal and child health care;
- disproportional distribution of health specialists;
- limited opportunities for continuous development of professional and organizational skills of healthcare providers; and
- absence of effective system of parental education on community level.

The other factors which have a negative impact on MCH quality and which will be the focus of the proposed pilot project are: 1) absence of real incentives for providing quality health care services; 2) absence of effective mechanisms for quality supervision, and 3) incomplete monitoring, evaluation and information management system in the health system (3).

II. Allocation of resources

The local nongovernmental organization (NGO) “Future Generation” will apply to the “John Smith Memorial Foundation” in the framework of a recently announced request for proposals for implementing maternal and newborn health (MNH) project. “Future Generation” is one of the leading NGOs working in the MCH area. It has a staff of nine people which is well balanced in terms of gender, age, old and new employees, and is renowned for its good team spirit. The NGO has two units: administrative and programmatic. The administrative unit is composed of four employees: a finance director, an administrative officer, an accountant, and a driver. The program unit staff has five people: a health manager, a health coordinator, a QI specialist, a reproductive health (RH) specialist, and a translator. The program staff is experienced in MCH projects throughout Armenia, and its capacity is sufficient to implement the proposed project. Currently the NGO is finishing a three year MCH project funded by United States Agency for International Development (USAID) aiming to increase provider performance. Thus, three staff members can be engaged in the upcoming project. All of them are medical doctors and have master’s degrees in public health; and the average working experience of employees is eight years. The NGO is managed by an NGO director, who has 17 years experience in health care management with international and local organizations, including nine years experience working in MCH projects.

“Future Generation” has an extensive network of contacts with government institutions, local and international counterparts, vendors and service institutions, and volunteers. It has proven to be successful in finding and hiring experienced personnel. The NGO’s financier uses a reputable international accounting package ensuring that all operations are in compliance with donor regulations and internal policies. “Future

Generation” will have its contribution in the form of office rent, supplies, equipment and maintenance.

As such, the NGO “Future Generation” is in an excellent position to manage a grant for the proposed project on behalf of “John Smith Memorial Foundation”.

III. Strategy Appraisal

The MOH has made several efforts to achieve the Millennium Development Goals and improve the overall quality of health care. In October 2002 a concept paper titled “On the improvement and management of the quality of health care provided to the RA population” was approved by the RA Government, under decree #46. According to the concept paper, quality control of health services is a challenging process and different parties should be involved: the state, health providers and patients. They consider state's involvement in this process as the following: “to ensure specialists with relevant qualification through licensing of health institutions and the availability of minimum capacity conditions, as well as to motivate them through accreditation and financial incentives for becoming excellent quality centers”. With regards to health providers, they should be involved in a continuous education process, as well as in an on-going facility assessment process. Patients should be aware of their rights and have an opportunity to express their opinions on health services provided. Besides, MOH considers the development of a health information system (HIS) to be very crucial as it will help to analyze the health status of population and assess the effectiveness of the health system activities. However, the core framework introduced in the concept paper has not been elaborated further and implemented consistently.

Following approval of the concept paper, the MOH decided to establish a “quality committee” in each secondary-level facility, but their work is not effective and in most cases is only on paper. Several factors contribute to this current state of affair: 1) poor linkages with supervising facilities; 2) lack of training of health providers in dealing with this issue; and 3) lack of funds to support this initiative. In addition, the MOH released an annual statistics report on morbidity, mortality, the current network of health care institutions, human resources, and other topics. However, this document is not widely distributed within the health system and typically not accessible to the general public. Similarly, annual reports

by the Minister of Health to the Government are not widely circulated, thus making it difficult for the general public to be informed about details of the health care system and whether goals and objectives have been achieved during the fiscal year. Usually top management staff of health facilities do not receive analysis of the data they submit on a regular basis to the MOH.

In addition to MOH activities related to QI, international projects also address this issue. Recently, the USAID-funded Primary Health Care Reform Project (PHCR) launched the Quality Assurance (QA) program which seeks to improve patients' access to quality, client-focused primary health care services, with the ultimate goal of improving health status indicators at the national level (5). Within this project framework, national quality indicators were developed and quality improvement boards were established in each primary health care (PHC) facility that have three or more physicians. Their work will be coordinated by national quality coordinators which in turn will be accountable to the quality committee established in the MOH recently. This component of the project is built on the work done to date by the USAID-funded Armenian Social Transition Program.

Another project working to improve MCH services is the USAID-funded Project NOVA. This project designed and implemented a site-level QA initiative in five regional-level clinics, establishing each as a QA Site and forming a QA Team at each one. The responsibilities of the QA Team are to monitor quality of MCH services in the facility using a self-assessment questionnaire and solve problems when they are identified. The QA Team also collects and analyzes site-specific health statistics. The project's impact on maternity functions as well as on MCH indicators value is already evident. Data show an increase in early registration of pregnant women, an increase in number of women having at least four ANC visits, and a decrease the incidence of postpartum hemorrhage (6). However, concerns remains about the sustainability of QI activities after the project has finished.

In addition to projects implemented in Armenia, several international projects that aim to increase quality of MCH services bear mentioning. Two noteworthy projects are ACQUIRE and OBSQID.

ACQUIRE stands for Access, Quality, and Use in Reproductive Health. The main goal of the project is “to advance and support RH and family planning (FP) services, focusing on facility-based care”. ACQUIRE aims to improve the quality of RH services through improving clinical care and strengthening links between communities and health providers (7).

OBSQID stands for obstetrical quality indicators development. In the mid-1980’s, the concept of using telematic information systems to collect perinatal data was developed. This came at a time when differences were being observed in MCH throughout the European region which could not be attributed to genetic or socioeconomic factors. Some felt that aggregating perinatal data at local, regional, and national levels as well as timely data analysis, feedback and comparison of results could assist in promoting quality of care and improving perinatal outcomes (8).

Quality of health care is not an absolute concept and it is difficult to define and measure. One can define quality as a degree of excellence, but still its measure can be subjective to some extent. Quality should be viewed from the different perspectives and by different people; and sometimes opinions about quality do not coincide. Quality of health care should be determined by several main players: health providers, health authorities, clients-health services users and payers (9).

QA in health care is determined as a complex of activities involving planning, quality control, assessment, reporting and QI, so as to ensure that a health care service meets defined standards of quality. Armenia has yet to implement such systematic approach to QA (1).

Several approaches for improving quality of health services exist. Each of them has advantages and disadvantages; and each of them can be implemented in Armenia. Undoubtedly MCH in Armenia needs proper attention both from the federal government (MOH) and from local/international organizations.

Currently, many discussions and debates occur in Armenian medical and public health society regarding licensing and accreditation of health facilities. These processes have been recently frozen until a new approach is approved. Eventually, every health facility will undergo this licensure procedure. So as to implement QA/QI projects will create a fertile field for the future licensing/accreditation process.

IV. Programming

A local NGO “Future generation” would like to conduct a pilot project which goal is to introduce QI project and improve quality of MNH services in maternities/obstetrical-gynecological departments of Yerevan and marz MCH health facilities through:

- creation of maternity-based MNH data collection;
- introduction of problem solving technique, and
- identifying centers demonstrating best practices by March 31, 2012. The project

objectives are developed based on previous experience and they are the following (5, 10, and 11):

- 1) To increase percent of pregnant women registered during 1st trimester of pregnancy by 10% compared to baseline data in five project supported sites by the end of the project.
- 2) To increase percent of postpartum women having at least 4 ANC visits by 10% compared to baseline data in five project supported sites by the end of the project.
- 3) To decrease incidence of postpartum hemorrhage among postpartum women by 3% compared to baseline data by the end of the project.
- 4) To increase percent of infants who were breastfed within the 1st hour after delivery by 10% comparing with baseline data by the end of the project.
- 5) To create maternity-based functioning HIS in project supported five sites by the end of the project.
- 6) To train at least 10 QI managers in project supported five sites within two years of project implementation.

Seven indicators are developed based on the above measurable objectives. There are two indicators measuring the fifth objective (number of HIS and health personnel managing database). For more details see Table #1.

A. Project and control sites selection

All sites will be selected in collaboration with MOH and marz health authorities. There are 60 health facilities in Armenia providing MNH services on different levels. Armenian healthcare is divided into three service delivery levels: primary, secondary (regional, district) and tertiary (national). MNH services are provided only at secondary and tertiary level. The secondary level of MNH service delivery is provided by regional maternity or maternity department in the structure of medical centers, and also by rural health centers. Ten secondary level maternity hospitals are located in Yerevan and the rest are throughout the country. Tertiary level of MNH services provision includes in-patient care offered at four national healthcare facilities located in Yerevan (12).

Willingness and commitment of chief doctor, and good physical condition of health facility will be taken into consideration during the selection of project sites. The project will involve two Yerevan maternities (secondary and tertiary level) and three secondary level maternities in marz (maternity located in marz center, district level maternity and rural health center). Involvement of different level maternities will provide an understanding of problems and gaps existing in each level of perinatal care.

Moreover, the project will select five MNH care control sites (two in Yerevan, three in marz) on a non-random basis. The project will match control and intervention sites based on the following parameters: MNH service delivery level, maternity location (marz center, district, rural), catchment area and annual number of births. No intervention is planned to be

conducted in the control sites. However, the project staff will collaborate with all chief doctors and receive their commitment for data collection process during the project life.

B. The program activities

A quality improvement working committee (QIWC) established in each site will be the main implementator of the proposed activities. The multi-professional committees will consist of ob/gyns, neonatologists, midwives and nurses. Involving health providers from the different clinical areas is important for achieving buy-in for the improvement effort. The responsibilities of the committee include: development of standardized data collection sheet, site specific MNH data collection, data analysis, QI activities, participation in regular QIWC meetings. The average size of the committee will not exceed six health providers.

Members of QIWC from five project supported maternities will undergo three days training “How to Provide Quality Health Services”. The training agenda includes such topics as quality management, quality control, supportive supervision, and problem solving technique. Project team, mainly QI specialist, will deliver the training. See the training agenda in appendix #1.

The standardized patient-based data collection form will be developed based on the existing and currently used patient pregnancy and delivery medical records. The data sheet will contain information of each patient – name, date of registration, number and dates of ANC visits, types of examination, obstetrical events, birth and neonate information, and referrals. Actually this information is available in patient records and logbooks kept in ob/gyn department, but it is not aggregated in a universal form and not available in the software. By the end of each year, collected data is transferred to the supervised facility.

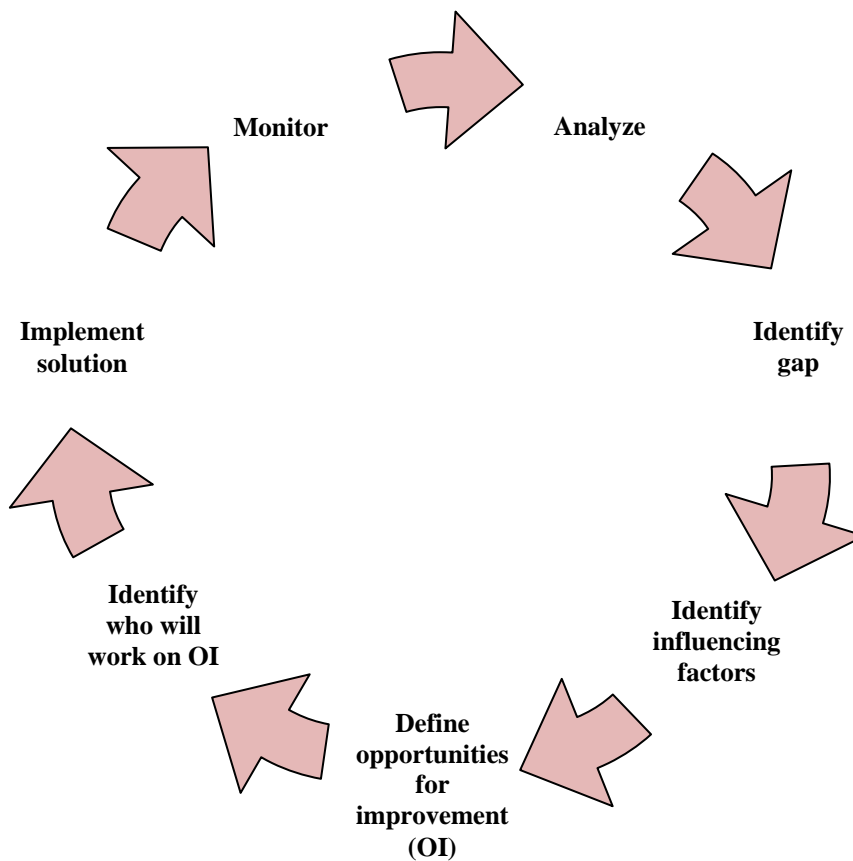
However, in most cases health providers do not receive any constructive feedback from the higher echelon. A separate e-sheet will make further analysis of difficult cases and patient referrals tracking easier. The project team will pre-test a draft version of the data collection form in two maternities, in Yerevan and marz, and revise accordingly.

The project will equip maternities with computers and provide assistance with installment of appropriate software in order to proceed with data collection, data entry and data transferring processing. The chief doctor of each maternity will assign the persons responsible for the collection of data sheets and input data into the computer. Preferably these persons should be the members of QIWC. They will undergo an orientation session in data entry technique and after the data collection process begins, will submit information to the project office on monthly basis (see training agenda in appendix #2).

Although this pilot project does not include intervention to increase early ANC seeking behavior and decrease the incidence of postpartum hemorrhage, it is assumed that, through the QI process, the QIWC will come up with possible solutions to existed issues, and with the assistance of facility management will implement appropriate activities to reach targets. QIWC members will gather periodically (monthly/bimonthly) to make comprehensive analysis of data collected and discuss difficult cases. Using “five whys” problem solving technique, the QIWC will reveal root causes of the gaps existing in the health service delivery. It can be: 1) lack of training of health providers; 2) lack of equipment and supplies; 3) inadequate infrastructure; 4) poor linkages with supervisors; 5) lack of incentives and professional rewards; 6) inadequate attention to the facility problems from health providers and management side; and 7) other issues specific to the particular maternity. The next step will be evolving of ways to make improvements and identifying the right persons responsible for QI process. The QIWC will document a discussion in the action

plan. The chain of QI activities addressing revealed issues will follow the meeting. These will be active work of maternity outpatient department staff with pregnant women, frequent visits of obstetrician/gynecologists to the surrounding villages (in marz level facilities), usage of technique which will prevent postpartum hemorrhage, participation in different clinical trainings, purchase of missed equipment and supplies. QI process should not be stopped once the issue is solved; it should have constant character and be repeated again and again to assure continuous QI process (see figure #1).

Figure #1. Quality Improvement circle



The whole staff of the maternity should be involved in this process in order to create an environment and culture of quality in the facility. Each health provider should be aware of the quality concept, practice its principles, and make it part of his/her responsibility; quality should not only be the responsibility of a facility or the QIWC. Thus the project foresees

orienting the entire staff of each maternity on QI issues. The agenda of the training sessions will be the same as for QIWC members. Since whole staff cannot participate at once in the training, the health providers will be divided into two or three groups depending on the staff size. The training sessions will be conducted by the QIWC members with technical support from the project team.

All these activities would be impossible to implement without continuous support from the chief doctor of the maternity. His/her involvement to the regular QIWC meetings is highly desirable. However, chief doctor should create supportive and helpful environment with constant provision of positive and constructive feedback, whereby the health providers will not be afraid of being criticized or punished. Continuous support and commitment from the chief doctor and other top health care managers of the maternity will serve as a good stimulus for those health providers who will be implementing QI activities.

The project team will have a lead in all project activities. As information from all sites becomes available the project team will review it, analyze and select the site demonstrating best practice. Data analysis and comparison of the intervention sites is one of the crucial components of this project. This is a process of identifying the best approach, activity or outcome. As soon as the best site is selected, the project will organize experience exchange visits between QIWC members and other health personnel. During the exchange visits the health providers will share their experiences (negative and positive), challenges in data collection and data entry processes, and discuss opportunities for improvement. The visits will be conducted once per quarter. The project will assure MOH representation (MCH department and recently established ministry and marz level QI board) during these meetings. MOH active participation and commitment to the project activities will guarantee extended life of project activities to some extent.

The MOH will not be the only recipient of reports on project activities and results. The project considers information dissemination to direct beneficiaries through periodic dissemination of IEC (Information, Education, and Communication) materials and MCH statistics' update, as a very important project component. Leaflets containing ANC, delivery, postpartum period related information as well as site specific health statistics will be printed out on a quarterly basis and distributed to all women visiting intervention maternities. This will provide them with both useful information regarding MCH care and changes occurring in their maternity (as measured through MCH indicators' dynamics).

As the QI concept is relatively new in Armenia materials on health quality are lacking. The project is going to meet this lack and translate respective books and materials from other languages into Armenian and distribute freely to health providers. The possible list of materials to be distributed could be:

- 1) Managed Care Quality: A Practical Guide, by Al-Assaf, CRC Press, 1998;
- 2) Quality Management in Health Care: Principles and Methods, by Lighter and Fair, Jones and Bartlett Publishers, Houston, 2004;
- 3) Continuous Quality Improvement in Healthcare, 3rd Ed., C. P. McLaughlin and A. D. Kaluzny, Jones and Bartlett Pub., Sudbury, MA, 2006; etc.
- 4) An Introduction to Quality Assurance in Health Care, A. Donabedian, 2003 (is already available in Armenian).

Undoubtedly, implementation of above mentioned activities is an additional workload for the health providers. They are already overloaded with routine responsibilities; therefore QI activities implementation needs some motivation mechanisms for health providers. Usually health providers are interested in financial/tangible incentives; however it is not always sustainable and create dependency from expected stimuli towards reaching a certain output. Therefore, the project will provide the most active health providers with different

incentives such as “thank you letters”, recognition in mass media, and participation in the trainings or international study tours. Moreover, chief doctors also should encourage and motivate health providers. It will be done in the form of bonus, provider promotion and recognition in the facility. QIWC members will present data analysis results to the facility staff regularly which will increase their prestige within the facility. Top management of the facility should consider that regular motivation of health providers will contribute to the long life of project activities, as well as to the overall maternity activities.

One of the project limitations could be validity of data collected. To address this issue the project staff will continuously monitor this process. Staff members with data entry persons will randomly select two-three medical records and compare them with the database input. Data entry persons will try to address on place all gaps revealed.

If the pilot project demonstrates success it can be expanded to the national level and institutionalized. The suggested steps for institutionalization include the following:

- a) The position of QI manager (part-time or full-time) will be created in each health care facility. He/she will be responsible for managing QI activities on a daily basis in the facility. This person will be accountable to the recently created marz-level QI boards.
- b) The MOH organizes training of health providers on QI approaches utilizing QI managers trained by the project.
- c) The MOH ensures provision of all MCH facilities with the computers and software for establishment of site based HIS.

V. Budgeting

The budget for this project covers two years and in total is 372, 257 USD. It includes personnel cost, fringe benefits, supplies, equipment and travel cost, operational cost (office rent, office utility, maintenance) and project activities cost. Personnel cost includes salary of 1) project director; 2) three program staff members - health manager, RH specialist, QI specialist, and 3) four administrative employees -finance director, admin officer, driver and cleaner. Total personnel cost is 220, 800 USD for two years. Fifteen percent of this cost is benefit for the employees – medical insurance, 13 month’s salary.

“Future Generation” will contribute to the proposed budget in the form of office rent, computers, printer, cell phones, and car. In total the sum is 26, 000 USD. Total cost of office utilities, rent, maintenance, and communications is 44, 880 USD. Thirty percent of it will be contributed by NGO which totals 13, 464 USD. Thus, total NGO contribution to the project is 39, 464 USD.

Vehicle maintenance, fuel and insurance will cost 13,000 USD for two years. Calculations of vehicle maintenance and fuel cost are done based on the predicted routes and number of trips.

Cost of project activities is 26, 615 USD and it includes the cost of all activities listed in the previous section. Cost of printing materials, catering, training supplies, equipment, software, accommodation of data collectors, reimbursement was calculated given current market prices.

Taking into consideration NGO’s contribution, total sum required from the donor for the project implementation is 332, 792 USD. For more details see Appendix #3.

VI. Implementation

The project will last two years and will be implemented by a group of public health professionals and administrative staff of local NGO “Future Generation”. Project implementation plan is broken down into the quarters and presented in the table #2. Health manager together with QI and RH specialists will be coordinating and overseeing all project activities.

During the first three months of implementation the project team will select project and control sites in Yerevan and marz and establish the QIWC in each site. These activities will be coordinated by QI and RH specialists. In parallel, the team, on behalf of the QI specialist, will work on the training package for QIWC members which will be conducted in June 2010. The second project quarter will be devoted to the development and testing of standardized data collection form. Also during this quarter the project team will start working on the development of the computer-based program. This process will last another three months, during which the computer-based program will be installed in five project sites. During the third and fourth quarters the training on data collection and data entry, as well as orientation of maternity staff on QI issues will be conducted. Then, data collection process will start and continue until the end of the project. After data collection process proceeds, regular QIWC meetings will start.

In parallel with all activities listed, the project team will identify sites demonstrating best practices and organize experience-exchange-visits starting in the third quarter. After twelve months of implementation, international study tours for the most proactive QIWC members and other health personnel involved in QI implementation activities will be organized. Data collection in the control sites will last during the project’s life.

Final evaluation will take place during the last three quarters and include a qualitative study on patient satisfaction conducted by Center for Health Services Research and Development (CHSR) of American University of Armenia (AUA) in ten health facilities.

VII. Evaluation

Evaluation is a crucial part of any project. A comprehensive evaluation will include all levels of evaluation, i.e. – formative (baseline), process (routine monitoring) and summative (final, outcome oriented).

Baseline data on all indicators will be collected before the start of core project activities. The evaluators will use medical records for estimating health indicators of interest, as well as to conduct needs assessment for getting baseline information of the remaining indicators.

Monitoring of data collection and project activities will be conducted on a monthly basis. This part is described in the programming section.

Final evaluation of the project will utilize a quasi-experimental, two-group pre-test/post-test control design:

O₁ X O₂

O₃ O₄ where,

O₁ – baseline data collection for one year period (01.09.2009 – 01.09.2010) prior to the intervention in project supported sites

X – core project activities (01.10.2010 – 31.03.2011)

O₂ – data collection for one year period (01.04.2011 – 28.02.2012) after core project activities are implemented (final)

O₃ – baseline data collection for one year period (01.09.2009 – 01.09.2010) in the control sites

O₄ – final data collection for one year period (01.04.2011 – 28.02.2012) in the control sites

Evaluation questions of this measurement will be the following:

- 1) Did the project reach its target of increasing percent of pregnant women registered during 1st trimester of pregnancy by 10% by February 28, 2012?
- 2) Did the project reach its target of increasing percent of postpartum women having at least 4 ANC visits by 10% by February 28, 2012?
- 3) Did the project reach its target of decreasing percent of postpartum hemorrhage among postpartum women by 3% by February 28, 2012?
- 4) Did the project reach its target of increasing percent of infants who were breastfed within the 1st hour after delivery by 10% by February 28, 2012?
- 5) Was the project able to create maternity based functioning HIS in project supported five sites by March 31, 2012?
- 6) Was the project able to train at least 10 QI managers by March 31, 2012?

Evaluation will be conducted in project supported sites and five control sites. In control sites no intervention is scheduled to be conducted. Thus, it will be possible to demonstrate whether changes documented in the intervention sites are due to the project intervention and not to some other activities going on simultaneously. However, one of the study limitations can be maturation. Positive changes that can be registered could be due to systematic trends, simultaneous interventions of MOH and international organizations, and not due to the intervention by itself.

The other evaluation method is qualitative; aiming to assess women's opinion on MCH services in project supported and control sites. In comparison with quantitative studies, results of a qualitative study provide assessors with deeper and comprehensive understanding of the problem being assessed. There are debates on the necessity of patient satisfaction studies and their use as a measure of quality. Some consider that a quantitative measure of patient satisfaction is unjustifiably high in Armenia, and it is difficult to make judgments

from their results. However, Avedis Donabedian, often considered the “father of quality” in academic circles, states that “information about patients satisfaction should be as indispensable to assessments of quality as to the design and management of health care system” (13). Thus, the project is going to conduct a qualitative study to assess women’s opinion regarding MNH services in project supported sites and five control sites using client interviews. As internal evaluation is not considered as credible and objective, the project is going to sign a contract with CHSR of AUA for organizing and conducting a qualitative study. The research question will be: ***What are women’s opinions regarding MNH services in project-supported versus control sites?*** The methodology of the study will be the following.

CHSR will use a semi-structured in-depth interview tool which will be developed in English, then translated into Armenian, pretested on three postpartum women and finalized correspondingly (see Appendix #4). The tool will consist of nine open-ended questions and will take 30-45 minutes to administer. The questionnaire includes assessment of ANC, delivery and postpartum and infant care, as well as comparison of these services before and after project interventions. Participation in the study will be voluntary. Verbal informed consent will be obtained from each participant (see Appendix #5). The study tools (study guide and consent form) will be reviewed and approved by the AUA Institutional Review Board in Yerevan for compliance with local and internationally accepted ethical standards. Women’s confidentiality will be guaranteed; the list of potential participants and interviewees will be destroyed, and all transcripts and reports will not contain women’ names.

The study will involve postpartum women having babies in project-supported maternities and five control sites within the last three months. The women will be randomly selected from delivery registration journals. Given possible personal bias to this study, those women who work in the maternity or have relatives working in them will not be included in the

study. The interviews will be continued as long as opinions of the women reveal new information. It is expected to conduct about sixty interviews, six per each site. The interviews will be conducted by four trained data collectors at the respondent's home. A detailed evaluation timeframe is presented in the table #3. Possible limitation of this study could be subjectivity of the participants. A previous study shows that often respondents do not report their dissatisfaction because of fear, as they think health providers can learn their opinion and change attitude towards the patient (14).

VIII. Conclusion

This project will create a QI culture and environment in each maternity, through the establishment of site-specific HIS, preparation of QI managers, and fertilization of QI concept among health care providers and beneficiaries.

Implementing QI projects is a challenging process and does not always lead to target outcomes. Despite this – and despite the fact that the proposed project is small in scale and focuses on data collection, data analysis and implementation of QI activities only – there is an expectation that this project will serve as a good basis for future licensing and accreditation of health facilities.

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Table #1. Evaluation Indicators

Project Objective	Indicator	Indicator description	Baseline, April, 2010	Final Target, March 2012	Data Source
To increase percent of pregnant women registered during 1 st trimester of pregnancy by 10% comparing with baseline data in five project supported sites by the end of the project.	Percent of pregnant women registered during 1 st trimester of pregnancy	Percent of the pregnant women registered during 12 weeks of gestation out of total number of pregnant women registered	TBD	Increased by 10%	Medical records
To increase percent of postpartum women having at least 4 ANC visits by 10% comparing with baseline data in five project supported sites by the end of the project.	Percent of postpartum women having at least 4 ANC visits	Percent of postpartum women having at least 4 ANC visits out of total number of women giving birth	TBD	Increased by 10%	Medical records
To decrease percent of postpartum hemorrhage among postpartum women by 3% comparing with baseline data by the end of the project.	Percent of postpartum women having postpartum hemorrhage	Percent of postpartum women having postpartum hemorrhage (500 ml and more) out of total number of women giving birth	TBD	Decreased by 3%	Medical records
To increase percent of infants who were breastfed within the 1 st hour after delivery by 10% comparing with baseline data by the end of the project.	Percent of infants who were breastfed within the 1 st hour after delivery	Percent of infants who were breastfed within the 1 st hour after delivery out of all infants born	TBD	Increased by 10%	Medical records
To create maternity based functioning HIS in five project supported sites by the end of the project.	Number of established, functioning database		0	5	Needs assessment
	Number of health providers trained to manage the database		0	10	Training report
To train at least 10 QI managers (two per each site) in five project supported sites within two years of project implementation.	Number of QI managers		0	10	Training report

Table #2. Project Time framework

Activity	01.04.2010 - 30.06.2010	01.07.2010- 30.09.2010	01.10.2010- 31.12.2010	01.01.2011- 31.03.2011	01.04.2011 - 30.06.2011	01.07.2011- 30.09.2011	01.10.2011- 31.12.2011	01.01.2012- 31.03.2012
Project and control sites' selection								
Establishment of QIWC								
Training of QIWC members on QI issues								
Development of standardized data collection form								
Testing standardized data collection form								
Development, purchasing and installation in all project sites of the computer-based program								
Training of health providers engaged in data collection								
Data collection in the project sites and transmission to the project office								
Data collection in the control sites								
Training sessions on QI issues for the maternity staff								
Regular QIWC meetings								
Data analysis								
Gaps identification								
Action taken								
Translation of the Books on QI								
Selection of the site demonstrating best practice								
Experience exchange visits								
Development and distribution of leaflet								
Organizing international study tours								
Final evaluation (indicators' evaluation) in project and control sites								
Final evaluation (qualitative study on patient satisfaction) in project and control sites								
Writing final report								

Table #3. Qualitative Study Time Framework

Activity						
Study guide and consent form development and translation	3 weeks					
Pretesting and fine-tuning of the guide		1 week				
Conducting interviews			2 weeks			
Data entry/coding				2 weeks		
Analysis					2 weeks	
Writing report						2 weeks

Appendix #1. Training Agenda

“How to Provide Quality Health Services” Training

Goal: By the end of the course the quality improvement working group (QIWG) members will acquire/update knowledge on quality improvement/management/control, supportive supervision issues; as well as will improve their problem solving skills.

Student population: 25 QIWG members from five maternities of Yerevan and marz.

Trainers: Two project staff will be assigned to conduct this training. Trainers will be substituting each other during the whole course.

Time: The course will last three days, in approximately 3 hour sessions.

Setting: One large classroom with needed equipment is available as well as two rooms for small group work.

Resources: Laptop, overhead, flipchart, markers, agenda, lecture handouts.

Time/Day	Topic
Day 1	
12:30-13:00	Lunch
13:00-13:10	Welcome participants and brief introduction of the pilot project, training goal and objectives
13:10-13:30	Introduction of training agenda and participants
13:30-13:50	Expectations from the course, pretest questionnaire
13:50-14:30	Presentation: What is health care quality and why do we need it? (Questions &Answers)
14:30-14:50	Coffee-break
14:50-15:50	Presentation: Quality management and control. What are the effective ways of controlling quality in health care? (Questions &Answers)
15:50-16:00	Summary of the day
Day 2	
12:30-13:00	Lunch
13:00-13:10	Summary of the previous day and introduction of today's agenda
13:10-14:00	Presentation: Principles of problem solving process: root cause analysis, five whys and review of 5 whys. (Questions &Answers)
14:00-14:30	Work in three small groups: Exercise - Action plan development
14:30-14:50	Coffee-break
14:50-15:50	Mini presentations of small group works results (discussion of the problems existed in each site and solution ways)
15:50-16:00	Summary of the day
Day 3	
12:30-13:00	Lunch
13:00-13:10	Summary of the previous day and introduction of today's agenda
13:10-14:00	Presentation: Principles of supportive supervision, what are the qualities of the good supervisor? (Questions &Answers)
14:00-15:00	Role play: Three pairs (supervisor and supervisee) demonstrate different styles of supervisor's behavior. (Discussion)
15:00-15:30	Posttest questionnaire, summary of the course, course evaluation
15:30-16:00	Coffee

Appendix #2. Data Entry Technique Orientation Training

Agenda

Goal: By the end of the training the participants will acquire practical skills of data entry technique.

Student population: Ten health providers from five maternities of Yerevan and marz.

Trainers: Two project staff will be assigned to conduct this training.

Time: The course will last a day.

Setting: One classroom with 10 computers.

Resources: Laptop, overhead, lecture handout.

Time	Topic
12:30-13:00	Lunch
13:00-13:10	Welcome participants and introduction of the pilot project, training goal and objectives
13:10-13:20	Introduction of participants
13:20-14:00	Presentation: Health Information System (importance, developed countries' experience)
14:00-14:30	Introduction of data collection form
14:30-15:00	Data entry (practical exercise)
15:00-15:30	Discussion of gaps revealed during the data entry process
15:30-16:00	Coffee

Appendix #3. Project Budget

Description	1st Year				2nd Year				"Future Generation" Contribution	
	Monthly or Unit Cost USD	Units	Days/ Months/ Years	TOTAL BUDGET USD	Monthly or Unit Cost USD	Units	Days/ Months / Years	TOTAL BUDGET USD		GRAND TOTAL USD
A. DIRECT LABOUR										
Project Staff: Administration										
Finance Director/Accountant	1,500	1	12	18,000	1,500	1	12	18,000	36,000	
Admin officer/Receptionist	700	1	12	8,400	700	1	12	8,400	16,800	
Driver	400	1	12	4,800	400	1	12	4,800	9,600	
Office support staff (cleaner)	200	1	12	2,400	200	1	12	2,400	4,800	
Project Staff: Program										
NGO Director/Project Director	2,500	1	12	30,000	2,500	1	12	30,000	60,000	
Health Manager	1,500	1	12	18,000	1,500	1	12	18,000	36,000	
Reproductive Health Specialist	1,200	1	12	14,400	1,200	1	12	14,400	28,800	
Quality Improvement Specialist/ Training Coordinator	1,200	1	12	14,400	1,200	1	12	14,400	28,800	
TOTAL DIRECT LABOR:				110,400				110,400	220,800	
B. FRINGE BENEFITS										
Benefits Local Personnel (medical insurance, 13 month salary)										
Local Fringe Benefits-program (at 15%)				16,560				16,560	33,120	
TOTAL FRINGE BENEFITS:				16,560				16,560	33,120	
C. SUPPLIES and EQUIPMENT										
Computer	700	6	1	4200					4200	
Computer equipment/printer	300	2	1	600					600	
Cell phones	200	3	1	600					600	
Office equipment/Furniture	800	7	1	5600					5600	
Vehicle	15,000	1	1	15000					15000	
TOTAL EQUIPMENT:									26,000	26,000
D. TRAVEL										
Vehicle Fuel	300	1	12	3,600	300	1	12	3,600	7,200	
Vehicle Maintenance	200	1	12	2,400	200	1	12	2,400	4,800	
Vehicle Insurance	500	1	1	500	500	1	1	500	1,000	
TOTAL TRAVEL:				6,500				6,500	13,000	
E. OTHER DIRECT COST										
Operational Cost										
Office Rent	1,000	1	12	12,000	1,000	1	12	12,000	24,000	
Office Utilities (elect, gaz, water)	400	1	12	4,800	400	1	12	4,800	9,600	
Office Maintenance	70	1	12	840	70	1	12	840	1,680	
Office Supplies/stationary	100	1	12	1,200	100	1	12	1,200	2,400	
Equipment Maintenance	50	1	12	600	50	1	12	600	1,200	
Communications (internet, phone)	250	1	12	3,000	250	1	12	3,000	6,000	
TOTAL OTHER DIRECT COST:				22,440				22,440	44,880	13,464.0
E. PROJECT ACTIVITIES										
a. "How to make quality health services"										
Training of QIWG members										
Training supplies	3	50	1	150					150	
Per diem	5	25	1	125					125	
Printing training materials	3	50	1	150					150	
Catering	8	50	1	400					400	
b. Equipping project sites with computers and instalment of software										
Computer purchasing	700	5	1	3,500					3,500	
Purchasing software	1,000	1	1	1,000					1,000	
Training of data entry responsible persons	10	10	1	100					100	
c. Experience exchange visits										
Transportation of participants	70	2	1	140	70	3	1	210	350	
d. Books'translation										
Translator reimbursement	500	2	1	1,000					1,000	
Printing cost	200	2	1	400					400	
e. Conducting training for the maternity staff										
Materials priniting cost	1	100	1	100					100	
Catering	8	100	1	800					800	
f. Leaflet printing										
Leaflet printing	5	500	1	2,500	5	500	1	2,500	5,000	
g. Organizing international study tours										
Participants accomodation					70	10	6	4,200	4,200	
Participants perdiem					50	10	7	3500	3,500	
h. Final Evaluation										
Data collectors' salary (4 persons)					23	4	55	5060	5,060	
Printing study guide					1	80	1	80	80	
Transportation to the field					15	2	10	300	300	
Accomodation in the field					20	4	5	400	400	
TOTAL PROJECT ACTIVITIES COST:				10,365				16,250	26,615	
TOTAL COST									338,415	
G. INDIRECT COST 10%									33842	
GRAND TOTAL:									372,257	39,464.0
TOTAL COST REQUESTED FROM THE DONOR:										332,792.50

Appendix #4. Guide for Qualitative Research on Women's Views of Quality of Perinatal Services in Five Project Sites

Note to interviewer: Welcome the woman → Introduce yourself → Introduce the verbal consent → Ask screening questions → If the woman is eligible start from the demographic section

Screening questions

1. Are you working in the maternity?
 - a. yes → *(thank the women and end the interview)*
 - b. no

2. Do you have relatives currently working in the maternity?
 - a. yes → *(thank the women and end the interview)*
 - b. no

Demographic data

1. Please tell your date of birth? _____

2. What is your highest completed education/degree?
 - a. Primary school (8 year school)
 - b. Secondary school (10 year school)
 - c. Technical school
 - d. Institute/University
 - e. Postgraduate education
 - f. Scientific degree (Master, PhD, candidate of sciences, doctor of sciences)

3. How many children do you have? _____ If the woman has only one child, omit the question #2 (key questions)?

Key questions

1. We know that you recently had baby. Why did you select this particular maternity? Have you heard about it before? What have you heard about it?
2. The question refers only to those women who have more than one child. Did you have your older child/children in this maternity? If yes, did you feel the difference between quality of care during that time and now? What was changed and if there is something new did you like it? If no, why did you select this maternity?
3. Let's talk about your experience with ANC? What do you feel during your ANC visits? How was your doctor, her/his attitude towards you? Did you have laboratory tests, ultrasound and other examinations? What danger signs did your doctor talking about? What was new and useful for you regarding lifestyle, nutrition, hygiene during pregnancy?

4. Now let's talk about your experience with delivery. How did you feel during delivery? Were doctors attentive to you? What was their attitude? What do you think about their professional skills?
5. How do you think were health personnel attentive to your baby? How do you like their attitude towards the baby? How do you like skin-to-skin contact with your child? What do you think about benefits of exclusive breastfeeding? Did your child receive immunization? What do you think about it?
6. How do you feel during the first month after delivery? What was new and useful for you regarding lifestyle, nutrition, hygiene during postpartum period? What danger signs did your health provider talk to you about? Who/what health provider visit or contact you by phone within the first forty days after delivery?
7. Overall, how do you rank this facility? Why?
8. Would you return your maternity for services? Why/why not? Would you refer your friends, relatives to come to the maternity? Why/why not?
9. What would you suggest to change in your maternity to improve the quality of care they provide?

Thank the women and ask if there something she would like to ask/add.

Appendix #5. Consent form

Hello, my name is _____. I am an external evaluator/interviewer of the Quality Improvement project which is working in your maternity to improve quality of maternal and newborn services. Currently project conducts a small study to find out women's opinion on maternal and newborn services in your maternity.

I am going to conduct a small interview with you and ask you several questions regarding your antenatal period, delivery and postpartum period. The interview will last about 15-20 minutes. You are free not to agree on conducting interview, or to stop it anywhere.

You are selected randomly among other women who had children in this maternity within last three months. Our project guarantees confidentiality of the information you provide as well as anonymity. If you do not mind I will be taking notes in order not to lose any information you provide.

In case of any additional questions you can contact study coordinator (Name, phone).

Thank you very much for your participation.