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LA ATENCIÓN EN SALUD

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# **A successful path to improving maternal-child, family planning and HIV/Aids healthcare**

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*Final report on the period of technical assistance provided  
by USAID (QAP/HCI) on maternal-child, family planning and  
HIV/Aids healthcare (2000 – 2013)*

**Managua, Nicaragua, September 2013**

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## Acronyms

<b>AECID</b>	Spanish Agency for International Development Cooperation
<b>AIDS</b>	Acquired Immunodeficiency Syndrome
<b>AIMNA</b>	Comprehensive Care for Women, Children and Adolescents
<b>AMTSL</b>	Active Management of the Third Stage of Labor
<b>ART</b>	Antiretroviral Therapy
<b>BICU</b>	Bluefields Indian & Caribbean University
<b>BPCH</b>	Base Perinatal Clinical History
<b>BF</b>	Breastfeeding
<b>CANSALUD</b>	Nicaraguan Health Institution ( <i>Cámara Nicaragüense de la Salud</i> )
<b>CARE</b>	Cooperative for American Remittances to Europe
<b>CIES</b>	Center for Health Research and Studies ( <i>Centro de Investigaciones y Estudios de la Salud</i> )
<b>CM</b>	Contraceptive Method
<b>CNDR</b>	National Referral and Diagnosis Center ( <i>Centro Nacional de Diagnóstico y Referencia</i> )
<b>CQI</b>	Continuous Quality Improvement
<b>CQIT</b>	Continuous Quality Improvement Team
<b>EOC</b>	Essential Obstetric Care
<b>EONC</b>	Essential Obstetric and Neonatal Care
<b>DELIVER</b>	USAID Project to increase health supplies availability
<b>DGECA</b>	General Department to Extend Quality of Care
<b>FAMISALUD</b>	USAID Families united for health
<b>FP</b>	Family Planning
<b>FONMAT</b>	Safe maternity and childhood Fund
<b>GFT</b>	Global Fertility Rate
<b>HACAP</b>	Humanization and Cultural Adaptation of Delivery Care
<b>HANDICAP</b>	Independent International Aid Organization
<b>HCI</b>	USAID's Health Care Improvement Project
<b>HM</b>	Hyaline Membrane

<b>HMD</b>	Hyaline Membrane Disease
<b>HPC</b>	Hospital Pediatrics Care
<b>IUD</b>	Intrauterine Device
<b>HI</b>	Hospital Infections
<b>HIV</b>	Human Immunodeficiency Virus
<b>IHANM</b>	Mother and Baby Friendly Units Initiative ( <i>Iniciativa de Hospitales Amigos de la Niñez y la Madre</i> )
<b>INSS</b>	Social Security Nicaraguan Institute ( <i>Instituto Nicaragüense de Seguridad Social</i> )
<b>IPAS</b>	Global Non-profit Organization
<b>IPSS</b>	Health Services Provider Institutions – previously PME
<b>IMPAC</b>	Integrated Management of Pregnancy and Childbirth
<b>JICA</b>	Japan International Cooperation Agency
<b>KAP</b>	Knowledge, Attitudes and Practices
<b>MAS</b>	Meconium Aspiration Syndrome
<b>MDT</b>	Multidisciplinary Team
<b>MCH</b>	Maternal Child
<b>MIFAMILIA</b>	Ministry of Family in Nicaragua
<b>MINSA</b>	Ministry of Health (Nicaragua)
<b>NB</b>	Newborn
<b>MVN</b>	Mechanical Ventilator Associated Pneumonia
<b>OP</b>	Oral Progestins
<b>PAHO</b>	Pan-American Health Organization
<b>PcP</b>	Prevention with Positives
<b>PEPFAR</b>	President's Emergency Plan For AIDS Relief
<b>PDSA</b>	Plan, Do, Study and Act
<b>PMC</b>	Provisional Medical Clinic (MOH)
<b>PMSS</b>	Health Modernizing Program
<b>PME</b>	Provisional Medical Enterprises (INSS)
<b>PMTCT</b>	Prevention of Mother-to-Child Transmission
<b>PNC</b>	Prenatal Care

<b>POEC</b>	Post Obstetric Event Contraception
<b>POLISAL</b>	Instituto Politécnico de la Salud
<b>TP</b>	Teaching Package to develop health human resources competencies' in care for: family planning, maternal-child and HIV/AIDS health
<b>PPH</b>	Post-Partum Hemorrhage
<b>PROFAMILIA</b>	Association for Promotion of Nicaraguan Families Wellbeing
<b>PRONICASS</b>	USAID Nicaragua Social Support Project
<b>PLWHIV</b>	People living with HIV
<b>QAP</b>	USAID's Quality Assurance Project
<b>RTC</b>	Referral Teaching Centers
<b>RAAN</b>	Northern Atlantic Autonomous Region
<b>RAAS</b>	Southern Atlantic Autonomous Region
<b>SCMS</b>	Supply Chain Management System administered by the Supply Chain Management Association
<b>STI</b>	Sexually Transmitted Diseases
<b>RDS</b>	Respiratory Distress Syndrome
<b>SIGLIM</b>	Information System for Medical supplies Logistics
<b>SILAIS</b>	MOH Health Integrated Health Care Local System
<b>TB</b>	Tuberculosis
<b>UCAN</b>	Universidad Cristiana Autónoma de Nicaragua
<b>UNAN</b>	Universidad Nacional Autónoma de Nicaragua
<b>UNFPA</b>	United Nations Population Fund
<b>UNICEF</b>	United Nations Children's Fund
<b>UPOLI</b>	Universidad Politécnica
<b>URACCAN</b>	Universidad de las Regiones Autónomas de la Costa Caribe Nicaragüense
<b>URC</b>	University Research Co., LLC
<b>USAID</b>	United States Agency for International Development
<b>VCT</b>	Voluntary Counseling and Testing
<b>VPCD</b>	Surveillance and promotion of growth and development
<b>WRA</b>	Women of Reproductive Age
<b>WHO</b>	World Health Organization

## **I. Introduction**

This introduction of the final report of the USAID projects: Quality Assurance Project (QAP) and Health Care Improvement (HCI) offers a summary of these, in order to provide a general overview of their development and promoting interest on the details of execution and obtained results. In the following chapters of the report, we will expose technical assistance provided by these projects in greater detail on: maternal-child, family planning and HIV/Aids. The following topics are also addressed: technical assistance objectives, intervention areas (methodological strategies, changes achieved and products obtained), key results, institutionalization evidences, lessons learned, conclusions and recommendations.

This final report prioritizes information corresponding to the 2008 – 2013 period, due to this period including reinforcement of the previous period interventions (2000-2007), new interventions and sustainability and institutionalization results related to both periods.

This final report is expected to be an effective mean to share the valuable experience achieved by the effort of the work teams from participant institutions, as well as from project advisers; whom along the time of the project execution, motivated, provided support and accompanied involved actors.

The richness of these projects lays both on provided technical assistance strategies and on capabilities developed, their content and the results obtained by institutions' quality improvement teams.

### **A. The development of the QAP and HCI projects within the USAID health cooperation framework**

The great challenges set forth and developed by one of the technical assistance areas of the United States Agency for International Development (USAID) during the November 1999 to September 2013 period was to contribute to reducing maternal-child mortality and unmet demand in family planning services, as well as improving the quality of prevention and care services for HIV.

From the year 2000, the USAID Health Program adopted a technical assistance model based on strengthening the health system in Nicaragua. The QAP and HCI project strategies were profiled in correspondence with that model, which from the year 2006 included a graduation process from the different cooperation program components, as shown in the following table.<sup>1</sup>

**Table I: USAID Nicaragua health cooperation graduation process periods 2006 - 2015**

Component	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Centralized contraceptives donation										
Family Planning										
Maternal-child										
HIV/Aids										

Source: USAID Nicaragua

Taken from the document: USAID Nicaragua Education and Health Office. USAID Nicaragua maternal and child health graduation strategy. Draft. January 2012.

USAID provided technical cooperation centered on Continuous Quality Improvement (CQI) in clinical processes, on maternal-child, HIV-Aids and family planning (FP), in order to contribute to achieving national objectives and international commitments proposed among health priorities; initially through the Quality Assurance Project (QAP/USAID) in the November 1999 –September 2007 period and afterwards with the Health Care Improvement Project (USAID/HCI) from October 2007 to September 2013.

The CQI that both projects were centered on, "...is defined, among other ways, as the process in which quality standards are determined, their compliance is measured through indicators, measuring data is analyzed and improvements in care processes are applied, with the vision of institutionalizing these measures for sustainability of improvements in quality of care resulting from their application."<sup>2</sup>

The greatest time of technical assistance from both projects up to September 2012 was destined to the Ministry of Health (MINSAs), specifically in health centers and hospitals in 17 SILAIS<sup>3</sup> operating in the country.

USAID also provided support to other health private and public institutions. These are: PROFAMILIA, the Nicaraguan Institution of Social Security (INSS), the Ministry of Family (MIFAMILIA), Pro Mujer, Provisional Medical Clinics (PMC) ascribed to INSS and some non-governmental institutions working on HIV care and prevention. Technical assistance to these institutions was focused on the quality assurance institutionalization process, to obtain greater quality and contextualizing services to the national health priorities. This enabled MOH to share their health CQI experiences with other institutions. For example improvement on prenatal care, delivery and post-partum surveillance, HIV voluntary testing, etc., at PMCs. See Figure 1.

The transfer of these USAID projects' experiences was also conducted at universities. The health care contents and best practices from CQI in MOH health units were included in the medicine

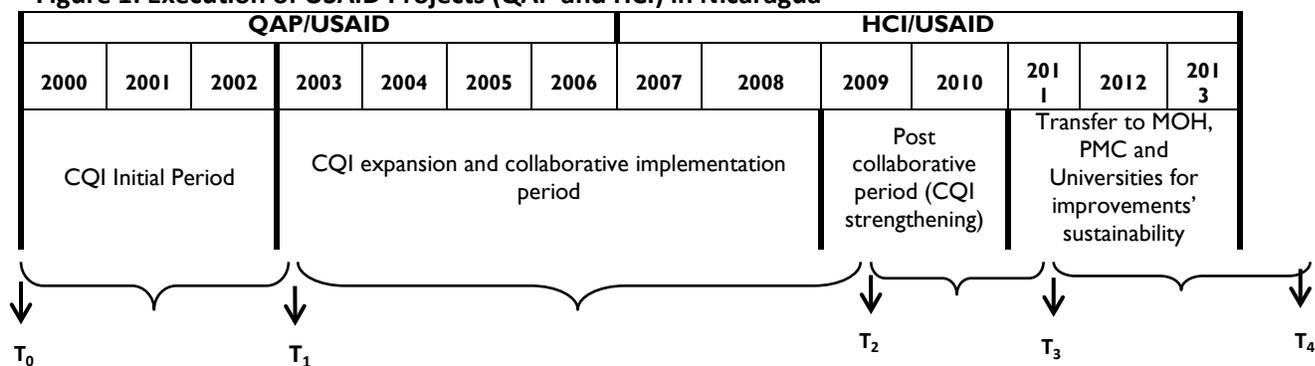
and nursing study programs. The institutions we worked with are: Instituto Politécnico de la Salud (POLISAL) from the Universidad Nacional Autónoma de Nicaragua (UNAN/Managua) and with the Medicine Faculties of UNAN/León and UNAN/Managua, Bluefields Indian & Caribbean University (BICU), Universidad de las Regiones Autónomas de la Costa Caribe Nicaragüense (URACCAN), Universidad Politécnica (UPOLI), Universidad Cristiana Autónoma de Nicaragua (UCAN) and Universidad Americana (UAM).

During the development of these USAID projects, one of the important factors contributing to the achievement of Project objectives was the inter-institutional, inter-project and inter-agency relation. This enabled synergic work joining technical and financial efforts to support MOH priorities on maternal and child health, HIV/Aids and family planning. This group included: CARE, UNICEF, PAHO/WHO, Japanese Cooperation – JICA, GTZ – German Cooperation, UNFPA, USAID/PRONICASS, USAID/DELIVER, USAID/IRH, USAID/Capacity, USAID/Famisalud, FONMAT/PMSS/MINSA, Grand Duchy of Luxembourg, AECL, Handicap, HORIZONT3000, World Doctors, CIES, 8th Round of the Global. Fund Project, Cansalud, Bankington Health, IPAS.

## B. Summary per stages of the development of USAID projects: QAP and HCI

The QAP and HCI projects were developed in four stages: 1) initial (2000-2002), 2) CQI expansion and collaborative implementation (2003 – 2008), 3) post collaborative period for CQI strengthening (2009 – 2010) and 4) Transfer to MOH, PMC and Universities (2011-2013). Figure 1 and tables show the four development stages of the mentioned projects.

Figure 1: Execution of USAID Projects (QAP and HCI) in Nicaragua



Number of SILAIS seen by MOH per year

Component	2000-2003	2004	2005	2006	2007	2008	2009	2010	2011	2012

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Maternal and Child Health	6	10	13	14	16	9	9	13	5
HIV/AIDS				7	10	13	15	14	2
Family Planning						8	16		17

Source: USAID/HCI Annual Reports

Detail of SILAIS seen by MOH per year (2008-2012)

No.	SILAIS	2008			2009			2010			2011			Sept-2012		
		MC	HIV	FP	MC	HIV	FP	MC	HIV	FP	MC	HIV	FP	MC	HIV	FP
1	Chinandega															P
2	Leon															P
3	Masaya															P
4	Rivas															P
5	Esteli										BF					P
6	Madriz										BF					P
7	Nueva Segovia															P
8	RAAS															P
9	RAAN															
10	RSJ															
11	Matagalpa															
12	Jinotega															
13	Granada										BF					
14	Carazo															
15	Chontales															
16	Boaco															H
17	Managua										HBC			HBC		
<b>Total</b>		<b>16</b>	<b>10</b>	<b>8</b>	<b>9</b>	<b>13</b>	<b>16</b>	<b>10</b>	<b>15</b>	<b>16</b>	<b>14</b>	<b>13</b>	<b>16</b>	<b>5</b>	<b>2</b>	<b>17</b>

Source: USAID/HCI Annual Reports

Note: P- Prioritized. BF- Breastfeeding. H: Hospitals. HBC: Hospital Bertha Calderón MC: Maternal Child FP: Family Planning

Other institutions seen per year

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
PROFAMILIA												
Hospital Bautista												
INSS/CMP											*	
MIFAMILIA												
Pro Mujer												
NGO (HIV)												
Universities												

Source: USAID/HCI Annual Reports.

\* Up to July 2012

## **I. CQI Initial Period (2000–2002)**

QAP/USAID started facilitating the CQI dynamics at MOH in 5 health centers and 2 hospitals, in 2 SILAIS: Matagalpa and Jinotega, with the purpose of providing support to implementing the Quality Assurance Project in Health with the greatest citizen involvement possible, both for quality design and mission compliance and institutional objectives control.

During 2000–2001, the main activities of this period were focused on raising awareness among authorities and headquarters, SILAIS and selected health units' staff about quality assurance in the service, specifically in maternal-child health. The first quality improvement experimentation activities were completed and some of them were implemented; there was also support provided to improving health care spaces. This was the first moment of training to MOH staff on clinical and CQI topics, including strengthening team work.

At MOH for the year 2002, the Quality Assurance activities had been conducted in 33 municipalities (Jinotega 8, Matagalpa 15, Granada 4, and Boaco 6) and in 3 hospitals (Matagalpa, Jinotega and Boaco). There was emphasis on properly filling out the Base Perinatal Clinical History (BPCH) for pregnant and post-partum women, capturing women in the first trimester of pregnancy and in Prenatal Control (PNC), as well as filling and interpreting the partogram with alert curve and newborn care.

It is relevant to mention that combined efforts of projects present in territories' such as PROSALUD, CARE and QAP, made possible the results that MOH achieved in the period.

PROFAMILIA, after only one year of technical assistance from the Project, in 2002 achieved the following: launching the National Quality Assurance Program; training 17 quality teams in an equal number of clinics; verified the clinical records system to improve technical quality of services; systematically measured the level of user satisfaction; designed manuals and norms for medical care; improved processes such as waiting time, privacy in care and institutional image, among others.

## **2. CQI expansion and collaborative implementation period (2003 – 2008)**

The 2003 – 2008 for QAP and HCI signified expansion, both for coverage and technical assistance topics. This can be observed in Figure 1 tables. On the one hand the number of MOH SILAIS increased and on the other hand, the number of institutions: INSS/EMP, MIFAMILIA, Pro Mujer and other NGOs. HIV/AIDS and FP was included. The activities are described below. (Summary in Annex 1)

### **a) Expansion of continuous quality improvement (CQI)**

Within the USAID (QAP and HCI) cooperation framework for CQI at MOH and other institutions, technical assistance consisted of providing coaching to improvement teams (CQIT) on the following activities: formulating and measuring indicators, implementing PDSA Cycles (Plan-Do-Study-Act), continuously assuring staff competencies (training), data monitoring and analysis, documenting changes or improvement activities, sharing results and learned lessons, developing and publishing norms, technical guides and other visual materials (see detail in annexes).

Health units and instances from other institutions received support for CQI processes to be conducted in a favorable work environment. Aspects related to quality culture were included, such as: drafting the quality assurance program, practicing values, measuring organizational climate, declaring service strategies, measuring user satisfaction, involvement, support and recognition from authorities, influence of the teams in decision making, as well as team work, personal commitment, confidence in success, the desire to improve and quality interpersonal relations.

### **b) Expansion of technical assistance topics**

By including the HIV/Aids topic in 2006, MOH received support in the following interventions: organizing care and treatment for people with STIs/HIV-Aids, implementing a package of actions related to vertical transmission prevention, integrating FP/STI/HIV/Aids counseling, creating a laboratories network for HIV testing, actions to reduce stigma and discrimination and decentralization of the antiretroviral therapy with a quality assurance approach.

Starting in 2008 support actions were redirected and reinforced to develop Quality Management for the Family Planning Program. This includes data management, counseling organization, assuring family planning norm compliance and compliance with sexual and reproductive rights.

### **c) Health care quality improvement collaboratives**

A transcendental moment in the QAP/USAID period was the one from 2003 to 2006 that was prolonged up to 2008 with HCI. This period included “implementation of the collaboratives methodology, consisting of a shared learning system between teams working together on CQI”.

In the first phase of the collaboratives, named demonstrational, improvement teams generated changes from a package of organizational and clinical improvement actions or changes, with the intention of sharing them. They consequently and gradually obtained direct results of quality improvement in the care provided to the users of these services.

During the second phase, named collaborative expansion, best practices or improvement actions were systematized and communicated to other health units to promote implementation thus saving experimentation costs.

Table 2 shows general data referred to the coverage reached through collaboratives.

**Table 2: Collaboratives implemented by the USAID Projects (QAP and HCI) 2003 - 2010**

No.	Collaborative	Execution period	Participants	People trained	Collaborative's topics
1	Essential Obstetric Care (EOC)	Sept. 2003 – Dec. 2007	16 SILAIS	3,511	Prenatal care, delivery, post-partum, approach and treatment for the main obstetric complications: gestational hypertension syndrome, post-partum hemorrhage and puerperal sepsis
2	Hospital Pediatrics Care	Sept. 2003 – Dec. 2007	16 SILAIS	2,340	Care for children under 5 years, hospitalized with pneumonia, diarrhea and malnutrition
3	Integrating Family Planning and HIV counseling	March 2006 – Nov. 2007	10 SILAIS	3,355	Integrating family planning, HIV/AIDS and prenatal care counseling.
4	HIV VCT to people with STIs	May 2008 – Sept. 2010	14 SILAIS – 74 H/C	400	Active search of HIV cases in vulnerable context population
5	Antiretroviral Therapy	Jan. 2009 – Aug. 2010	17 hospitals - 15 SILAIS	1,729	The quality of care for people with HIV on antiretroviral therapy
6	Essential Obstetrics and Neonatal Complications (EONC)	Feb. 2009 – Sept. 2010	9 SILAIS	1,274	Prevention, diagnosis and treatment of neonatal and obstetric complications
	<b>Total resources trained</b>			<b>12,209</b>	

Source: QAP/USAID and USAID/HCI Reports

Note: Collaboratives 4 and 5 correspond to the CQI strengthening period and they were shorter.

In the collaboratives' period, several USAID projects and other cooperation agencies formed partnerships to provide support to improvement teams, among these are: UNICEF, CARE, JICA, Grand Duchy of Luxembourg, PAHO/WHO and UNFPA, among others. <sup>4</sup>

## **d) Coverage expansion**

In the year 2002 with the inclusion of PROFAMILIA, technical assistance to other institutions started. Then, in 2003, this coverage was expanded including Hospital Bautista, then INSS/PMC, MIFAMILIA, Pro Mujer and some other NGPs working with HIV.

CQI application at PMCs started in the year 2004 to establish the quality assurance system, favoring involvement from the private sector in the Departmental Plan to Reduce Maternal Mortality. In Chinandega, the four existing PMCs were included: AMOCSA, Sacuanjoche, La Consulta and San Vicente de Paul. AMOCSA took greater advantage and became empowered thus including its branches: Leon, Chichigalpa and Corinto.

By the year 2005, QAP provided technical assistance to 11 PMCs ascribed to INSS through training and advisory actions to improve services provided to the mother-child binomial. This included promotion of strengthening the relation with MOH SILAIS headquarters in the territories where these PMCs operate.

In general, maternal and child medical and nursing staff at PMCs assumed compliance with MOH Standards and Indicators. They identified services improvement opportunities and implemented actions that will lead to such improvement. Regarding labor surveillance, proper partogram completion went from 5% to 80% compliance with this indicator, strengthening teamwork and constant monitoring. Quality of prenatal care improved by 90%, implementing use of the BPCH with scientific rigorousness.

At PROFAMILIA, MIFAMILIA, Pro Mujer and AMOCSA the work was on the institutionalization process for quality assurance. With coaching from the project, there was significant progress achieved, among which are:

- Definition of quality in terms of quality standards and indicators
- Implementing quality surveillance through measuring standards and indicators of services provided
- Measuring external user satisfaction
- Design and implementation of the service strategy
- Forming quality improvement teams
- Measuring organizational climate
- Designing the quality assurance system, instruments and guides to implement it

At PROFAMILIA, care norms and protocols were drafted or updated during the technical assistance process. These were on the following topics: Gynecology, Obstetrics, Colposcopy, Uterine Cervical Cancer, Breast Cancer, Imagenology, Voluntary Surgical Contraception, Pediatrics, Antisepsis and Asepsis, Clinical Laboratory, Nursing, Use and Consumption of Clinical and Pathological laboratory supplies.

At MIFAMILIA, an informational brochure was drafted to describe progress of Quality Assurance activities in this institution. A rapid guide was designed to implement the quality assurance control and follow up system.

At Pro Mujer, the following documents were drafted: Health care processes quality standards and indicators, National quality assurance program for health services at Pro Mujer Nicaragua and Gynecology Norm. At AMOCSA, the Quality Management Program was drafted.

## **e) Expansion of Interventions**

Different interventions were included for each technical assistance topic. In the chapters corresponding to each topic, there are details about the results of these interventions. These are listed below.

- Reorganizing Emergencies in 9 hospitals
- Measuring and Improving the Organizational Climate and External User Satisfaction, in partnership with other Projects, reaching nationwide coverage
- Promoting proper use of Antiseptics and disinfectants as well as hand washing in high risk areas in 10 maternal-child hospitals
- Humanization and cultural adaptation of delivery (HACAP)
- Transfer to health human resources training institutions

### Reorganization of the hospital emergency departments

Support to reorganization of the hospital emergencies units was conducted in 2004 to 9 hospitals. Access, flow and timely care with technical quality were improved in care to critical cases.

This intervention had as a result the definition of the critically ill user classification system. This system resulted applicable to all users arriving to hospital emergency departments. Therefore, it was used in other technical assistance topics, such as: prioritization and approach of obstetric, neonatal and child emergencies in health units.

Awareness about the need to modify emergencies organization and approach practices among hospital emergency departments' staff is one of the greatest achievements. Staff reorganization and resources to prioritize critically ill users is another great achievement.

Among the main activities implemented are: triage design (classification) along with Emergency Departments in 9 hospitals in the country and MOH headquarters' approval. Trained respective staff and conducted experiences exchange among hospitals. The poster showing the triage organization was printed and distributed in coordination with UNICEF.<sup>4</sup>

Measuring and Improving Organizational Climate and External User Satisfaction in partnership with other Projects reached nationwide coverage.

By the end of 2004 an important factor identified to improve performance in Healthcare was employee motivation and personal realization. This validated the importance of systematically measuring organizational climate in health units, to effectively contribute to continuous quality improvement in each instance involved, On the other hand, systematic evaluation of the organization was necessary, from the quality assurance standpoint as part of identifying aspects to improve and progress towards an excellent organization.

Therefore, it was considered timely to include Organizational Climate Continuous Improvement in the different levels and instances as an important alternative to address the organizational climate elements systematically and coherently, since they have a preponderant effect on internal users' behavior and consequently on external users' satisfaction.

This intervention had as a result the adaptation of a methodology, which was proposed to the Ministry of Health, including concepts, objectives and methodologies to measure organizational climate.

Promoting the proper use of antiseptics and disinfectants, as well as hand washing in high risk areas in 10 maternal-child hospitals

By mid-2007 MOH started to work on the proper use of antiseptic and disinfectant solutions and hand hygiene in 10 maternal-child country hospitals with USAID/HCI and UNICEF's collaboration.

This intervention had as a purpose promoting the proper use of the antiseptic and disinfectant solutions used in hospital units starting from the baseline findings, as well as promoting proper hand hygiene through the use of gel alcohol, since this is fundamental in preventing hospital infections.

Humanization and cultural adaptation of delivery (HACAP)

By the end of the year 2006, MOH started to gradually implement the Humanization and Cultural Adaptation of Delivery Care (HACAP) in 13 municipal health units belonging to 7 SILAIS with the collaboration of QAP/USAID and UNICEF. These units became the pilot centers to build a methodology adjusted to the local cultural situation and the country in general, which already has a background in several countries of Latin America.

The HACAP strategy aims to eliminate the cultural barriers that make it difficult and that in the worst case scenario hinder women from rural areas to receive essential health care during pregnancy, delivery and immediate post-partum in order to guarantee safe maternity. The interest to reach and/or maintain maternal and perinatal mortality at zero in municipalities has opened the way to drive HACAP.

Implementation of HACAP is centered in the respect of cultural traditions of women of the community and is focused on modifying the obstetrics and neonatal care practices assuring beneficial care. An important condition at the time of starting HACAP was the existence of an active and committed community network formed by midwives, health brigadiers and voluntary workers. These people, as members of the community, represent a valuable potential that was taken advantage of from the start.

#### Technical assistance targeting health human resources training centers (Universities)

For USAID/HCI, technical assistance targeting health human resources training centers was also an important way of contributing to healthcare improvement. The focus of the first cooperation stage started in 2008 at POLISAL/UNAN Managua was updating selected study programs for Nursing with a special mention on Maternal-Child, including two from the first years and that are common to other specialties of nursing training. In total, six nursing study programs and a proposal to lead the neonatal nursing postgraduate were revised.

Specialization and expertise obtained by the QAP and HCI projects through the support provided since the year 2000 to the Ministry of health (MINSA) was taken advantage of as much as possible by working jointly with primary and secondary care units, in order to contribute to maternal-child, HIV/Aids and family planning healthcare improvement.

A methodological strategy was designed in a participative way for technical assistance to POLISAL. This strategy was characterized by: joint work, comprehensive and systemic analysis of study programs, as well as the permanent approach towards the curriculum transformation process to be implemented at the University. This process included training sessions for teachers on the topics included in the study programs.

### **f) Strategies to develop competencies**

The development of competencies among CQI involved staff, both from MINSA and other institutions was conducted based on needs identified from processes improvement and through implementing diverse strategies such as: training in the workplace, training workshops, the contest like activity “Knowledge Award”, referral teaching centers, internships and visits exchange among health units, collaborative learning sessions or experiences exchange sessions; participation in national and international encounters.

The training events were organized along with SILAIS headquarters, both for clinical and methodological CQI topics. Teaching from coordinators and CQI team members was very important along with teaching from project advisors. Continuous education implemented at health units enabled reinforcing and updating permanent staff competencies, as well as the possibility of systematically training nurses and doctors in social service.

Below are various experiences for competencies development that were similar to all technical assistance topics.

#### Technical assistance in the workplace

A particular aspect of these projects is technical assistance in the workplace. There were joint work sessions with the directive team and attending staff at SILAIS headquarters and hospitals and health centers. The sessions included case analysis, files review, monitoring results analysis, documenting improvement rapid cycles, etc. This led to relevant institutional and personal capacity development.

From these technical assistance sessions resulted the norms, tools, educational materials, which are very valuable for sustainability and institutionalization of quality continuous improvement.

During sessions advisers could transmit experiences from other health units, sharing was very effective because it allowed teams to reduce testing time to bridge gaps.

*“... they would bring forms and guides made in other hospitals and we would review them, improve them and adapted them to the hospital, to our reality ...”* Dr. Lisette Mairena, Hospital de La Trinidad (Estelí).<sup>5</sup>

*“There were magazines and other publications to motivate others. We also received soft copies of the information. They would provide what was good, what had stood out in another hospital and then we would share it internally.”* Dr. Agustín Suárez, Hospital “Ernesto Sequeira”, Bluefields.<sup>5</sup>

#### Training workshops

Training workshops were conducted under the principle of "learning by doing" and meaningful learning, as well as using the Problem Based Learning (PBL) methodology. These workshops, in addition to supporting materials such as checklists and anatomical models, also had clinical records or other documentation that would allow identifying mistakes and successes to then apply what was learned and consequently, contribute to improving quality indicators compliance.

In HIV /AIDS, to strengthen the laboratory network, lab and other health staff training (doctors and nurses) was developed. Trainings were scheduled for processing rapid and ELISA tests. The rapid test training lasted 8 hours of theory and practice; these were conducted at health units in laboratories. The ELISA test training lasted for three days (24 hours of theory and practice); these were conducted at the National Center of Diagnosis and Reference (CNDR) under the guidance

of specialized personnel. After training there were monitoring and quality controls to confirm the participants' learning and application in the workplace.

Technical assistance in the FP component targeted two groups: one consisting of the staff facing service delivery and another composed of decision makers. The training workshops modality was used to study topics targeting direct health care providers. The techniques used were: presentations, demonstrations, problem-based learning (PBL), the latter proved to be effective for improvements in staff competence; therefore it continued to be used in training, MOH employed it for sharing and training workshops on the FP Norm.

Another example of workshops is the voluntary surgical sterilization workshop with the local anesthesia technique for obstetrics specialist physicians and nurses of 13 hospitals. The training had 2 methodological moments, one theoretical, which addressed the following topics: FP from the rights perspective, quality standards and counseling with emphasis on BTO and vasectomy, and a practical moment, in which nursing staff provided counseling to users who requested BTO, and the medical personnel performed the surgical procedures using the technique with guidance from the coach, who performed the first sterilization for teaching purposes. To certify the staff they required the successful completion of at least 8 procedures. Teachers from a departmental hospital repeated the training using the same methodology to train 3 doctors from primary hospitals.

### Learning sessions

This strategy was vital in the development of improvement collaboratives. Generally, the agendas of the learning sessions were organized into two sections: one for presentation of results by improvement teams and another, for the study of a clinical or CQI methodology topic to develop skills among members of the CQI teams.

Regarding HPC, in the annual report mentioned in the quotation, a learning session is quoted: “In the July 2006 to June 2007 period we completed the sixth learning session, with involvement from improvement teams from hospitals in Nueva Segovia, Madriz, Jinotega, Matagalpa, Juigalpa, Boaco and the two hospitals in Estelí, where teams, in addition to showing their achievements, exchanged experiences on process improvement enabling practices.”

At Hospital “Alfonso Moncada” in Ocotul, the following was presented:

*Since the Project was nationwide, there were experiences exchange and during these we talked about how things were done in other places. Whenever Esteli and Somoto were together we asked: How are you doing things? For example, they would say they had problems with children canalization and they would request staff to come in for internships to improve competencies. Changes were shared, mainly with municipalities to establish good communication and thus improve referral and counter referral. Sharing occurred during hospital directors' meetings.<sup>5</sup>*

Intra-SILAIS sessions emerged from this experience, to exchange experiences and assess quality indicators performance. In the case of maternal and child health and FP, they included the PMCs

teams and IPSS in intra-SILAIS meetings to share progress and limitations in quality improvement. This contributed to implement successful experiences achieved by MOH in these establishments. Regarding intra-SILAIS sessions, the following statement was made:

*“There is a saying on how you learn from mistakes, but here we are not learning from mistakes but from experiences that others have already had and these can be tested to see if they produce results. Experiences exchange is enriching. We have tested it; it helps to respond to problems.”* SILAIS Masaya<sup>5</sup>

### Referral Teaching Centers (RTC)

“Through the referral teaching centers in hospitals, medical and nursing staff of the gynecology and pediatrics services shared their experiences and evidence-based clinical knowledge to update their knowledge and develop skills in prevention, management and treatment of the most frequent diseases that cause maternal, perinatal and child mortality with human resources from SILAIS health centers. This process was conducted in a planned way, through a previously structured teaching plan with key learning, performance and impact objectives.”<sup>6</sup>

Selected hospitals had at least 90% compliance in the different quality standards and indicators; they were systematically reporting monitoring and had consistency between what was said (MOH care protocols) and what was done (compliance with care protocols). This increasing the possibility of greater compliance by interns with the standards when returning to their units.

Initially there was a standardization process at RTC, both in knowledge and skills on maternal and child health topics for doctors and nurses selected as tutors or teachers using the Problem Based Learning (PBL) methodology, and checklists for medical records and to evaluate life-saving maneuvers performance.

These in service training sessions, denominated internships lasted for two weeks each, rotating in separate training for maternal health and pediatrics; each group of doctors and nurses came from selected and prioritized municipal health units according to the frequency of referrals from municipalities to the departmental hospital and high mortality.

With these in-service training sessions, the relationship/interaction between municipalities’ staff managing referrals (primary care) and hospitals’ staff managing such references (secondary care).

### Internships

Internships between health units were conducted in a similar way to teaching centers. Three internships were organized to develop competencies among multidisciplinary team (MDT) members to provide care for people with HIV. These lasted for 5 days (40 hours of theory and practice). This enabled staff to implement comprehensive and humanized care for people with HIV at their return to their health units including antiretroviral therapy (ART) decentralization.

### “Knowledge Award”

The “Knowledge Award” training strategy had a novelty character and was applied in the CPH collaborative in the year 2005. Its objective was to facilitate the study of the Guide to Approaching the Most Common Infectious Diseases of Childhood and Malnutrition as well as applying such guide in the workplace.

10 hospitals were invited. After analyzing and clearly understanding the training strategy they organized groups to study and apply the Guide. This included all staff that in one way or another had to use it in their work post. For example, at the Maternal Hospital “Mauricio Abdalah” in Chinandega and in the Hospital “Nuevo Amanecer” in Puerto Cabezas, the topics were distributed among doctors and nurses to be presented during the weekly training sessions established by the hospital.”<sup>2</sup>

The “Knowledge Award” methodology was used in 5 SILAIS in order for health staff from health units from both care levels to gain ownership of the FP Norm to support comprehensiveness of care promoted by the community and family health model (MOSAFC). In health units with limitations in staff or time (Managua hospitals and PMCs), this methodology was a successful alternative to promote the use of medical eligibility criteria to prescribe CM included in the Norm.

### Teaching Package

The Teaching Package is a tool to develop competencies among staff from health services providing institutions and among students from health human resources training institutions. It was designed with a CQI approach and is comprised by methodological designs and teaching material based on MOH norms and protocols to study prioritized topics on maternal and child health, family planning and HIV/AIDS in health units and health human resources training institutions.

The Teaching Package Objectives are:

- To contribute to competencies development among health units staff to provide human and quality care to the Nicaraguan population according to MOH norms and protocols.
- To strengthen the institutional and sustainable character of CQI in health care provided in units.
- To promote changes in teachers planning regarding methodologies in order to reach significant learning for competencies development.
- To contribute to competencies development during health human resources training at training institutions.

The relevant characteristics of the Teaching Package are the following:

- The methodological designs contents is a selection of topics prioritized based on the main and most frequent difficulties faced by health staff regarding competencies they must use during service provision.
- The stated competencies are the ones intended to be strengthened with the study of the methodological designs thematic.
- Methodological indications were carefully selected in order to assure achievement of established learning objectives.
- The information contained in the technical notes is based on MOH norms and protocols.
- It contains the required teaching material to implement methodological designs.

### Management Package

The Management Package for Quality Surveillance is a set of tools to strengthen the level of institutionalization and sustainability of CQI in MCH, HIV/Aids and FP services management in the different MOH instances according to its established quality standards.

The Management Package objectives are:

- To strengthen management competencies to analyze information on quality surveillance and for decision making in MCH, HIV/Aids and FP services in the different MOH instances according to its established quality standards.
- To contribute with management to develop a culture of quality in MOH instances involved in quality surveillance in MCH, HIV/Aids and FP health services.
- To contribute with management to promote the practice of values that favor implementation of CQI in MCH, HIV/Aids and FP services.
- To contribute to standardization of quality management in new staff in MOH instances in MCH, HIV/Aids and FP services.

### **3. Post collaborative period to strengthen CQI (2009–2010)**

It is important to note that CQI promoted by these USAID projects adjusted to the national context regarding policies, objectives, goals, and priorities in MCH, HIV/Aids and FP determined by MOH as governing institution of health in Nicaragua, as well as international country commitments. The relation with governmental institutions from other countries was also promoted.

The path towards sustainability of improvement implemented in the quality of care and institutionalization of CQI processes at MOH and other institutions, even if at different progress rates, allowed for this acquired experience to contribute significantly to standardizing processes in MCH, HIV/AIDS and FP care.

The CQI learning collaborative methodology acquired particular characteristics when implemented at MOH. The following studies conducted on MOH CQI experiences: demonstrational phase of collaboratives (2003), the expansion phase of collaboratives (2004-2007), the sustainability of improvements in MCH and institutionalization of CQI by 2010, show that with different levels of development, the following situation was reached at health units:<sup>2</sup>

- An institutional regulatory and national legal framework is available
- The quality of care processes is measured
- Improvement is implemented to care processes
- There is a direct connection between systematic staff training and the CQI dynamics
- There are CQI leaders with great experience and there are other human resources with potential leadership within health units
- Chiefs authorize or allow to conduct improvement and become involved in CQI
- The SILAIS headquarters technical team is able to promote CQI

#### **4. Transfer period to MOH, PMCs and Universities for improvement sustainability (2011–2013)**

The purpose of this transfer process was to contribute to the sustainability of USAID cooperation activities through its HCI Project in the field of health, by providing content and experiences achieved to the medicine and nursing curriculums at universities. This was completed through two ways: one through training university teachers and another by including content and methodology in the curricula. This made it possible that medicine and nursing students enter the health system prepared to provide health care required by the Nicaraguan population.

## II. Technical assistance in maternal-child health

USAID’s maternal-health strategy was based on an approach of integrated programs to assist women and children in the pre-pregnancy cycle, pregnancy, delivery and early childhood. Technical areas included delivery preparation, safe delivery, prevention of postpartum hemorrhage, treatment of complications, postpartum care and newborn care, family planning and maternal health of adolescents.

One of the key principles of the maternal health approach is that women should be able to decide about their pregnancies and childbirth. To support this, the programs promote access to information on reproductive health, women's participation in planning their motherhood, addressing the determinants of maternal death and the empowerment of women with a gender perspective, including participation of men as husbands, decision makers, leaders, etc.

USAID's strategy is based on promoting the use of child health services and nutrition, focusing on developing and using low-cost interventions to prevent and treat the primary causes of illness and death in children, with emphasis on neonatal health (promotion of exclusive and complementary breastfeeding, recognition of danger signs, pneumonia and diarrhea community case management, assessment of the newborn during the first 3 days of life). There were also new and improved interventions such as survival of low birth weight newborns through Kangaroo Mother Care and other strategies such as Helping Babies Breathe (HBB), diagnosis and treatment, including prevention of hospital infections and the use of new drug application technologies.

The reduction of external cooperation resources, paired with the significant improvement in health indicators, led to the graduation process in MCH, which had three components: health system strengthening (human resources, logistics, quality improvement) mobilization and community practices and research, and use of evidence in health management. The interventions have been made in strategic areas such as health services, resource training schools and community.<sup>1</sup>

The QAP and HCI Projects worked mainly in quality of health services and research. Technical assistance in maternal and child health remained over the fourteen years of implementation, with the greatest number of interventions. In Table 3, shows trained personnel during the last six years.

**Table 3: Coverage through training workshops in maternal-child health**

Intervention	Fiscal Year USAID/HCI						Total
	2007	2008	2009	2010	2011	2012	
Maternal and Child Health and Hospital Infections	952	1400	702	1,274	1,322	688	6,338
Source: USAID/HCI Records							

## **I. Technical assistance objectives**

### **General Objective**

To support implementation of a program to improve the quality of care for pregnant women, newborns and children that is based on the promotion of a culture of quality, professional competence and users' satisfaction.

### **Specific Objectives**

- a) To support continuous quality improvement in obstetric and neonatal care (EONC) to reduce maternal and newborn deaths due to obstetric complications with emphasis on postpartum hemorrhage (PPH) and preeclampsia-eclampsia and neonatal complications with emphasis on severe perinatal asphyxia, neonatal sepsis, SDR-hyaline membrane.
- b) To strengthen compliance with the health governing function of MOH, through the active integration of PMCs in surveillance and improvement actions for the quality of maternal and women health care.
- c) To support improvement of the quality of care for severely ill children under 5 years old, with emphasis on Pneumonia and Diarrhea in hospitals with the highest fatality rates for these causes.
- d) To promote implementation of the cultural adaptation of delivery to increase demand for institutional deliveries and contribute to reducing maternal and neonatal deaths, due to obstetric complications such as: birth asphyxia, sepsis, pneumonia and diarrhea.
- e) To promote monitoring, prevention and control of hospital infections through the proper use of antiseptics, disinfectants and hand hygiene to reduce mechanical ventilator and venous catheter associated infections.
- f) To support implementation of diagnosis and management of sepsis in newborns (NS) based on a laboratory tests package.
- g) To support the reactivation of the Mother and Child Friendly Hospitals Initiative (IHANM).
- h) To promote humanization of neonatal care for premature and low birth weight newborns through implementing Kangaroo Mother Care at "Bertha Calderon" Hospital.
- i) To support implementation of the Helping Babies Breathe (HBB) Strategy.
- j) To document and share best practices and successful experiences.

According to the stated objectives, technical assistance targeted MOH, other health services providing institutions and staff training centers.

## **2. Maternal and Child health interventions**

The first steps with QAP/USAID were designed to ensure that health staff would have national obstetric complications care protocols. Since there was no national standard and the manual used as bibliographic reference was the Integrated Management of Pregnancy & Childbirth - IMPAC, published in 2000. While editing the national standard was completed, this was the document used for standardization of health staff on obstetric complications management.

The first package of standards and indicators was implemented to monitor the quality of care for obstetric complications and to ensure diagnostic and therapeutic resources. All these actions were implemented jointly with PAHO, UNFPA and UNICEF.

In 2007 when USAID/HCI technical assistance began, there was a maternal mortality ratio recorded in the country of 73.3 per 100,000 live births, according to data taken from the report prepared by PAHO in conjunction with the Ministry of Health, entitled: "Trends in maternal mortality ratio recorded in Nicaragua, according to the quinquennium" published in 2010. Also, according to data taken from the MOH Maternal Mortality Surveillance System (SVMM), the maternal mortality ratio in 2001 was 107. It is for this reason that the actions undertaken by the USAID/HCI Project, were designed to contribute to the scope of MDG 5, which aims to reduce the maternal mortality ratio by three quarters by 2015, with reference to 1990 data.

The above report (PAHO/MOH - 2010), also reported that the maternal mortality ratio in 2009 was 60.5 per 100,000 NVR. The areas with the highest mortality were the Caribbean, Matagalpa, Jinotega and Managua. The main causes of death were postpartum hemorrhage and gestational hypertension syndrome. Hence the technical assistance emphasis was on the prevention, diagnosis and treatment of both diseases. The Ministry of Health reported a ratio of 61.9 per 100,000 NVR in 2011.

In child health, QAP technical assistance began with the completion of a baseline in 6 hospitals (Chinandega, Estelí, Madriz, Jinotega, Matagalpa and Bluefields) to identify newborn and children under 5 years care processes. From these results, the quality of care improvement processes focused towards diarrhea and pneumonia as well as in the process of prioritization of care in emergency services. This initial intervention was implemented for two years. Improvement was achieved in these processes, in terms of the classification and treatment of both conditions and rapid classification of patients in emergency rooms, triage.

Since 2009, technical assistance integrated care as mother-child and the emphasis was directed towards prevention, diagnosis and treatment of obstetric and neonatal complications. Territories were prioritized along with MOH based on the maternal and neonatal mortality data recorded and reported by SILAIS.

Then, using the different technical assistance strategies implemented in health units, improvement teams identified gaps in the quality of care and implemented changes that would allow the elimination or reduction of these.

Below is a matrix listing the gaps, changes and improvements, according to interventions developed with technical assistance in maternal and child health in the Ministry of Health in recent years in the 2009-July 2012 period.

**Table 4: Gaps found in maternal health and changes implemented to breach them through the EONC collaborative (2009-2010)**

<b>Gaps or improvement opportunities</b>	<b>Implemented Changes</b>	<b>Improvement achieved</b>
<p>Only one of the 4 AMTSL steps was applied: I0 Oxytocin IU application.</p>	<ul style="list-style-type: none"> <li>• Including 3 new elements to the I0 Oxytocin IU application I.M. immediately after birth, as soon as possible in the first minute after discarding the presence of another baby.</li> <li>• AMTSL compliance for vaginal and C-section deliveries.</li> <li>• PPH cases classification.</li> <li>• Early identification of PPH risk factors.</li> <li>• Made the decision that women in immediate post-partum must remain in the same labor and delivery area for immediate post-partum surveillance during the first 2 hours and until then, transferred to maternity hospitalization for vaginal or C-section deliveries.</li> <li>• Greater and better post-partum surveillance in delivery area or joint room.</li> <li>• Recording compliance with the 4 AMTSL steps in the back of the partogram sheet (CLAP-PAHO/WHO partogram).</li> <li>• Recording surveillance of immediate post-partum in the post-partum segment of the perinatal clinical history.</li> </ul>	<ul style="list-style-type: none"> <li>• 56.7% decrease in PPH, from 536 in year 2009 to 232 in year 2010.</li> <li>• Immediate post-partum surveillance compliance during the first 2 hours both for vaginal and C-section deliveries.</li> <li>• These 2 processes (AMTSL and immediate post-partum surveillance) reached 90% - 95% compliance.</li> </ul>
<ul style="list-style-type: none"> <li>• Urine samples were still being processed for protein search in clinical lab, thus delaying GHS diagnosis.</li> </ul>	<ul style="list-style-type: none"> <li>• Providing health units with urinalysis reactive ribbons, even to the farthest away health units.</li> <li>• Health staff used urinalysis reactive ribbons for GHS diagnosis.</li> <li>• Active search of risk factors for preeclampsia-eclampsia and starting to use aspirin and calcium in women with high risk of preeclampsia-eclampsia to</li> </ul>	<ul style="list-style-type: none"> <li>• Regarding GHS in the EONC collaborative, there was a 29.4% decrease in the fatality rate, from 5.1/1,000 discharges in the year 2009 to 3.6/1,000 discharges in the year 2010.</li> <li>• Improving diagnostic bases to classify and diagnose GHS (based on hypertension and proteinuria in reactive ribbon) to backup diagnosis</li> </ul>

<b>Gaps or improvement opportunities</b>	<b>Implemented Changes</b>	<b>Improvement achieved</b>
	reduce the possibility of new cases. <ul style="list-style-type: none"> <li>• Providing all drugs for treatment of patients with preeclampsia-eclampsia in all health units in the country.</li> </ul>	and act immediately and according to the established diagnosis.

**Table 5: Gaps found in neonatal health and changes implemented to breach them through the EONC collaborative (2009-2010)**

<b>Gaps or improvement opportunities</b>	<b>Implemented Changes</b>	<b>Improvement achieved</b>
Health staff was not clear on the real risk factors for asphyxia and therefore did not conduct proper search of such factors.  Weakness in staff competencies for correct care of newborn with birth asphyxia.	<ul style="list-style-type: none"> <li>• Placing posters in emergency, labor and delivery areas with risk factors for asphyxia and a sheet in files for search and recording of such risk factors.</li> <li>• Organizing newborn care for these to receive care by staff with highest competencies.</li> <li>• Staff competencies development for rapid assessment of NB that needed help to start breathing.</li> <li>• Organizing systematic analysis sessions of asphyxia cases with all staff involving statistics and primary care health units.</li> <li>• Organizing high obstetric risk pregnant patients' care to receive care by obstetricians and pediatricians together.</li> </ul>	<ul style="list-style-type: none"> <li>• 44% reduction in the percentage of asphyxia at birth in the 2009-2011 period (0.68 a 0.38).</li> <li>• Integration of the obstetrics service in birth asphyxia case analysis relating them with labor surveillance.</li> <li>• 284 nursing and medicine resources trained on HBB.</li> </ul>

When technical assistance to MOH started on the use of antiseptic and disinfectant solutions, a baseline was completed. This showed inappropriate use of solutions such as: alcohol, chlorine, chlorhexidine, glutaraldehyde and benzalkonium chloride. Table 6 below lists gaps, improvements and changes implemented.

**Table 6: Gaps found in relation to the use of antiseptic and disinfectant solutions and implemented changes (2007-sept. 2012)**

<b>Gaps or improvement opportunities</b>	<b>Implemented Changes</b>	<b>Improvement achieved</b>
Hand hygiene was not conducted with gel alcohol.  Gel alcohol was not part of the basic list.	<ul style="list-style-type: none"> <li>• Health staff started to use gel alcohol for hand hygiene.</li> <li>• Monitoring and surveillance of the use of gel alcohol in each hospitalization area.</li> </ul>	<ul style="list-style-type: none"> <li>• Including gel alcohol to the basic list of MOH medical supplies.</li> <li>• Nationwide provision to MOH units of gel alcohol.</li> <li>• Design, distribution and</li> </ul>

Gaps or improvement opportunities	Implemented Changes	Improvement achieved
<p>Chlorine and alcohol incorrectly stored and in inadequate concentrations.</p> <p>Temperature and time of use for autoclave programming for sterilization were under established parameters.</p> <p>Glutaraldehyde used to sanitize walls and floors.</p>	<ul style="list-style-type: none"> <li>• Substituting commercial alcohol in inadequate concentrations for alcohol at 99%.</li> <li>• Substituting commercial chlorine for granulated chlorine to avoid evaporation and concentration change of liquid chlorine.</li> <li>• Programming temperature and time of use in existing autoclaves in working order in health units.</li> <li>• Elimination of chlorine use in metallic surfaces.</li> <li>• Use of glutaraldehyde only in precise indications according to the guide to the correct use of antiseptics.</li> </ul>	<p>nationwide sharing of the guide for correct use of antiseptic and disinfectant solutions.</p> <ul style="list-style-type: none"> <li>• Knowledge and skills development among staff on the use of antiseptic and disinfectant solutions, storage, dilution and distribution.</li> </ul>

Regarding technical assistance on neonatal sepsis, which began in 2009, 8 country hospitals were selected with the highest number of hospital discharges for this cause. Table 7 lists the detail of implemented changes.

**Table 7: Gaps found regarding neonatal sepsis and implemented changes (2009-sept. 2012)**

Gaps or improvement opportunities	Implemented Changes	Improvement achieved
<p>Clinical and laboratory criteria for sepsis diagnosis were not clear among health staff.</p>	<ul style="list-style-type: none"> <li>• Organizing the NB service (neonatology) for sepsis surveillance, including emergency and labor and delivery.</li> <li>• Introducing a diagnostic algorithm to apply clinical and laboratory criteria for sepsis.</li> <li>• Introducing a database to facilitate recording and analysis of sepsis cases.</li> <li>• Implementing a laboratory tests package including blood culture, banded neutrophils index, leucocytes count, platelets count and reactive C protein.</li> <li>• Implementing a sheet in files to search and record risk factors.</li> <li>• Involving neonatology, obstetrics, clinical lab, and statistics chiefs in sepsis case analysis.</li> </ul>	<ul style="list-style-type: none"> <li>• Decreased number of sepsis unjustified cases admittance.</li> <li>• Decrease in the rate of neonatal sepsis incidence by 88% of 59 per 1000 born alive in the year 2009 to 7/1000 born alive in September 2011.</li> </ul>

RDS-HM is another cause of neonatal morbidity and mortality, mainly related to maternal causes, such as preterm labor and urinary infections. Driven changes are shown in Table 8 below.

**Table 8: Gaps found regarding RDS-HM and implemented changes (2009-2010)**

Gaps or improvement opportunities	Implemented Changes	Improvement achieved
The antenatal corticoid scheme for RDS prevention was not administered to pregnant women with premature birth risk or other condition.	<ul style="list-style-type: none"> <li>• Implementing a sheet in clinical files to search and record maternal risk factors for preterm births.</li> <li>• Applying a unique antenatal corticoid scheme to all pregnant patients with premature birth risk or other condition.</li> <li>• Including dexamethasone in the basic medication list for health posts and availability for application in all health units.</li> <li>• Continuity in application of the antenatal corticoid scheme (first dose in primary care and subsequent doses in secondary care).</li> <li>• Crossed verification of antenatal corticoid scheme administration in the neonatology area.</li> </ul>	<ul style="list-style-type: none"> <li>• Reliable data for analysis of antenatal corticoid scheme compliance and decision making.</li> <li>• 90% of pregnant women referred to hospitals with PBR or other conditions receive first dosage of antenatal corticoid.</li> <li>• 7 out of 9 neonatology rooms systematically record antenatal corticoid scheme compliance data in premature NB.</li> </ul>

The strategy for Humanization and cultural adaptation of delivery (HACAP), which began in late 2006 in the Ministry of Health in collaboration with QAP/USAID and UNICEF, had coverage of 22 municipal health units belonging to 9 SILAIS. The first 11 units became the pilot sites to build a methodology adjusted to the local and country cultural situation, which allowed Nicaragua to join the strategy implementing group in Latin America.

To meet the users demand, quality improvement teams from participating units made changes and created information materials to share these changes with population. With the experience gained in monitoring implementation of the strategy and successful outcomes in initial municipalities, USAID/HCI expanded support to other health units in 2008, up to the coverage cited.

Also, by the end of 2008 the expansion of the hospital experience was produced through direct technical assistance from USAID/HCI, using among others, the modality of visits to primary care units that were successfully applying the strategy.

Data from the DHS 2006/07 indicate that at the country level, 74% of births were institutional, coverage increased by eight percentage points compared to 2001 when there was 66% coverage of institutional delivery. However, the health units where this strategy was implemented achieved percentages of institutional delivery coverage greater than 90% as in the case of the Health Center of Nueva Guinea, this chart is presented in the chapter on key results achieved by the project. Global achieved percentages are detailed in table 9 below.

**Table 9: Gaps found regarding the HACAP strategy and implemented changes (2006-2011)**

Gaps or improvement opportunities	Implemented Changes	Improvement achieved
<p>Institutional deliveries did not respond to the cultural expectations of the population.</p> <p>48% of births were home births.</p>	<ul style="list-style-type: none"> <li>• Adaptation of delivery care according to diagnostic of cultural expectations from users and traditional midwives.</li> <li>• Including community actors and users in an intercultural dialogue to negotiate the changes in delivery care.</li> <li>• Introducing 4 changes in delivery care:                             <ul style="list-style-type: none"> <li>– Respect for the desired position at the time of delivery</li> <li>– Respect for the type of food they use to ingest during post-partum</li> <li>– Allowing another person to accompany women during delivery</li> <li>– Respectful treatment from health staff</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Contribution to institutional delivery increase from 52% to 75% and therefore POEC.</li> <li>• HACAP institutionalization by MOH nationwide.</li> <li>• MOH developed and shared a manual to implement HACAP.</li> <li>• User is given the opportunity to be accompanied during delivery and to receive food according to her culture.</li> </ul>

Kangaroo Mother Care began to be implemented in Nicaragua in mid-2010, with technical assistance from USAID/HCI, at "Bertha Calderón Roque" hospital in order to facilitate a comprehensive approach to premature infants, as well as reduce their complications and death.

Support was provided with training to the implementing team and to the rest of staff working in the neonatology department. There was also a contribution to the neonatology service organization to adapt inpatient and outpatient environments. The protocol for care of kangaroo newborn was designed, shared and implemented. This included tracking cards, weight gain curves, curves of growth, head circumference, and educational handbook for parents. Materials and equipment necessary for the operation of the Kangaroo service were also provided.

**Table 10: Gaps found regarding Kangaroo Mother Care and implemented changes (2010-sept. 2012)**

<b>Gaps or improvement opportunities</b>	<b>Implemented Changes</b>	<b>Improvement achieved</b>
100% of premature NB were cared for in incubators.	<ul style="list-style-type: none"> <li>• Incubators were withdrawn</li> <li>• Comfortable chairs for parents were placed.</li> </ul>	<ul style="list-style-type: none"> <li>• NB body temperature provided by parents through the Kangaroo position.</li> </ul>
100% of premature NB fed with milk substitutes.	<ul style="list-style-type: none"> <li>• NB started being fed with exclusive breastfeeding.</li> </ul>	<ul style="list-style-type: none"> <li>• Greater weight gain.</li> <li>• Less expenses in milk substitutes purchase</li> </ul>
Mothers only visited their babies 3 times per day.  Little access for fathers to visit their babies.	<ul style="list-style-type: none"> <li>• Mothers remained 24 hours per day.</li> <li>• Father’s access was allowed to assist in the baby’s care.</li> </ul>	<ul style="list-style-type: none"> <li>• NB humanized care.</li> </ul>
Babies sent to ophthalmic evaluation outside of the hospital.	<ul style="list-style-type: none"> <li>• Coordinated a weekly ophthalmologist visit to the hospital to evaluate NB.</li> </ul>	<ul style="list-style-type: none"> <li>• Lower risk for NB with inadequate transportation to the ophthalmologic center.</li> </ul>
Prolonged hospital stay.	<ul style="list-style-type: none"> <li>• Established discharge criteria.</li> <li>• Discharge evaluation by doctor, nurse and psychologist.</li> </ul>	<ul style="list-style-type: none"> <li>• Earlier discharge of premature NB.</li> </ul>

### 3. Key institutionalized results

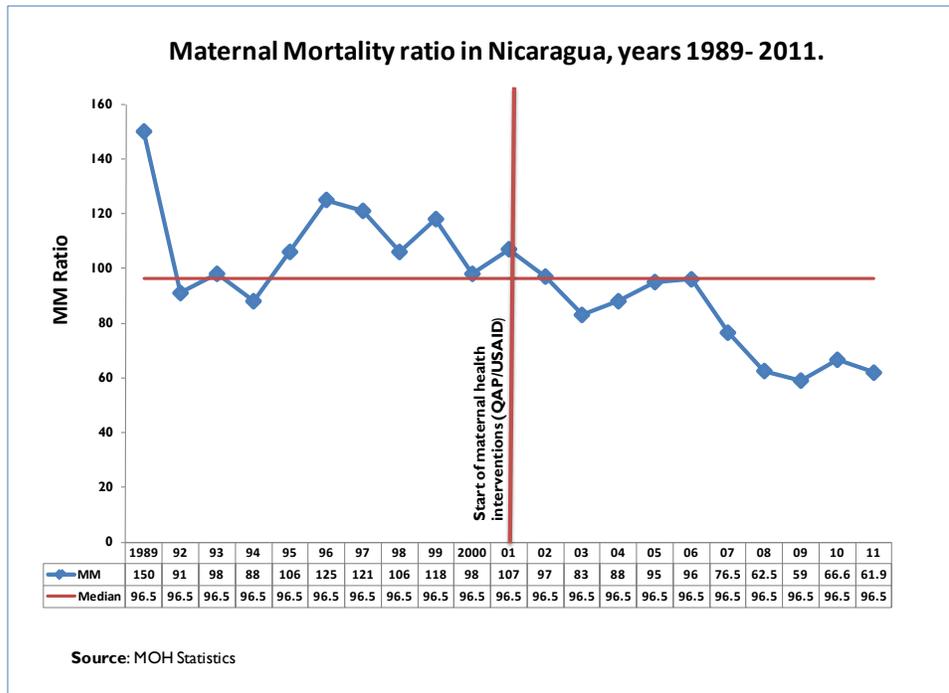
#### *a) Reduction of the number of obstetric maternal deaths and the maternal mortality ratio*

There has been a steady decline in the maternal mortality ratio in the last eleven years. This decline has been more significant in the last five years. Since the year 2000, with the start of USAID’s technical assistance, through the Quality Assurance Project in partnership with other projects and cooperation agencies, MOH maternal care health staff has been in a process of constant updating on norms and relevant clinical guidelines, as well as the use of quality improvement tools. This has allowed continuous monitoring of protocols compliance and implementation of necessary changes or improvements to achieve continuous quality improvement.<sup>2</sup>

The CQI activities of the USAID/HCI Project have contributed to progress towards MDG 5 attainment. In 1990, the Maternal Mortality Ratio (MMR) was 160/100, 000 NVR. According to MDG 5, Nicaragua must reduce MM by  $\frac{3}{4}$  by 2015 (43 mm/100, 000 NVR), reaching a MMR of 61.9/100, 000 NVR by 2011.

In the chart I, can be seen since the start of the QAP assistance in the 2000 year until 2011 year, there was a reduction in maternal mortality ratio of 37%.

**Chart I: Maternal Mortality Ratio in Nicaragua (1989-2011)**



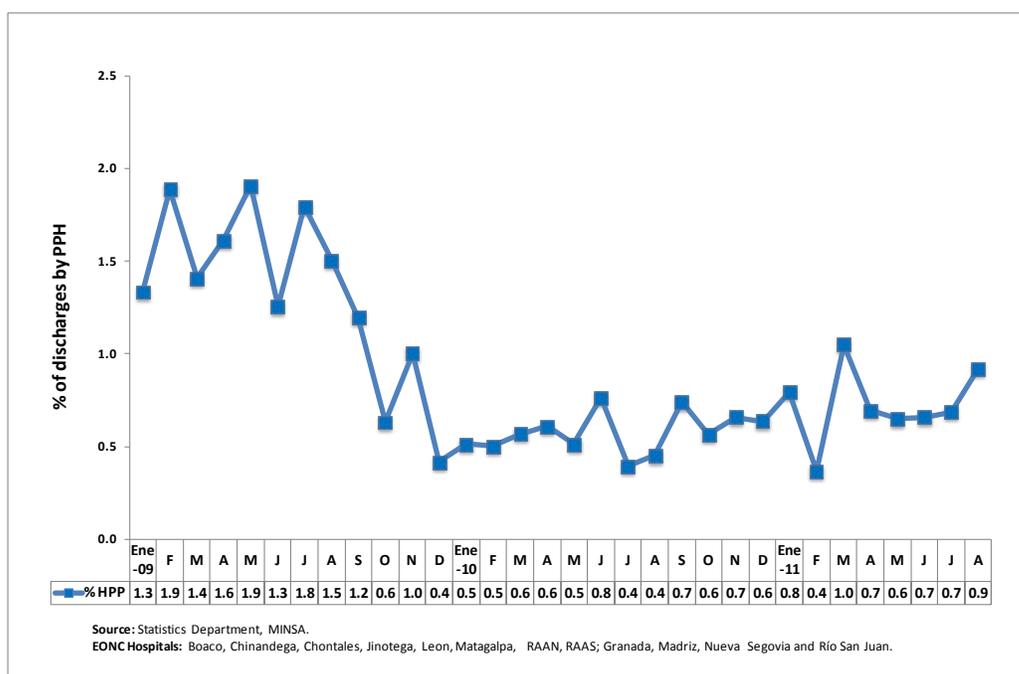
***b) Decrease in the percentage of PPH discharges and fatality***

As a result of the support provided to MOH during 2009-2010 through the EONC Collaborative in 9 hospitals, 29 health centers in 9 SILAIS (Chinandega, Leon, Matagalpa, Jinotega, Chontales, Boaco, Nueva Segovia, RAAS and RAAN), with 90,041 expected pregnancies, PPH decreased by 56.7%, from 536 cases in 2009 to 232 cases in 2010.

The PPH fatality rate decreased by 46%, from 1.3 MM/1,000 PPH discharges in 2009 to 0.7 MM/ 1,000 PPH discharges in 2010.

In 2009-2010, the GHS fatality rate decreased by 29.4%, from 5.1 MM/1,000 discharges per year in 2009 to 3.6 MM/1,000 discharges per year in 2010. See chart 2 and table 11 below.

**Chart 2: Implementation of the 4 AMTSL steps has allowed Post-Partum Hemorrhage cases reduction in 12 Nicaragua hospitals. January 2009-August 2011**



**Table II: Number of hospital discharges, deceased and fatality by post-partum hemorrhage, gestational hypertension and post-partum sepsis. Nicaragua: data from hospitals in Jinotega, Matagalpa, Masaya and Juigalpa. Fiscal years 2010-2012\***

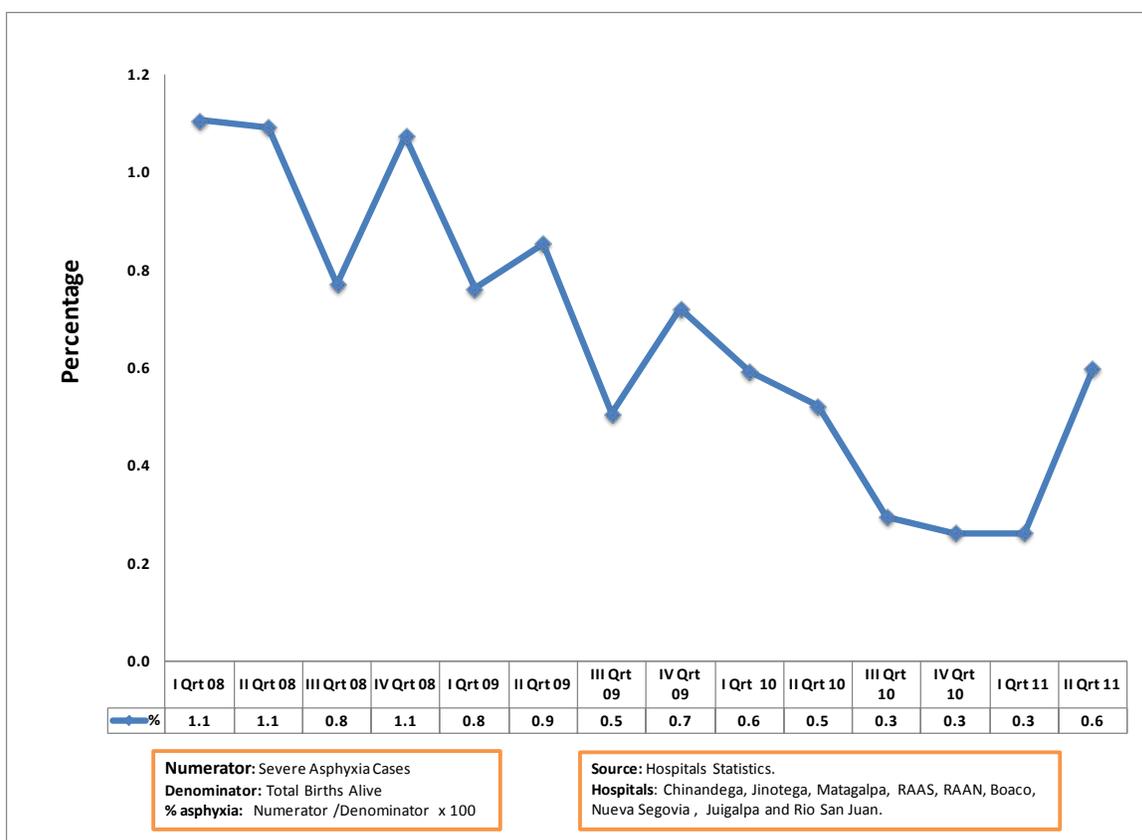
	Hospital Discharges			Deceased Discharges			Fatality		
	2010	2011	2012	2010	2011	2012	2010	2011	2012
<b>PPH</b>	67	141	132	5	2	0	74.6	14.2	0.0
<b>GH</b>	557	588	725	0	2	0	0.0	3.4	0.0
<b>Sepsis</b>	61	42	35	0	0	0.0	0.0	0.0	0.0
<b>Global</b>	<b>685</b>	<b>771</b>	<b>892</b>	<b>5</b>	<b>4</b>	<b>0</b>	<b>7.3</b>	<b>5.2</b>	<b>0.0</b>

\* Each fiscal year begins in October and ends in September. FY 2012 on this table includes from October 2011 to July 2012.

**c) Neonatal asphyxia decrease**

In the year 2008, in 9 hospitals of country, the severe birth asphyxia percentage was 1.1%, by the end of the III quarter of the year 2011 it was 0.6%; for 45% decrease in the asphyxia percentage. (See chart 3)

**Chart 3: 45% decrease in the percentage of severe birth asphyxia in 9 country hospitals. Data from January 2008 to June 2011**

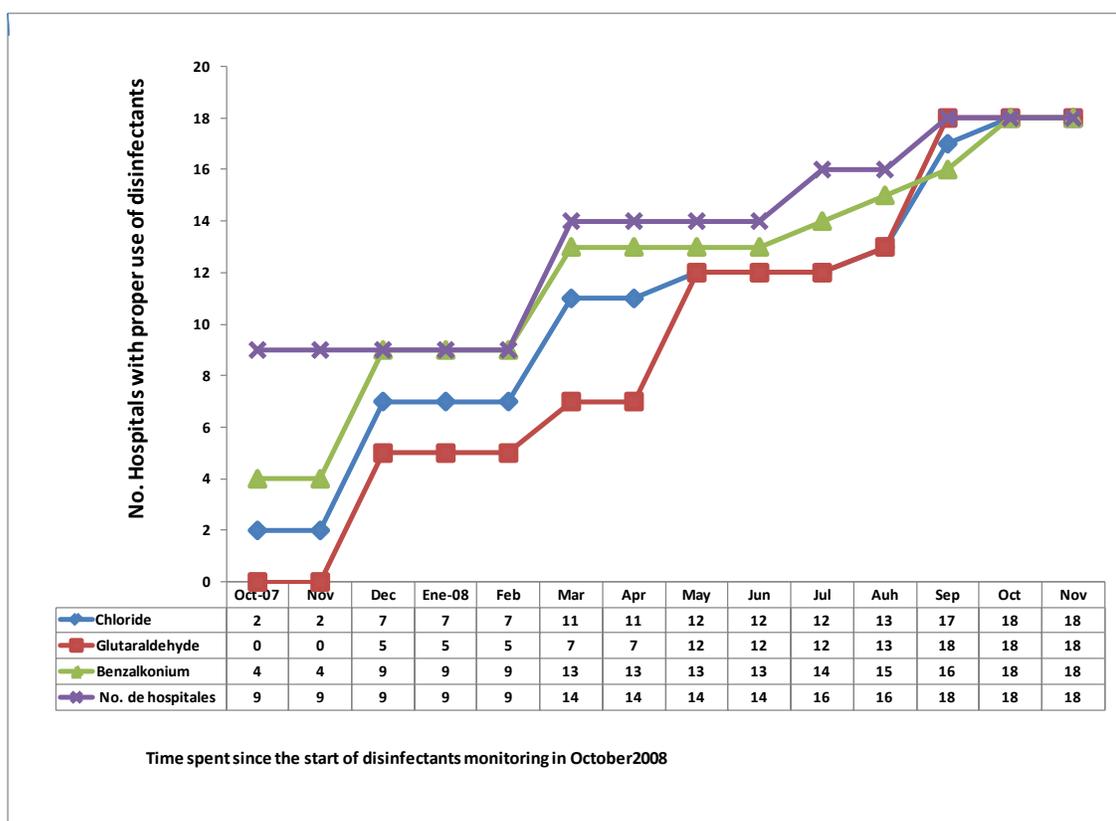


**d) Institutionalization of the correct use of antiseptics, disinfectants and hand hygiene**

When technical assistance to MOH on this topic started, a baseline was built. This baseline showed inappropriate use of solutions such as alcohol, chlorine, chlorhexidine, glutaraldehyde and benzalkonium chloride. Therefore, in coordination with UNICEF, the work started with the training process targeting health staff on the proper use of antiseptics, disinfectants and hand hygiene, including storage and preparation for required concentrations.

As a result of this assistance the first national standard on the use of these solutions was designed, printed and distributed, and incorporation of gel alcohol in the basic MOH list was achieved. See Chart 4.

**Chart 4: Baseline built in 50 health centers. Correct use of antiseptics, disinfectants and hand hygiene institutionalized in 31 MOH health centers.**

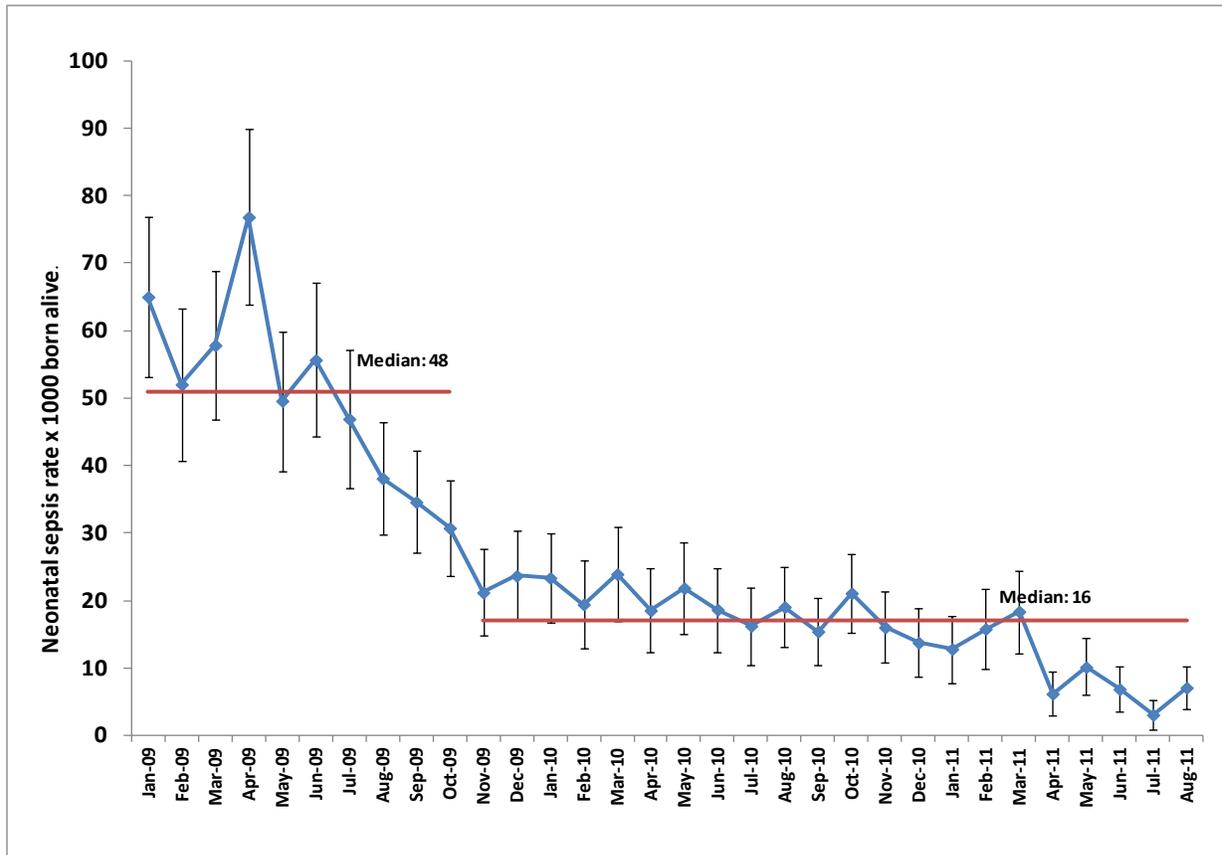


**e) Surveillance, prevention and control of hospital acquired infections in NICU and neonatal areas**

Diagnostic test for neonatal sepsis (NS), based on the correct choice of maternal risk factors for NS and a laboratory tests package is being implemented in 8 hospitals: Jinotega, Chinandega, Ocotal, Estelí, Juigalpa, Masaya, Boaco, and HBC in Managua. In 7 of these (HBC not included) the median of the incidence of newborns with neonatal sepsis was 48 per 1,000 live births. However, after application of this diagnostic test procedure, it decreased to 16 per 1,000 live births ( $p < 0.001$ ).

The sepsis death rate before the intervention was 1.55 per 1,000 live births, which dropped to 0.64 per 1,000 live births during the period of intervention. See chart 5 on neonatal sepsis which reported data from 7 hospitals (not including HBC).

**Chart 5: Neonatal sepsis diagnosis behavior based on the changes package**



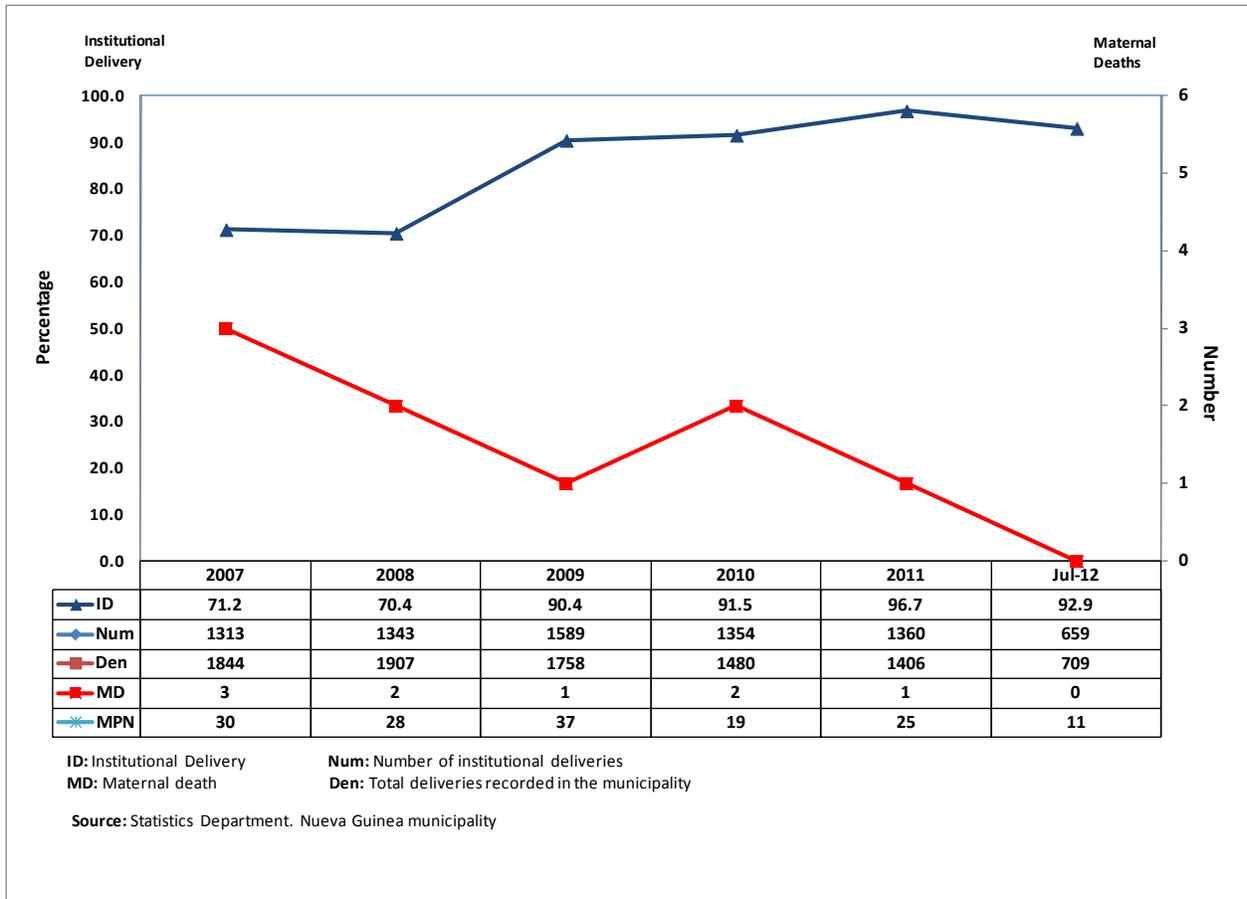
**f) HACAP Strategy Institutionalization**

After technical assistance from USAID projects (QAP/HCI) and UNICEF, launched in 2006 to promote and institutionalize HACAP, MOH issued Norm 042 in May 2010: "Humanization of Institutional Delivery Norm". This norm standardizes compliance with this strategy in public and private establishments providing delivery care.

The strategy has contributed to institutional delivery increase and thus to the increase of the post obstetric event contraception service, to reduce maternal and neonatal institutional deaths.

Chart 6 below shows the situation achieved in the Municipality of Nueva Guinea in the Chontales Department, one of the most successful in HACAP implementation. Institutional delivery increased 21.7 percentage points during the 2007-2012 period. The reduction to 0 maternal deaths in this period is equally significant.

**Chart 6: HACAP in Nueva Guinea increased institutional delivery and reduced maternal and perinatal deaths**



**g) Kangaroo Mother Care Institutionalization**

Kangaroo Mother Care implementation has contributed to reducing preterm infants’ hospital stay (4.64 days per infant), to increasing exclusive breastfeeding (from 0 to 71%), adequate weight gain (18 and 20 g per kg of body weight), to a comprehensive approach (psychology, ophthalmology, audiology), to follow up to one year of age and decreasing hospitalization costs (no incubator use, less antibiotic use and less formula purchase).

### **III. Technical assistance for quality assurance institutionalization in other health institutions (2002-2009)**

Institutionalization of quality assurance is a topic of technical assistance for these projects and it was also developed in other health institutions such as Bautista Hospital, PROFAMILIA, MIFAMILIA, Pro Mujer and AMOCSA. For these institutions the core topic of technical assistance was quality assurance institutionalization. At MOH it was a different scenario because it was addressed as a crosscutting topic of CQI for maternal and child, FP and HIV/AIDS healthcare.

#### **I. Technical assistance objective**

To promote the quality assurance institutionalization process to obtain higher quality and contextualization of services in national health priorities at Bautista Hospital, PROFAMILIA, MIFAMILIA, Pro Mujer and AMOCSA.

#### **2. Interventions**

For interventions developed in the institutions mentioned in this subsection, USAID projects (QAP/HCI) applied the same methodology used in MOH coaching. Below is a summary of the main gaps found and changes implemented at PROFAMILIA, MIFAMILIA and Pro Mujer.

**Table 12: Gaps found at PROFAMILIA and changes implemented to breach them (2002-2005)**

<b>Gaps or improvement opportunities</b>	<b>Implemented changes</b>	<b>Improvement achieved</b>
Quality monitoring and CQI were not part of institution activities.	<ul style="list-style-type: none"> <li>• Improving how files were filled out.</li> <li>• Improvement in files management and filing.</li> <li>• Medical procedures and norms compliance.</li> <li>• Quality control at the laboratory.</li> <li>• Implementing “Informed waiting”.</li> <li>• Creating a mural to guide and provide information on the Quality Assurance Program.</li> <li>• Partnerships with other clinics to benefit users.</li> <li>• Implementing the problem notebook, as a way to keep track,</li> </ul>	<ul style="list-style-type: none"> <li>• Reducing waiting time to see the doctor</li> <li>• Increasing the number of hours and days to offer specialized services (ultrasound, pediatrics, etc.)</li> <li>• Decreasing the time to deliver test results.</li> <li>• Cleanliness, order and ornament at clinics.</li> <li>• Improving personal relations to keep a cordial environment, motivation and warmth in each clinic.</li> <li>• Good relationship to users when providing services.</li> </ul>

Gaps or improvement opportunities	Implemented changes	Improvement achieved
	<p>present and analyze problems in meetings.</p> <ul style="list-style-type: none"> <li>• Timely supply of health supplies to guarantee users find what they must purchase.</li> <li>• Storage organization.</li> <li>• Systematic repair and maintenance of equipment.</li> <li>• Installing screens and curtains for privacy during consultations.</li> <li>• Redistributing rooms for greater comfort.</li> <li>• Placing pertinent signs.</li> </ul>	<ul style="list-style-type: none"> <li>• Healthcare based on current medical evidence and best practices.</li> <li>• Motivating staff to reach quality as established by the institution.</li> </ul>
<p>Source: Quality Assurance Institutionalization at Profamilia. USAID’s technical assistance Report 2001 – 2005 Period. QAP/USAID. Nicaragua; 2005.</p>		

**Table 13: Gaps found at MIFAMILIA and changes implemented to breach them (2004-2006)**

Gaps or improvement opportunities	Implemented changes	Improvement achieved
<p>Quality monitoring and CQI were not part of institution activities.</p>	<ul style="list-style-type: none"> <li>• Building the baseline of quality indicators related to performance and external user satisfaction.</li> <li>• Adaptation and implementation of the external user satisfaction measuring methodology.</li> <li>• Formulating and implementing the service strategy and complaint management for delegations.</li> <li>• Holding encounters to reinforce aspects related to Quality Management.</li> <li>• Designing the quality control and assurance system.</li> <li>• Investing on developing delegation’s staff through workshops on self-esteem improvement, institutional and client appreciation.</li> </ul>	<ul style="list-style-type: none"> <li>• Systematic and participative surveillance at delegations of technical quality in service provision using quality standards and indicators.</li> <li>• Improvement in relationship to external users.</li> <li>• Availability of technical notes to measure user satisfaction, complaint management, service strategy and quality monitoring.</li> </ul>
<p>Source: Quality Assurance Institutionalization at Profamilia. USAID’s technical assistance Report 2001 – 2005 Period. QAP/USAID. Nicaragua; 2005.</p>		

**Table 14: Gaps found at Pro Mujer and changes implemented to breach them (2005-2007)**

Gaps or improvement opportunities	Implemented changes	Improvement achieved
Quality monitoring and CQI were not part of institution activities.	<ul style="list-style-type: none"> <li>• Building quality standards and indicators.</li> <li>• Building a base line to identify gaps.</li> <li>• Consolidating quality teams to maintain promotion and surveillance.</li> <li>• Training and providing perinatal technology for prenatal care.</li> <li>• Standardizing staff on clinical care processes focused on gynecology.</li> <li>• Formulating the service strategy of the organization, with involvement from administrative and health staff.</li> <li>• Organizational climate measuring.</li> <li>• External user satisfaction systematic measuring.</li> </ul>	<ul style="list-style-type: none"> <li>• Ownership of the improvement rapid cycles methodology.</li> <li>• Client involvement in quality management.</li> <li>• A comprehensive Quality Assurance Program in place.</li> <li>• Clients refer good treatment, information and short waiting times.</li> <li>• Quality indicators have reached the established threshold.</li> </ul>
<p>Source: Intermediate qualitative assessment of the annual operational plan for 2005. Report from the first quarter of 2005. QAP/USAID. Nicaragua: August 2005.</p>		

### 3. Key institutionalized results

The most relevant key results common to the institutions mentioned in this subsection are the following:

- Standardized key care processes.
- Formulated and implemented quality assurance programs.
- Implemented quality improvement through rapid cycles both at headquarters and locally.

Pro Mujer, an NGO that provides micro loans to more than 18,000 women and offers healthcare was visited in mid-2008 to determine the level of sustainability for the implementation of quality methodologies and it was satisfactory to know that the quality principles and methodologies are being complied with not only in clinics but that had been applied in the financial management area.

According to the study conducted at AMOCSA (2011) the identified evidences of institutionalization are: "CQI has been established as a permanent work process, clinical care processes are standardized according to the regulations of the country's health system, and as appropriate, in accordance with business indicators, since AMOCSA belongs to the domestic private sector.

*Informe asistencia técnica USAID (QAP/HCI) en salud materna-infantil, planificación familiar y VIH/sida (2000 – 2013)*

CQI has gained strength at AMOCSA because it began in maternal and child care. However it has spread to all 13 areas. The development of clinical training and CQI is one of the major support factors for sustainable quality assurance. It is a system that operates continuously to help close quality gaps, when the solution may be by way of training.

Overall, the results of the study show that AMOCSA has a firm platform to strengthen CQI and sustain quality levels. They also show that the intervention of the USAID Projects (QAP and HCI) has impacted the entire organization: staff with clinical and CQI skills, sustainability of organizational changes and clinical performance indicators.”<sup>7</sup>

## **IV. Technical assistance in family planning (FP)**

USAID and other donors have provided technical and financial support to the MOH family planning (FP) program for 22 years (1990-2012). Support has been through various projects and contraceptive supplies donation in order to achieve the country goals regarding two health indicators: Global fertility rate (GFR) and Contraceptives prevalence rate.

In 2005, USAID began a process of gradual reduction of assistance to FP programs in countries that achieved a high prevalence of contraceptive use and lower global fertility rates. This process sought to focus resources on those countries where the unmet demand for family planning services was higher.

To ensure that investments and achievements of graduating countries are sustainable, USAID designed the graduation strategy to promote the transfer and appropriation of FP program responsibilities to local actors. The strategy was divided into two phases: systems strengthening (2008 - 2009) and sustainability (2010-2012). The components were: contraceptive security, market segmentation, strengthening health systems, improving service quality and coverage, and data for decision making.<sup>1</sup>

QAP/USAID developed POEC technical assistance since 2003, included in EOC of the maternal health component. USAID/HCI began providing FP technical assistance in 2008 with the purpose of supporting the graduation<sup>8</sup> strategy, with a focus on improving service quality and coverage of care.

USAID projects (QAP and HCI) assistance activities that helped promote CQI institutionalization in primary and secondary care units, constituted a prelude to the launch of the lines contained in the USAID Nicaragua FP Graduation Strategy Action Plan.

### **I. Technical assistance objectives**

#### **General objective**

To provide support to the implementation of the USAID Nicaragua FP Graduation Strategy Action Plan by using continuous quality improvement in management and care processes of the family planning program based on the promotion of a culture of quality, professional competence and user satisfaction.

#### **Specific objectives**

- a) To influence in decreasing the unmet FP demand by providing support to the offer of quality services and the availability of contraceptives, in keeping with regulations established at MOH and INSS primary and secondary care units.
- b) To provide support to Sexual and Reproductive Rights compliance monitoring.
- c) To provide support to strengthening management skills to contribute to the sustainability of the organization and continuity of care in family planning services, with a continuous quality improvement focus.

- d) To contribute to strengthening MOH leadership and governing function at health institutions contracted by INSS to provide care for insurance clients.
- e) To document and share best practices and successful experiences.

Technical assistance targeted MOH, other health services providing institutions and health staff training centers. Regarding MOH coverage by the end of 2012 it was 100% of SILAIS (18), which include 20 hospitals and 66 health centers. Assistance also covered 4 IPSS, 17 PMCs and 3 NGOs.

In technical assistance to MOH and PMCs teams, staff identified as key to the FP service management were included, their profile varies according to the site where they work.

## 2. Family Planning Interventions

HCI contributed to the country's graduation process from USAID's technical assistance in family planning. There was progressive expansion in SILAIS coverage and in the last year attendance targeted MOH PMCs. PMCs provide health services to insured population.

The focus of assistance was developing skills to perform surgical female sterilization with local anesthesia, organization of the offer of the POEC service, Interval contraception, and specialty areas as well as contraceptive offer during PNC.

During implementation of the different interventions in the FP component, involved health staff identified gaps or opportunities for improvement of the quality of care and management processes. They also applied changes to breach said gaps and obtained improvement. Below is the detail of the most relevant aspects of this CQI process.

**Table 15: Gaps found in FP and changes implemented (2008-sept. 2012)**

Gaps or improvement opportunities	Implemented changes	Improvement achieved
Only two activities from the Family Planning care process (POEC and Interval contraception) were measured.	<ul style="list-style-type: none"> <li>• Designed and implemented data base tools to facilitate recording necessary information for timely decision making.</li> <li>• Reorganization of POEC services (staff with competencies, availability of reliable data sources, CM availability).</li> <li>• Organization in hospitals of the CM offer in outpatient and specialties to take advantage of the opportunity to prevent high obstetric risk pregnancies in women with reproductive risk factors.</li> <li>• Including key staff in quality improvement</li> </ul>	<ul style="list-style-type: none"> <li>• Systematization and availability of FP service provision data in its different modalities.</li> <li>• Systematic monitoring of FP indicators for decision making.</li> <li>• Systematic and comprehensive analysis of information on FP services production and CM consumption at the various</li> </ul>

<b>Gaps or improvement opportunities</b>	<b>Implemented changes</b>	<b>Improvement achieved</b>
	<p>teams (statistics and medical supplies chiefs). This facilitated articulation of the FP service production with CM delivery to users.</p> <ul style="list-style-type: none"> <li>• Including the CQI methodology with rapid cycles to achieve improvement in management and care processes.</li> </ul>	<p>care levels (health posts and centers).</p> <ul style="list-style-type: none"> <li>• Ownership of SILAIS AIMNA chiefs and PMCs and IPSS managers of quality of care surveillance and CQI methodology use.</li> </ul>
<p>Insufficient information on FP users' clinical file medical and nursing note.</p>	<ul style="list-style-type: none"> <li>• Design and implementation of a FP clinical note with necessary elements for proper application of medical eligibility criteria in CM prescription.</li> </ul>	<ul style="list-style-type: none"> <li>• 95% of users in 84 health units from 16 SILAIS in the country receive CM according to medical eligibility criteria.</li> </ul>
<p>The instrument used by staff to follow up with FP users (card-holder) was unpractical and outdated.</p>	<ul style="list-style-type: none"> <li>• Design and implementation of a management FP census.</li> <li>• Started FP counseling and offer from PNC and recording CM chosen by user in the BPCH.</li> </ul>	<ul style="list-style-type: none"> <li>• Greater follow up to users to prevent them from missing appointments or to conduct active search of missing patients.</li> <li>• User satisfaction per CM.</li> <li>• Strengthening and coordinating communication between different care levels.</li> </ul>
<p>Little IUD and condom offer in post obstetric event contraception.</p>	<ul style="list-style-type: none"> <li>• Involving managers in data analysis regarding POEC CM offer in their health unit.</li> <li>• Reorganization of POEC services (staff with competencies, availability of reliable data sources, CM availability).</li> <li>• IUD insertion in labor and delivery rooms and Tran cesarean.</li> <li>• Condom delivery during POEC as double protection.</li> </ul>	<ul style="list-style-type: none"> <li>• IUD and condom use increase during POEC.</li> <li>• IUD and condom availability for POEC.</li> <li>• Delivery of condom along with another CM during POEC for double protection.</li> </ul>
<p>Information recorded on POEC was not disaggregated by CM, obstetric event or age group.</p>	<ul style="list-style-type: none"> <li>• Organizing information to obtain disaggregated data (designing the information source and data base) for recording and analysis.</li> <li>• POEC information segmentation in post-partum teenagers.</li> </ul>	<ul style="list-style-type: none"> <li>• Availability of an information source that facilitated POEC systematic analysis in teenagers.</li> <li>• POEC visualization in teenagers.</li> </ul>
<p>Voluntary Surgical Sterilization offered mostly with general anesthesia.</p>	<ul style="list-style-type: none"> <li>• Competencies development among health staff through training on the local anesthesia technique.</li> </ul>	<ul style="list-style-type: none"> <li>• 89 resources (doctors and nurses) from 13 departmental hospitals, 11 primary hospitals and 5</li> </ul>

Gaps or improvement opportunities	Implemented changes	Improvement achieved
		PMCs trained on the local anesthesia technique.

### 3. Key institutionalized results

#### *a) Assuring informed consent and voluntary character of CM selection among post-partum women*

Although the POEC strategy in hospitals began in 1993, there are no data to help understand the behavior of counseling and discharge of post-partum women with artificial or natural contraceptive methods in those years.

Systematic monitoring of this activity began for the first time in 2003, driven by QAP/USAID and incorporated into the maternal health quality standards. However, in this monitoring there was no disaggregation per methods used.

The POEC activities and their recording are redefined in the year 2008 with the development of specific FP standards and indicators. A database was developed to disaggregate data per methods used and obstetric event of discharge; which allows management teams to identify gaps and make timely changes.

Chart 7 shows how the quality of counseling from the year 2009 helped increase the percentage of contraceptive methods delivery. The initial gap between counseling (blue line) and artificial contraceptive choice (purple line) by the user, in the first quarter 2009 was 28%; in the second quarter 2012 the gap was 11 %, for a reduction of 17 percentage points between counseling and choice of artificial methods.

**Chart 7: Impact of quality counseling**

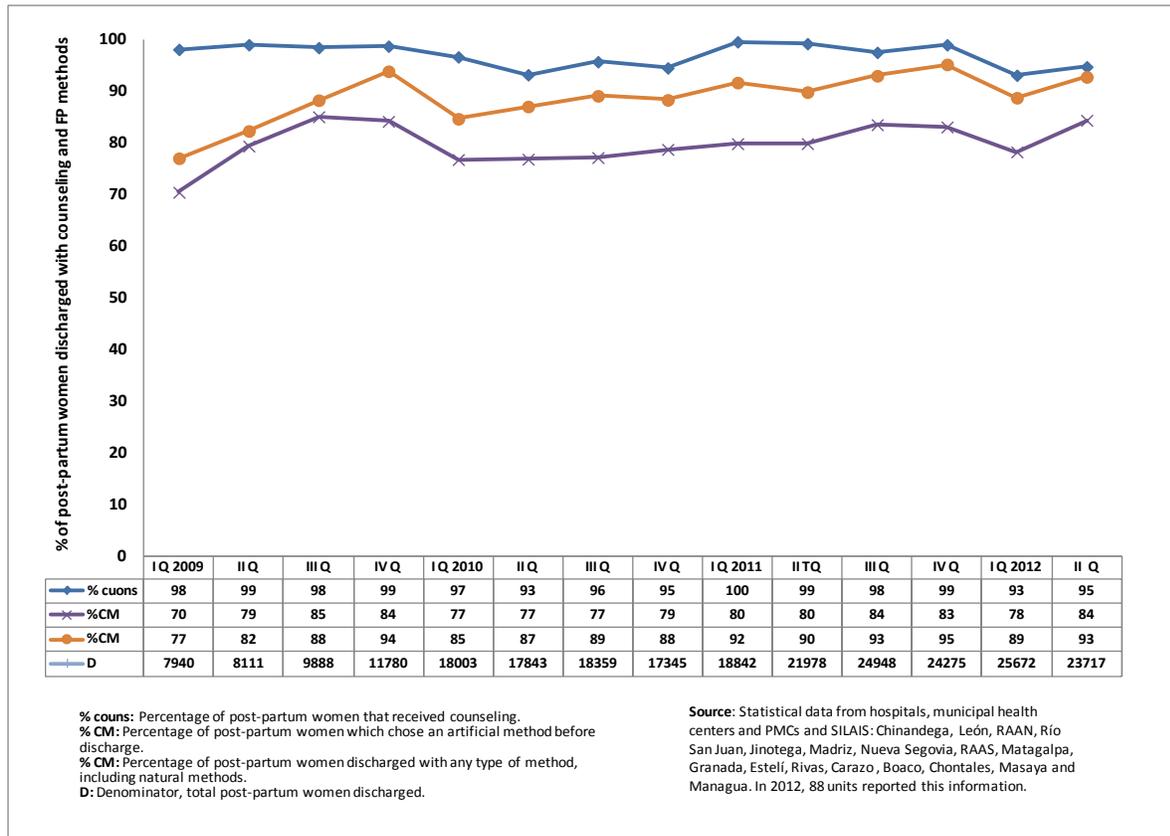
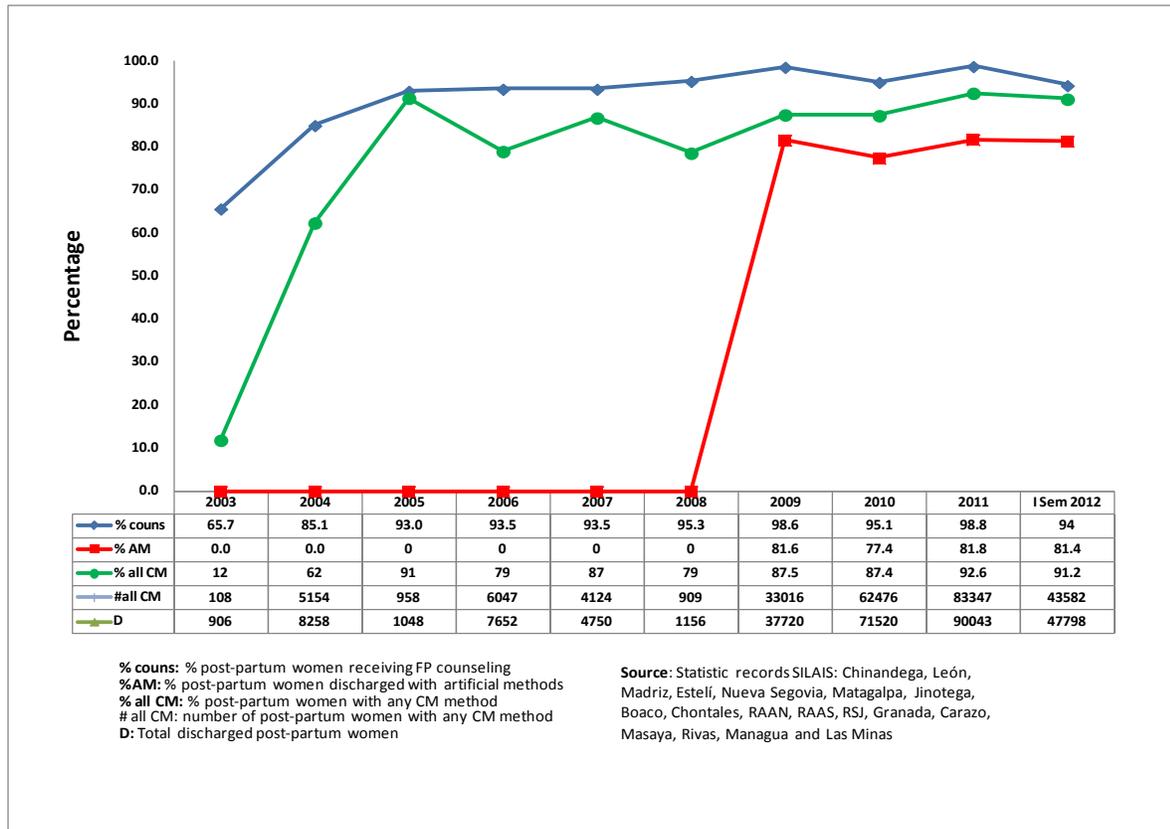


Chart 8 shows that informed choice and voluntary character are assured in the post obstetric event contraception service, since it shows the choice of a percentage of natural and artificial methods, as well as post-partum women discharged without any method.

**Chart 8: Counseling and CM delivery after an obstetric event**

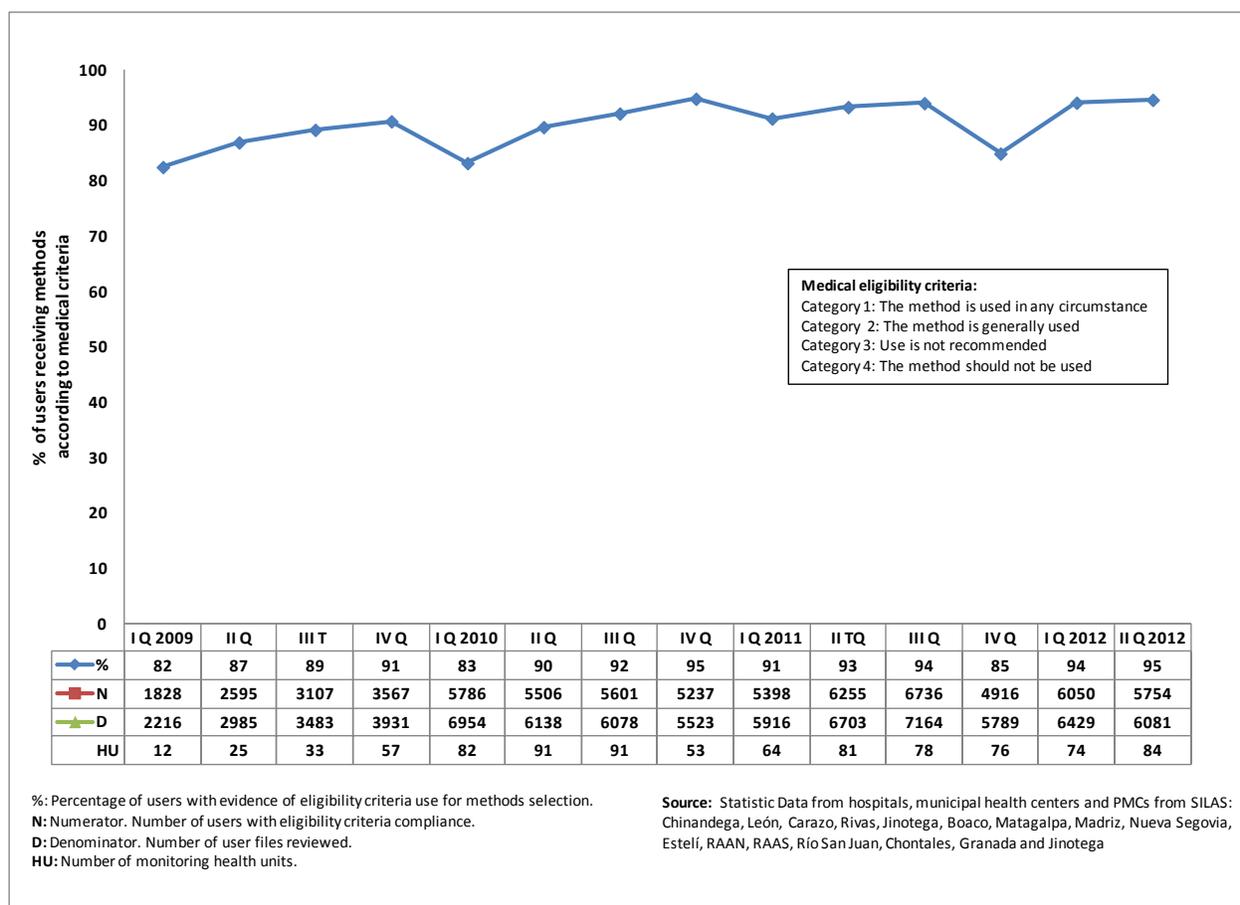


### ***b) Assuring medical eligibility criteria compliance in contraceptive methods' prescription***

The national FP Norm in 1996 did not include using medical eligibility criteria for contraceptives' prescription; these were incorporated in the norm update in 2008. The Ministry of Health with technical support from USAID/HCI incorporated it as an FP quality indicator.

With the beginning of the FP technical assistance in 2008, the dissemination of quality indicators began. Therefore, despite being a new element in FP norms, compliance with this indicator in the first monitoring was high. Chart 9 shows that at the beginning there is high compliance and when comparing data from the first monitoring to the last, there was an increase of 13 percentage points.

**Chart 9: Medical eligibility criteria compliance for the use of FP methods**

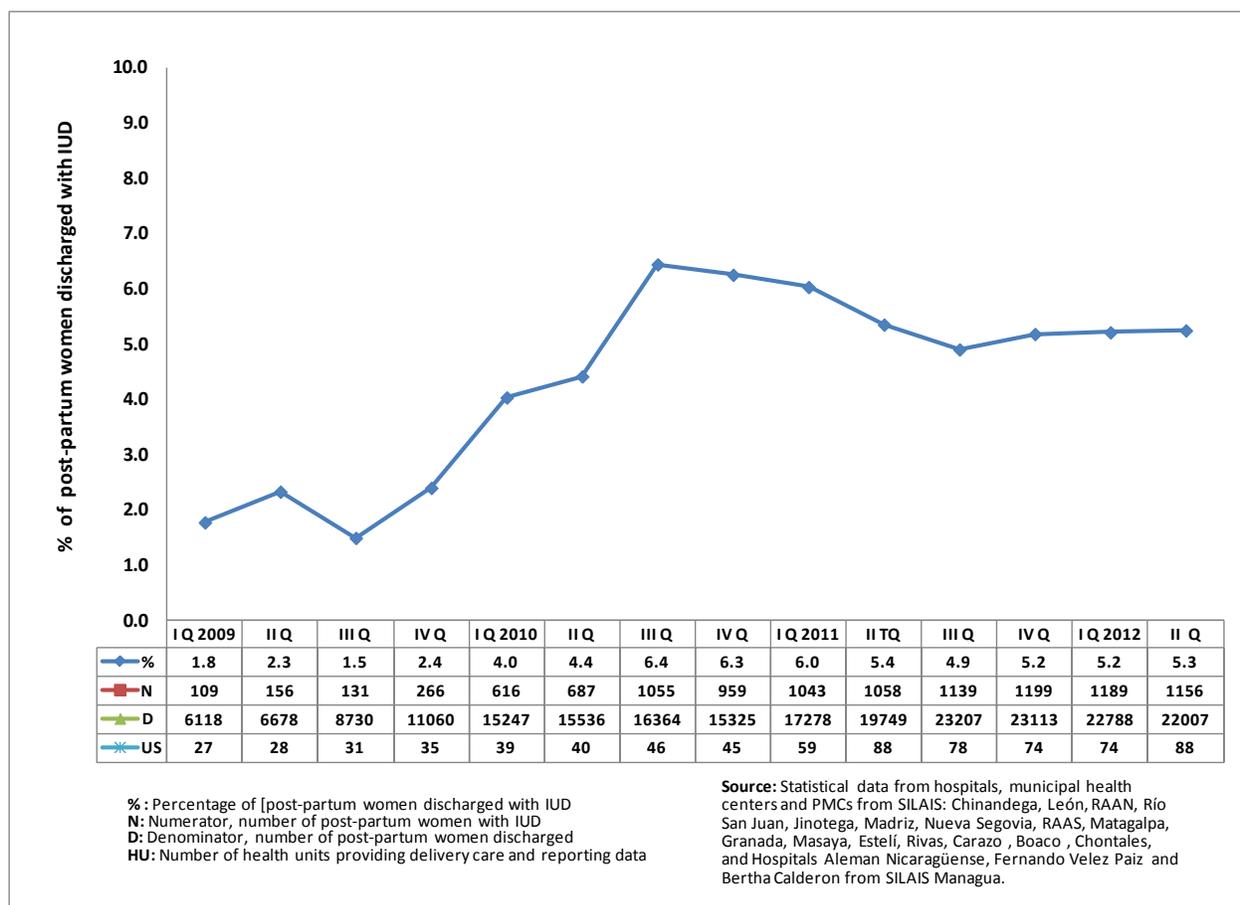


**c) Users can choose IUD as a contraceptive option in the post obstetric event**

With disaggregated data for contraceptive methods applied in post obstetric event contraception, the teams were able to identify gaps in the use of different contraceptive methods. In the first monitoring, IUD use did not reach 2% among post-partum in 27 health units.

FP services management, health staff training and commitment from MOH authorities have helped increase IUD selection in the post obstetric event as seen in the chart with 3 percentage points increase in the 2009-2012 period.

**Chart 10: Post-partum IUD use behavior**

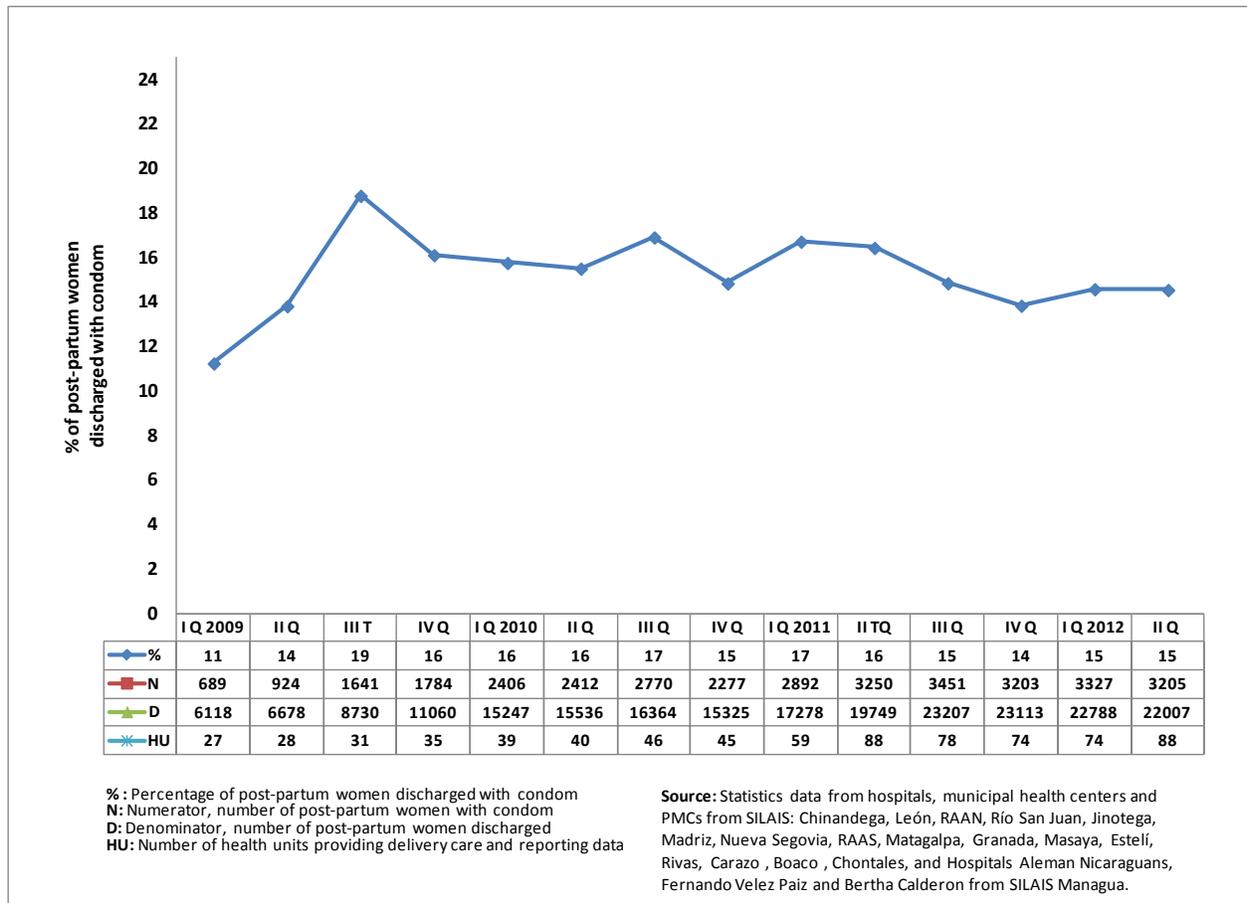


**d) Condom use choice as double protection is assured to post obstetric event users**

In the year 2008 the Ministry of Health included dual protection in the National Family Planning Norm. Dual protection information provision to all FP services users became one of the standards established by MOH which is monitored on a monthly basis in their units, including PMCs.

The commitment acquired by management teams of health units to monitor compliance with this indicator, with the consequent development of improvement cycles to address weaknesses identified, has allowed more women choosing condoms as a contraception and STI prevention method in the post obstetric event. (See Chart 11)

**Chart I I: Behavior of condom use in post-partum**



**e) Teenagers are assured accessibility and continuity of age appropriate CM offer and delivery**

Through the National Sexual and Reproductive Health Strategy (ENSSR) MOH offers guidelines to organize the provision of integrated services for teenagers that ensure accessibility and continuity of offer and delivery of contraceptive supplies for men and women in this age group, to support them in choosing the most appropriate method for their age.

The purpose of this technical assistance from USAID/HCI has been to ensure that all women have equal opportunities to access FP services regardless of age. For this reason since 2010 technical assistance incorporated post-partum women data segmentation to identify teenagers in this condition. The tool used for POEC recording was adapted for this purpose; which allows monitoring and analysis of contraceptives offer per age. Having this information allows management teams to coordinate activities to follow up with post-partum teenagers locally.

*Informe asistencia técnica USAID (QAP/HCI) en salud materna-infantil, planificación familiar y VIH/sida (2000 – 2013)*

The following table shows the information obtained by monitoring this teenager service, showing how important pregnancies are in this age group.

**Figure 2: Teenager POEC services record**

	Jan-Nov 2010	Jan 11	Feb	Mar	April	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Jan 12	Fe	Mar	Ap	May	Jun	July 12
<b>Obstetric Events treated among teenagers</b>	6391	1065	763	973	907	887	1247	1361	1424	1845	2374	1587	1464	1946	1683	1747	1575	1782	1416	1294
<b>% Obstetric Events among teenagers</b>	25	23	26	25	22	27	27	27	26	29	31	28	28	32	32	23	25	26	26	26
<b># of post-partum teenagers discharged with CM</b>	5995	862	697	912	829	842	1073	1300	1378	1749	2202	1462	1425	1719	1390	1677	1502	1734	1375	1212
<b>% of post-partum teenagers discharged with CM</b>	94	81	91	94	91	95	86	96	97	95	93	92	97	88	83	96	95	97	97	94
<b># of post-partum teenagers discharged with artificial CM</b>		796	618	790	725	731	976	1174	1263	1550	2085	1333	1289	1755	1537	1567	1403	1631	1269	1101
<b>% of post-partum teenagers discharged with artificial CM</b>		75	81	81	80	82	78	86	89	84	88	84	88	90	91	90	89	92	90	85
<b>Total obstetric events treated</b>	#####	4533	2939	3875	4077	3267	4567	5052	5381	6375	7627	5580	5316	6157	5238	7666	6243	6825	5387	5052

**Information source:** POEC recording book from hospitals: maternal child in Chinandega, Chontales, León, Puerto Cabezas (RAAN), Madriz, Río San Juan, La Trinidad, Estelí, Masaya, Granada, Nueva Segovia, Jinotega, Matagalpa, Diriamba, Jinotepe, Boaco, Bluefields (RAAS), Rivas, Bertha Calderón, Fernando Vélaz Paiz and Alemán Nicaragüense

From January to November 2010 data recorded from 13 hospitals. From January 2011 the number of hospitals monitoring this information is increased to 18 and in October of the same year 2 hospitals in Managua are included into monitoring

## **V. HIV/Aids technical assistance**

Since 1998, USAID has been a leading donor in HIV assistance in Nicaragua, working closely with the Government, the private sector and local NGOs, especially in health strengthening. Between 2003 and 2012 there was support to prevention activities through regional (PASMO, PASCA, SCMS and Capacity) and national (PrevenSida, HCI, DELIVER and Alliances 2) projects.

In 2010, the Central American region and the Government of the United States started the Cooperation Framework to Implement the Response to HIV/Aids (2010-2014), with funding from the President's Emergency Plan for AIDS Relief (PEPFAR), which aims to reduce HIV/Aids incidence and prevalence in high-risk populations. It represents a consensus to focus on evidence-based approaches and governments' commitment, with a technical assistance model focused on increasing sustainability and country ownership. It focuses on four major areas: prevention, health system strengthening, strategic information and a policy environment.<sup>1</sup>

USAID/HCI worked on health system strengthening for HIV/Aids prevention, diagnosis and treatment with a focus on services quality improvement.

### **I. Technical assistance objectives**

#### **General objectives**

- To provide support to organization of quality services for decentralization of HIV testing and prevention of mother-child transmission (PMTCT), as well as voluntary counseling and testing for people with sexually transmitted infections (STIs), pregnant women and people with TB.
- To support organization of quality services for ART decentralization through health units' multidisciplinary teams including stigma and discrimination reduction.

#### **Specific objectives**

- To increase promotion of HIV voluntary counseling and testing for pregnant women and people with tuberculosis, in order to ensure timely capturing and treatment for people with HIV emphasizing active search of TB and HIV.
- To strengthen health units' multidisciplinary teams capacities in care and monitoring of services for men and women with HIV.
- To develop skills among NGOs working with people with HIV, including support to reduce stigma and discrimination.
- To strengthen the laboratory network for more timely diagnosis.
- To promote HIV and sexual diversity related stigma and discrimination reduction for more humanized care.

- To provide institutional strengthening to organizations of people with HIV (ASONVIHSIDA and ANICP+VIDA).
- To provide institutional strengthening to organizations of people at greater risk and vulnerability (Red Trans and Red Transex).
- To document and share best practices and successful experiences.

According to stated objectives, technical assistance targeted MOH, other health services providing institutions and health staff training centers. Regarding the first general objective there was coverage of 17 SILAIS, 106 health centers, 20 hospitals, 6 NGOs and 2 universities. For the second general objective, coverage was 17 SILAIS, 11 health centers and 20 hospitals.

## 2. HIV/Aids interventions

HIV technical assistance began with improving the rapid HIV testing and antiretroviral therapy decentralization process nationwide. In the beginning, only three health units offered HIV testing and provided ART which technical assistance was aimed at strengthening the laboratory network, as well as organization, services provision and multidisciplinary teams' creation for comprehensive and quality care for HIV positive people.

Upon completion of HCI assistance, there had been contributions to ART decentralization in 32 health units and to rapid testing and offer in the 17 country SILAIS.

During the development period of the USAID/HCI project, involvement of participants in the different action lines has been extensive. There have been 4568 participants in different training processes.

At the end of the project period, there was work on facilitating the strategic planning process for transgender population by applying the model of the social determinants of health. A manual for mutual and family support groups for transgender women corresponding to one of the newly developed plan activities. This also implied support to form groups and training to promoters that will facilitate implementation of the manual.

Below is a summary of the main gaps found and implemented changes.

**Table 16: HIV/Aids gaps found and changes implemented (2006-sept. 2012)**

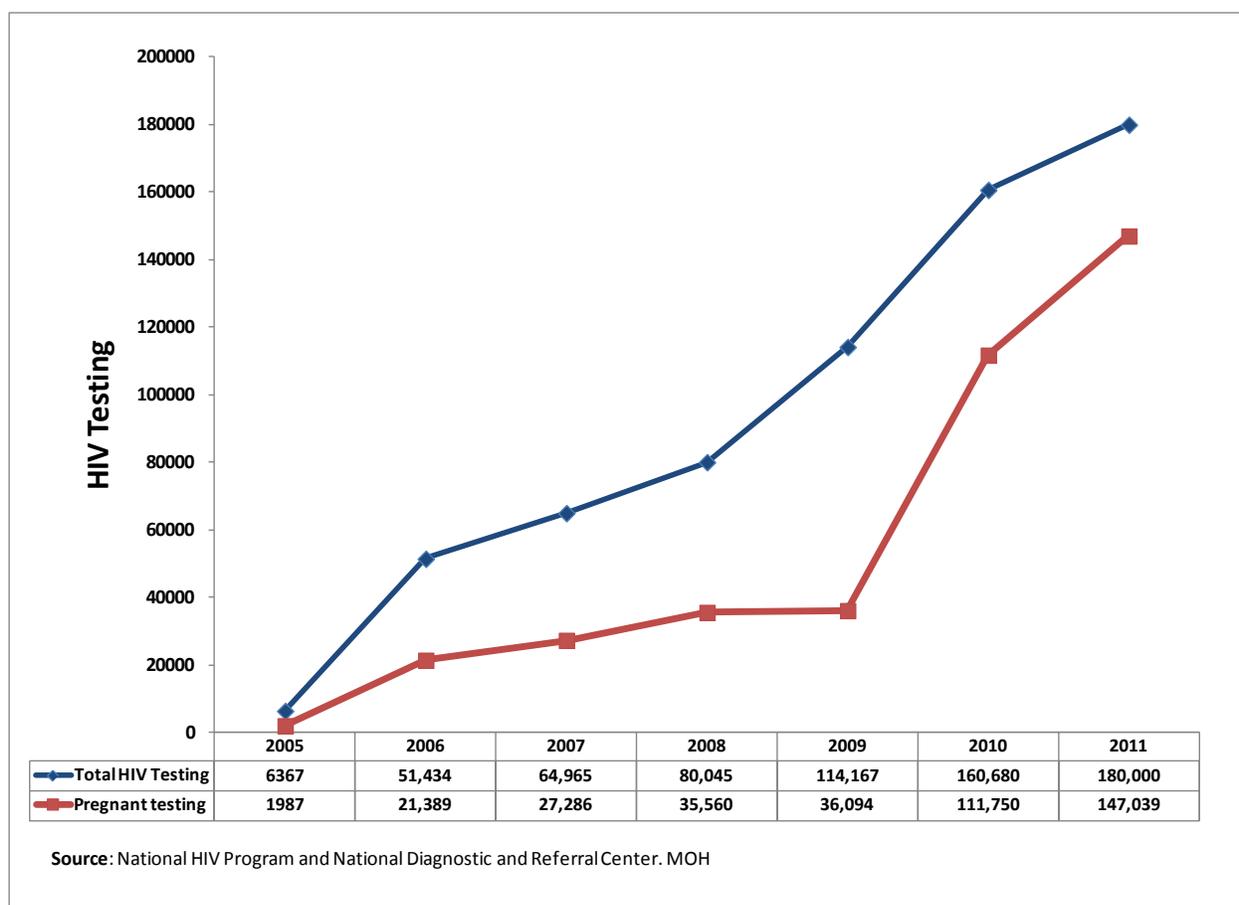
Gaps or improvement opportunities	Implemented changes	Improvement achieved
Limited Access to HIV counseling and testing.  Poor laboratory reagents supplies.	<ul style="list-style-type: none"> <li>• HIV testing decentralization improving accessibility, equity and user satisfaction.</li> <li>• Design and implementation of the HIV diagnosis and rapid testing algorithm</li> <li>• STIs and HIV/Aids approach decentralization between Primary and Secondary care.</li> </ul>	<ul style="list-style-type: none"> <li>• 32 percentage points increase (from 39% to 71%) in HIV testing among pregnant women (October 06 – Nov. 07).</li> <li>• 14 percentage points increase (from 25.7% to</li> </ul>

<b>Gaps or improvement opportunities</b>	<b>Implemented changes</b>	<b>Improvement achieved</b>
Inefficient counter referral and referral system	<ul style="list-style-type: none"> <li>• MOH laboratories supplies assurance and constant monitoring.</li> </ul>	<ul style="list-style-type: none"> <li>• 39.8%) in HIV testing among FP users (October 06 – Nov. 07).</li> </ul>
Family planning counseling and HIV/Aids counseling were not integrated.	<ul style="list-style-type: none"> <li>• Integrating work between FP and HIV/Aids counseling assuring accessibility and equity.</li> <li>• Definition and use of FP and HIV counseling indicators in primary and secondary care units.</li> </ul>	<ul style="list-style-type: none"> <li>• Integrating HIV and FP counseling with greater efficiency in human resources development.</li> <li>• 14 percentage points increase (from 25.7% to 39.8%) in HIV testing among FP users (October 06 - Nov. 07).</li> </ul>
Low coverage in HIV counseling and testing among people in vulnerable contexts to STIs and/or HIV (People with STIs and pregnant women).	<ul style="list-style-type: none"> <li>• Offering HIV VCT in all care environments in the health units to people with STI symptoms</li> <li>• Introducing indicators to measure HIV VCT offer and systematic monitoring.</li> <li>• Applying the CQI methodology through rapid cycles.</li> <li>• Reorganizing the HIV VCT flow for people in vulnerable contexts.</li> <li>• Involving community health promoters in capturing and referral of people in vulnerable contexts.</li> </ul>	<ul style="list-style-type: none"> <li>• Greater access of people in vulnerable contexts to HIV testing. There were 1987 pregnant women tested in 2005 and these increased to 147,039 in 2011. (See chart 12)</li> <li>• HIV cases detection increase</li> <li>• 26 percentage points in HIV testing offer.</li> </ul>
Centralized antiretroviral therapy.	<ul style="list-style-type: none"> <li>• Articulation between hospitals and health centers to improve follow up, adherence, attendance and retention of people on ART.</li> <li>• Forming and developing technical competencies among MDTs for HIV care.</li> <li>• Defining and monitoring quality through standards and indicators to provide care for people with HIV on ART.</li> </ul>	<ul style="list-style-type: none"> <li>• 4 percentage points increase in retention of people on ART in hospitals</li> <li>• 10 percentage points in good clinical status improvement among people on ART in hospitals.</li> <li>• Increased in the number of people on ART and in the number of SILAIS providing ART. From 6 people and 1 SILAIS in 2003 to 1873 people and 17 SILAIS in 2012. (See chart 13)</li> </ul>
Manifestation of stigma and discrimination towards people with HIV by health staff.	<ul style="list-style-type: none"> <li>• Awareness among health staff to provide care for people with HIV.</li> <li>• Creating and strengthening self-help groups and “clubs of friends of people with HIV”.</li> </ul>	<ul style="list-style-type: none"> <li>• Greater adherence and retention in the ART program.</li> </ul>

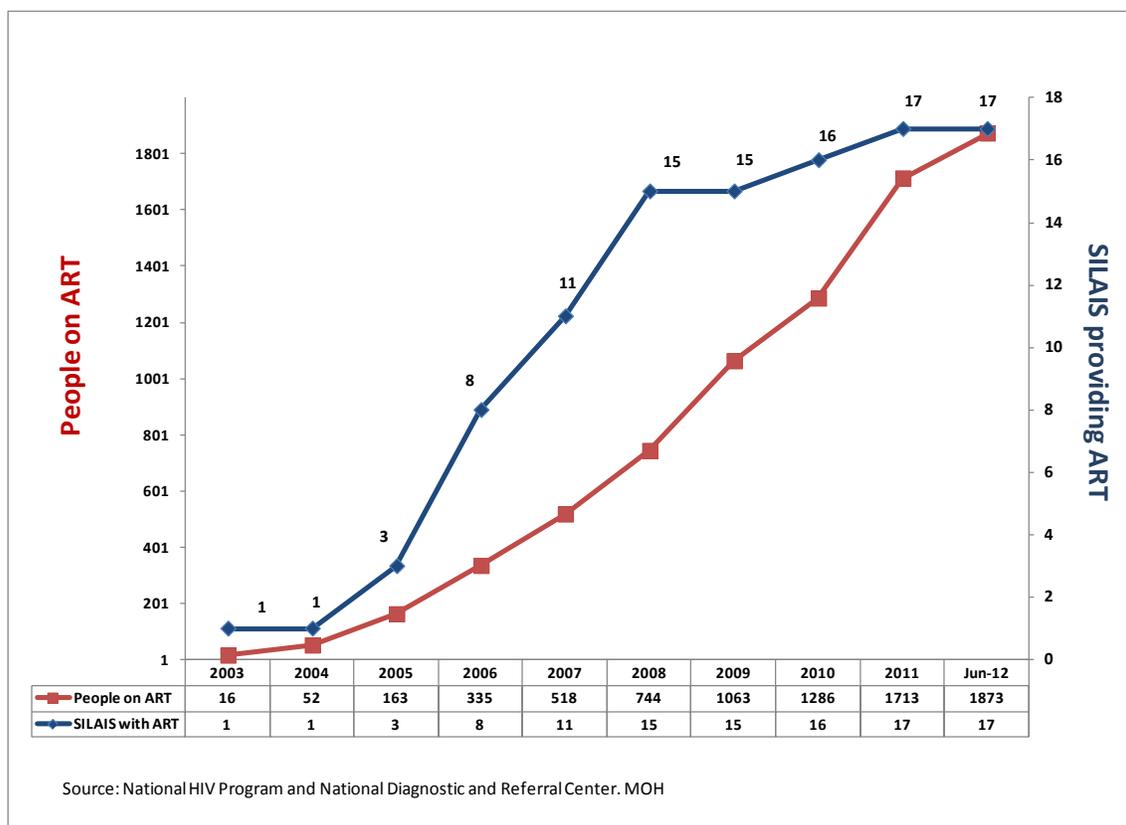
<b>Gaps or improvement opportunities</b>	<b>Implemented changes</b>	<b>Improvement achieved</b>
<p>Disconnection between NGO, Bilwi Clinical Center and health units for promotion, prevention, and VCT actions for people with HIV.</p>	<ul style="list-style-type: none"> <li>• Defining and articulating the various processes to capture, provide care and follow up to people in vulnerable contexts for HIV and with HIV.</li> <li>• Reviewing and identifying gaps in VCT.</li> <li>• Training on sexual and reproductive health to 27 female sexual workers (Group 9) including family planning with emphasis on the correct and consistent male and female condom use; HIV and STIs and HIV mother to child transmission prevention.</li> </ul>	<p>Articulating NGOs between Bilwi clinical center and MOH health units' improving coordination and referral between the health center, hospital and NGO.</p>
<p>Gaps in processes to provide care for people in vulnerable contexts and with HIV at Fundación Xochiquetzal.</p>	<ul style="list-style-type: none"> <li>• Developing the quality program for STI and HIV services. The following elements were developed in coordination with the foundation's technical team:                             <ul style="list-style-type: none"> <li>– Organizational culture profile, service strategy, measuring the organizational climate, quality standards and indicators.</li> <li>– Operating manual for different positions, draft for the protocol to provide care to people with HIV/Aids and Strategic Plan for the 2011-2015 period.</li> </ul> </li> </ul>	<p>Institutional strengthening with a quality assurance approach in care provision for people in vulnerable context and HIV.</p>
<p>Gaps in institutional processes for coaching and support towards people with HIV at ASONVIHSIDA.</p>	<ul style="list-style-type: none"> <li>• Developing an improvement plan for competencies among directive board members. Contributing to institutional strengthening of the Directive Council, analyzed functions, drafted processes with most relevant activities and identified improvement aspects to reform Current Association Statutes.</li> <li>• Developed the Operations' Manual and the Directive Committee's self-evaluation Guide, the document of services offered by the association and the performance manual of the association's promoters.</li> <li>• Organized and developed the General Assembly meeting of ASONVIHSIDA through which the council informed the institutional strengthening process USAID provided support with. Presented and analyzed the proposal to reform statutes and delivered the final document of the Directive Council's Operations Manual, drafted with USAID/HCI' technical assistance.</li> </ul>	<p>Institutional strengthening in processes for coaching and support to people with HIV at ASONVIHSIDA.</p>

Gaps or improvement opportunities	Implemented changes	Improvement achieved
Incipient development of Red Trans.	<ul style="list-style-type: none"> <li>Forming a directive board with roles and functions</li> <li>Designing a guide with definitions of network promoters' competencies.</li> </ul>	Greater institutional performance and negotiation power with cooperation projects and agencies.
Gaps in institutional processes for coaching and support towards people with HIV at ANICP+VIDA.	<ul style="list-style-type: none"> <li>Implementing an operations manual for the technical team and a performance manual for facilitators.</li> </ul>	Institutional strengthening in processes for coaching and support to people with HIV.

**Chart 12: HIV testing increase in vulnerable population**



**Chart 13: Increase of people with VIH on ART and of SILAIS decentralizing ART**



### 3. Key institutionalized results

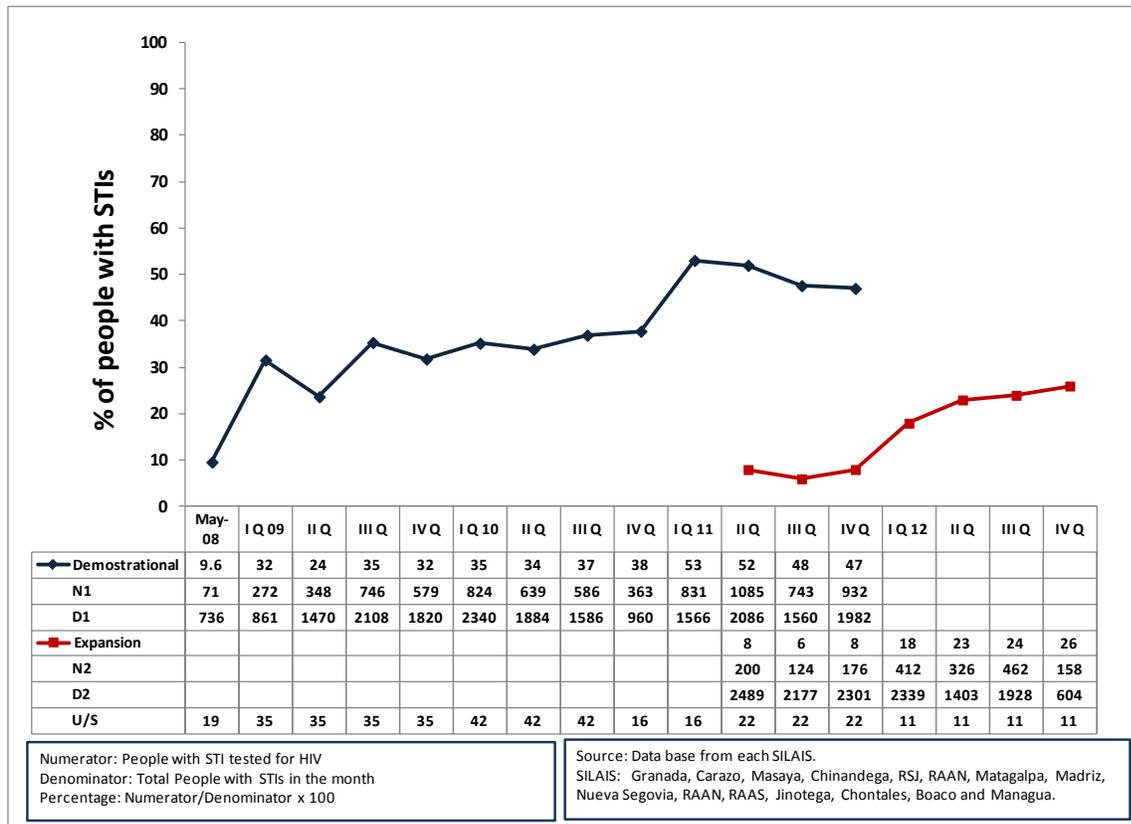
#### a) Increase in HIV testing among people with STIs

Contributing to this was training to doctors, nurses, and laboratory workers in voluntary counseling and HIV testing (VCT) to increase the HIV testing among people with STIs, as the topic of the relation between STIs and HIV was included, as well as STI cases registration through syndromic management.

Currently the Ministry of Health ensures rapid tests supply. Since SILAIS headquarters are responsible for this component, they also track VCT. They adjust the flow so that testing offer occurs in different environments. To ensure proper registration, staff marks the acronym STI in the order of examination for the laboratory to include it.

Chart 14 shows the gradual increase of 37.4 percentage points in HIV testing among people with STIs, during the improvement collaborative's demonstrational phase, from 9.6 % ( May 2008 ) to 47 % (September 2011) . During the collaborative's expansion phase, the increase was 8 percentage points, from 8 % (in January 2011) to 16 % (September 2012).

**Chart 14: HIV testing among people with STIs**

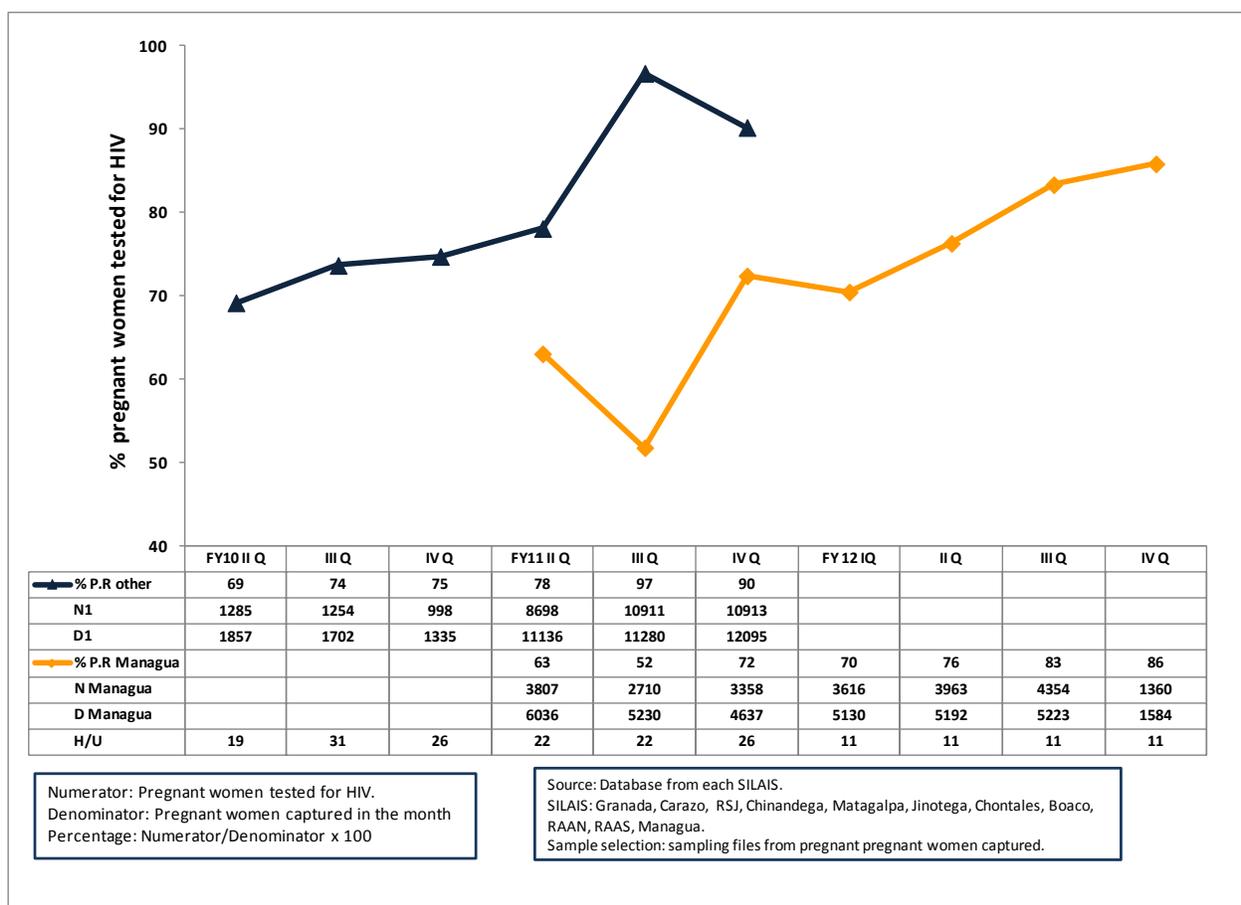


**b) HIV testing increase among pregnant women**

In health units from 10 SILAIS HIV testing among pregnant women increased by 21 percentage points, from 69% (January 2010) to 90% (September 2011). For health units from SILAIS Managua, the increase was 23 percentage points, as it went from 63% (January 2011) to 86% (September 2012). See Chart 15.

To achieve this increase there were continuing education sessions with an emphasis on the importance of counseling and offer of HIV testing to all pregnant women, accompanied by a continuous process of monitoring files advising staff to record data on charts.

**Chart 15: HIV testing among pregnant women**

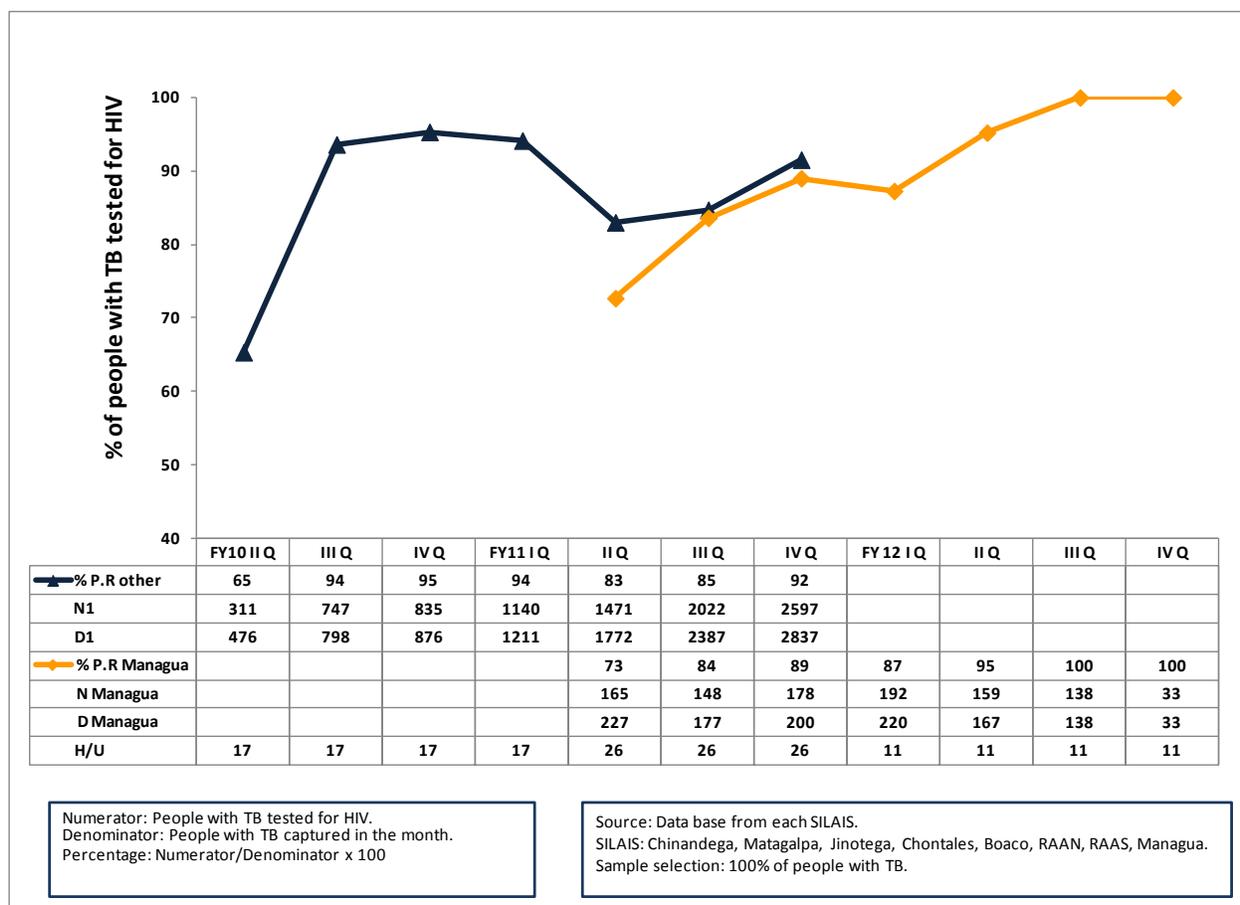


**c) HIV testing increase among people with TB**

In health units from 7 SILAIS there was a 27 percentage points increase on HIV VCT for people with TB from 65% (January 2010 ) to 92% (September 2011). HIV testing among people with HIV increased by 27 percentage points in health units from SILAIS Managua, from 73% (January 2011) to 100% (September 2012). See Chart 16.

Increases occurred from an awareness process targeting the management and administration team at health centers to include people with TB as a priority group, as well as coordination to provide the lab with rapid testing supplies. The process was followed by regular meetings with teams to review records. Among the major contributing factors are: excellent disposition of nursing staff to promote testing, good relations of health staff and TB patients and flexible hours at the laboratory for sample taking.

**Chart 16: HIV testing among people with TB**

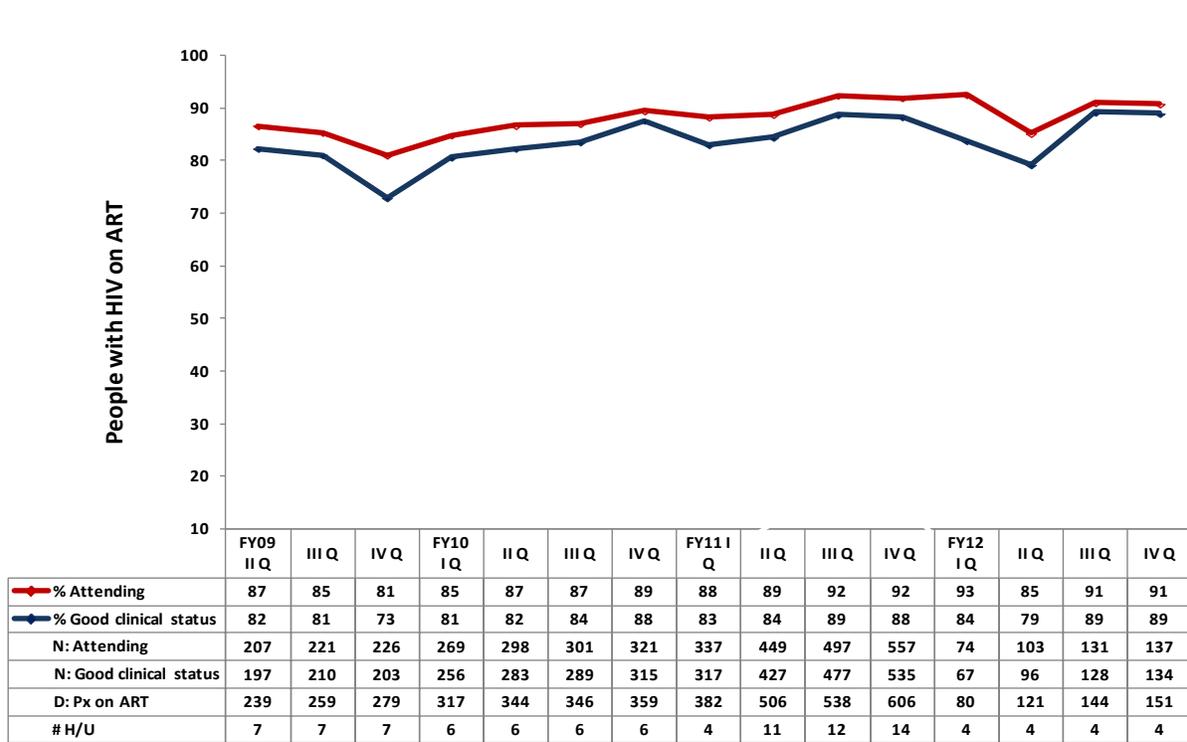


**d) Increased adherence and clinical status among people with HIV on antiretroviral therapy (ART)**

Attendance of patients on antiretroviral therapy It increased by 4 percentage points, from 87% (January 2009) to 91 % (September 2012) and clinical status in this group of patients improved by 7 percentage points, from 82 % (January 2009) to 89 % (September 2012). See Chart 17.

Multidisciplinary teams are working to improve data recording, care flows, use of formats and recording weight and clinical status changes. Through home visits they are conducting active search of patients who have abandoned or are missing appointments, conducting patient interviews to identify causes of abandonment or absence and seek alternatives to be more consistent with their treatment. In Managua, the SILAIS receives information to coordinate with health centers seeking these patients. However, in other SILAIS, health centers staff organizes and conducts the search.

**Chart 17: Attendance and clinical status of people on ART**



Source: Data base from each hospital.

Health units : Chinandega, León, Rivas, Masaya, RAAS, Madriz, Jinotega, Carazo, RAAN, Matagalpa, Nueva Segovia, Boaco and Managua.

Sample selection: Monitored 100% files.

## **VI. Transfer to universities for sustainability of interventions in maternal and child health, family planning and HIV/Aids (2012-2013)**

### **I. Transfer objectives**

Prior to the technical assistance period to universities, USAID/HCI conducted a study to determine student population in health training centers in the country and identify capacity building needs in the areas of maternal and child health, family planning and HIV/Aids. It is from the results of the study that eight universities were selected to participate in the transfer of the experience gained by USAID projects (QAP and HCI) in the mentioned areas.

The selected universities were: Universidad Nacional Autónoma Nicaragua –UNAN/Managua and its Instituto Politécnico de la Salud (POLISAL), Universidad Nacional Autónoma de Nicaragua – UNAN/León, Bluefields Indian & Caribbean University (BICU), Universidad de las Regiones Autónomas de la Costa Caribe Nicaragüense (URACCAN), Universidad Politécnica de Nicaragua (UPOLI), Universidad Americana (UAM) and Universidad Cristiana Autónoma de Nicaragua (UCAN).

#### **General objective**

To promote the continuous quality improvement (CQI) approach in teaching and learning processes in 8 universities subject to technical assistance from USAID/HCI during the October 2012-September 2013 period.

#### **Specific objectives**

- a) To implement continuous quality improvement actions in teacher planning processes in medicine and nursing at 8 selected universities.
- b) To promote the use of the training package (TP) linked to the medicine and nursing curricula.
- c) To develop skills among teachers to implement the methodological designs contained in the teaching package.
- d) To promote knowledge management among officials and teachers through sharing best practices promoted in every university in the framework of USAID/HCI's technical assistance.

### **2. Interventions in universities**

The organization of the transfer period to universities was conducted through interviews with deans and deputy deans' offices, presenting the objectives and scope of technical assistance and forming a team to

plan and carry out the three lines of action: teaching package transfer, continuous quality improvement methodology implementation, and knowledge management.

To start the package transfer process in some universities there were training sessions according to particular needs. Then the process continued with specific activities related to the teaching package, such as the following:

- Placing teaching package contents the curriculum, in study plans and programs or syllabus, depending on the curriculum of each university.
- Developing skills including training teachers to use methodological designs, visual aids, support material and teaching package’s technical notes.

UNAN/Managua included teachers working internally in universities and in charge of clinical areas and teachers placed in hospitals and with the responsibility to tutor students. POLISAL multiplied training to sub-sites teachers operating in various departments and to MOH nursing schools using their curricula in order to standardize use of the teaching package to all teachers.

- Training students in the last years of medicine and nursing on maternal and child health, HIV and family planning topics; which are developed in the teaching package, as these topics had not been addressed during their training. However, incorporating these into the curriculum and standardizing teachers will enable use of this methodology in the teaching-learning process; even when technical assistance from USAID/HCI is no longer received.

Regarding implementation of the continuous quality improvement (CQI) methodology, there were two blocks of activities. The first included identifying gaps aspects related to the quality of teaching and CQI application, and the second was the development of the improvement collaborative based on learning assessment using checklists proposed in the teaching package (TP).

Below is a summary of the main gaps found and implemented changes, including actions related to knowledge management.

**Table 17: Gaps found regarding TP and CQI topics and methodology in universities and changes implemented (2012-2013)**

Gaps or improvement opportunities	Implemented changes	Improvement achieved
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<b>Gaps or improvement opportunities</b>	<b>Implemented changes</b>	<b>Improvement achieved</b>
<p>Teaching-learning process with emphasis on knowledge transmission.</p>	<ul style="list-style-type: none"> <li>• Including TP contents in universities' curriculum or syllabus.</li> <li>• Training university teachers on TP proposed methodology</li> <li>• Using checklists and anatomical models to assess student learning.</li> </ul>	<ul style="list-style-type: none"> <li>• Updating the curriculum with maternal and child health topics, and as cross-cutting axis: family planning and HIV/Aids. This includes setting the number of hours for each topic in order to strengthen skills development.</li> <li>• Refocusing the Intercultural Medicine curriculum contents according to competencies proposed in the teaching package.</li> <li>• Using the teaching package to standardize both topics approach and skills development during teaching.</li> <li>• The Nursing department at POLISAL spread the use of the TP in MOH sub-sites and nursing schools using their curriculum.</li> <li>• Teaching teams developed skills to develop checklists to assess students' skills on topics not included in the TP.</li> <li>• Including checklists to assess learning for undergraduate and graduate students.</li> </ul>
<p>Didactic presentations on the topics of study do not promote student learning.</p>	<ul style="list-style-type: none"> <li>• Using presentations contained in the teaching package.</li> <li>• Standardizing criteria to develop educational presentations.</li> </ul>	<ul style="list-style-type: none"> <li>• Teachers make effective educational presentations, using resources available at the university.</li> </ul>
<p>Lack of tools to know the level of knowledge and skills among undergraduate students on topics referred to neonatal and obstetric complications and Knowledge, Attitudes and Practices (KAP) in HIV/Aids.</p>	<ul style="list-style-type: none"> <li>• Design and/or adaptation of the assessment instrument on knowledge and skills related to obstetric and neonatal complications and KAP for HIV.</li> <li>• Designing knowledge survey on child health topics to apply to graduate students.</li> <li>• Designing database for timely information recording, analysis and timely decision making.</li> <li>• Training on HIV/Aids for teachers at UNAN Managua Medicine Faculty and teachers located in national referral hospitals.</li> </ul>	<ul style="list-style-type: none"> <li>• Establishing competencies and HIV KAP surveys to be applied consistently at the end of the academic year of V and VI year students.</li> <li>• Decision made to conduct knowledge assessments to graduate students with established instruments in teaching hospitals set every 6 months.</li> <li>• Strengthening the learning assessment methodology with the use of checklists and anatomical models, as well as assigning one more day to address life-saving practices in neonates.</li> <li>• Establishing a pre-introductory course for pre residents at UNAN/Managua, to start</li> </ul>

<b>Gaps or improvement opportunities</b>	<b>Implemented changes</b>	<b>Improvement achieved</b>
	<ul style="list-style-type: none"> <li>• Creating a team to promote with appropriate authorities, certification of mother and baby friendly universities.</li> <li>• Inclusion in the agreement established with MOH and universities of the support that UNAN Managua would provide to hospitals to encourage promote and support breastfeeding.</li> </ul>	<ul style="list-style-type: none"> <li>rotation in pediatrics (18 hrs.) and including these topics in the learning assessment of the first partial exam of the rotation.</li> <li>• Strengthening and standardization on managing and addressing maternal health topics corresponding to undergraduate.</li> <li>• Creating a teaching team for the Community Medical Practice Area to support the raining of undergraduate students in interval IUD insertion, using pelvic anatomical models.</li> <li>• Teachers standardized to address HIV combination prevention including structural, biomedical and behavioral interventions.</li> <li>• Establishing university technical assistance in teaching hospitals to achieve certification as a mother and baby friendly unit.</li> </ul>
<p>Evaluation of academic activities of teachers is incipient and irregular.</p>	<ul style="list-style-type: none"> <li>• Developing guidelines for technical support to teachers in their performance in different scenarios of academic activities.</li> </ul>	<ul style="list-style-type: none"> <li>• Institutionalization by POLISAL nursing department authorities of an instrument and its data base to determine performance of their teachers in different academic activities.</li> </ul>
<p>Lack of student perception about teachers' performance at different stages of the teaching-learning process.</p>	<ul style="list-style-type: none"> <li>• Designing a guide to know students perception on teachers' performance.</li> <li>• Application of the guide to know students' perception on teachers' performance.</li> </ul>	<ul style="list-style-type: none"> <li>• Institutionalization by BICU Nursing school authorities, of the survey on student perceptions about teachers' performance.</li> <li>• Definition by BICU Nursing school authorities, of challenges to improve teachers' performance.</li> </ul>
<p>Loss of contact between universities and students who graduate.</p>	<ul style="list-style-type: none"> <li>• Developing POLISAL graduate follow-up survey.</li> <li>• Assigning person responsible for monitoring the online survey filling.</li> </ul>	<ul style="list-style-type: none"> <li>• Using POLISAL's website to spread and fill online surveys.</li> <li>• In the student's file it is required to register an email address.</li> <li>• Tracking of survey follow-up is provided through the website.</li> </ul>
<p>Little opportunity to exchange experiences</p>	<ul style="list-style-type: none"> <li>• Creating a Dropbox account to share information among teachers of the universities participating in the collaborative.</li> </ul>	<ul style="list-style-type: none"> <li>• Operation of the platform (Dropbox) to share experiences among teachers from different universities.</li> </ul>

<b>Gaps or improvement opportunities</b>	<b>Implemented changes</b>	<b>Improvement achieved</b>
between teachers from different universities.	<ul style="list-style-type: none"> <li>Locating the Teaching Package in the NET Classroom, making it accessible to the entire student population.</li> </ul>	<ul style="list-style-type: none"> <li>Coordination between clinical teachers and the informatics teacher.</li> <li>Students using the teaching package for self-study.</li> </ul>

Below is the coverage achieved during improvement collaborative activities referred to learning assessment using checklists proposed in the teaching package (TP).

**Table 18: Coverage achieved during improvement collaborative activities with universities (September 2012-July 2013)**

<b>University</b>	<b>No. of members in the CQI team formed</b>			<b>No. of teachers benefiting (trained)</b>	<b>No. of students benefited (trained)</b>
	<b>No. of authorities</b>	<b>No. of teachers</b>	<b>Total members</b>		
UNAN Managua	4 Deputy dean, directors of clinical areas, pediatrics, obstetrics and community medical practices	2	6	71 Physicians: OBGYN, pediatricians, community practices, internal medicine and surgery	519 Medicine students
UNAN León	3 Dean, coordinator of medical practices and public health director	4	7	169 Nurses, public health, pediatricians, OBGYN and medical practices physicians	220 Nursing and medicine students
BICU	2 Head of the School of the Nursing School and coordinator of the Medicine School	3	5	18 Pediatricians, General physicians and nurses	26 3rd year Nursing students 31 5th year medicine students 14 Resident students

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POLISAL	1 Nursing Department Head	6	7	23 Sub site and site teaching nurse	226 1st and 4th year nursing students
UPOLI	1 Dean of Nursing	2	3	14 Sub site and site nurses	68 Nursing students
URACCAN	1 Intercultural Medicine Coordinator	3	4	14 Doctors and nurses	55 Intercultural medicine students
UCAN	3 Dean, Associate Dean and Head of the School of Nursing	3	6	23 Nurses and doctors	81 Nursing and medicine students
UAM	1 Medicine Coordinator	2	3	6 Pediatricians	22 Nursing students
<b>Total</b>	<b>16</b>	<b>25</b>	<b>41</b>	<b>338</b>	<b>1262</b>

Source: USAID/HCI files

### 3. Key institutionalized results

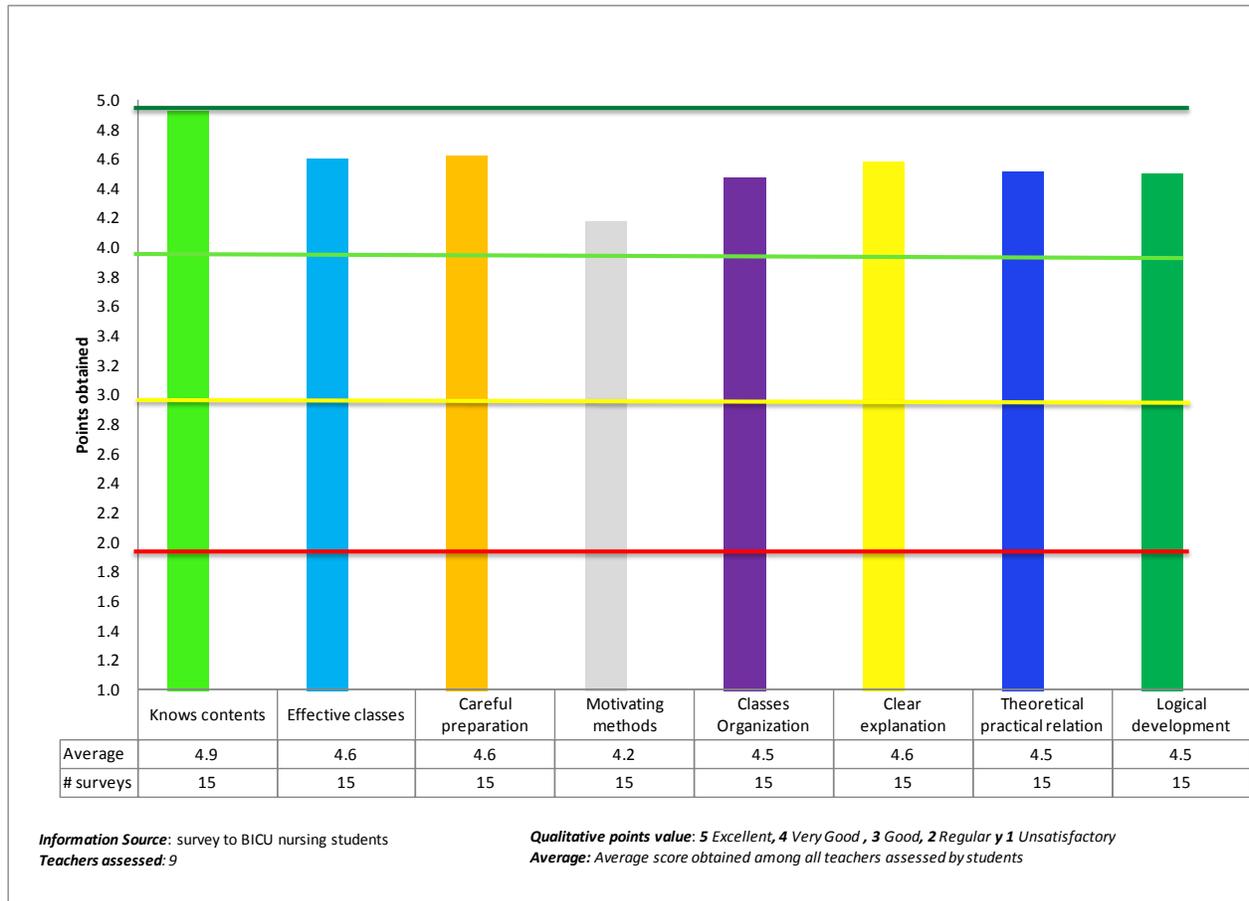
#### *a) Updating the medicine and nursing curriculum or syllabus according to the teaching package, in terms of contents, teaching methodologies and means*

Through various changes implemented, from gaps found, seven of the eight universities (87.5 %) included the teaching package into curriculum documents. This included addressing these topics in training as appropriate. At the end of technical assistance, graduate students will have already completed their training with topics and methodologies proposed in the teaching package.

Teachers trained in this technical assistance period will be an important factor in sustainability of these curriculum changes, both for their application with students and for multiplication with other teachers internally. There is also the possibility of transferring these to other universities who did not participate in this period, through the relation between teachers and training centers associations.



**Chart 18: Implementation of assessment to teachers by students**



***c) University teachers have ownership of the teaching package for their work***

Teachers who work internally in the university in charge of clinical areas and teachers located in hospitals were trained and are using the teaching package to develop activities to strengthen the teaching-learning process. The significance of this ownership is also evident in the teachers’ initiative to develop learning assessment tools similar to those of the TP for other subjects, such as the use of checklists and anatomical models in practical classes of other subjects or modules in the curriculum.

***d) Increased ownership of MOH regulations by university students***

Since undergraduate and graduate students of universities are placed in health units at different times of their training, their performance has been strengthened through reinforcement with the inclusion and development of TP topics, since it corresponds to the MOH regulations. This is consistent with one of the TP objectives.

## **VII. Main lessons learned**

Both strengths and difficulties encountered in advancing the development of technical assistance from USAID projects (QAP/HCI), allowed to extract the following lessons.

### **I. Overall Lessons Learned**

- It is important and necessary to have a good relation, coordination and communication between health units, especially between those close in the territory.
- Staff awareness is very important to implement changes, since it reduces negative attitudes on their part.
- Teamwork and consensus. It is easier to reach goals if there is consensus and no imposition, thus people gain ownership of their activities and complete them with greater love.
- Being humble and recognizing when work is not correct. Having a positive attitude to face the problem.
- Small adjustments or changes in health units can result in great progress in meeting standards and indicators.
- The results of measuring quality should be analyzed by team members and staff in general. You can change what you set out to change if there is daily follow up and if improvement rapid cycles are completed in a timely manner.
- Experiences exchange fosters rapid advancement. Help is always needed because we do not know everything, we are always learning.
- The collaborative allows obtaining and applying knowledge with scientific evidence.
- There must be norms and protocols, as well as guides to collect information to standardize.
- The existence and enforcement of national protocols allows generalized homogeneous management, making a difference in individual cases.
- Leadership and commitment accelerate the development of activities scheduled for continuous quality improvement.
- Removing staff is not necessary, but to make them see the problem in the system and that the solution is achieved by working according to standards and protocols, since they have the energy and knowledge to improve service for users. This can be done in a respectful way to avoid negative reactions.
- Discipline from monitoring team members is essential to identify achievements and difficulties.
- Involvement of the majority of staff in quality assurance activities facilitates effectiveness of interventions.
- In a favorable environment for quality, only basic guidance on methodologies is necessary for ideas to flow, enthusiasm has to be managed to avoid additional workload for people involved

- Local work teams are formed by people with great disposition to service and what they need to complete adaptations is methodology knowledge, as well technical support from headquarters and external advisors.
- Staff's knowledge should be updated continuously.
- It is necessary to have appropriate technical assistance, but at the end of it, sustainability should also be achieved
- Structural and organizational difficulties faced by an organization or institution allow to visualize the importance of the quality assurance program.
- The demand by local staff is the main motivating factor for implementation of the quality assurance program.
- Participation in collaborative sessions has allowed local teams to position themselves properly and improve their skills and the quality of the care they provide.
- Internships and experience sharing sessions enables improvement in health units with emerging processes, as well as fosters staff interaction between different units and continuity of care.
- There are no changes to small and large scale without positive results, when there is full involvement of authorities and officials.
- Monitoring and follow in a systematic way, as a team and accompanied by technical assistance are the cornerstones for successful implementation of plans and projects.
- Results based on both qualitative and quantitative evidence allows raising awareness among teams and encouraging improvement with greater ownership, commitment and interest.
- Sharing improvement enables other teams to make quicker progress and achieve changes in shorter periods of time.
- Best practices documentation enables to fundament with evidences the proper changes to achieve success.
- Developing tools to assess skills is not so easy. However, having the will to do it and to practice it enables growth as an individual, as a team and above all, satisfaction is reflected in positive results.
- Strengthening knowledge and skills is an activity that must be conducted systematically.

## **2. Specific lessons learned**

- Decentralizing HIV VCT from the epidemiology area to all health unit care areas is primary to achieve greater coverage and timely capturing new patients infected with HIV.
- Support from the directive team and national authorities is fundamental to local teams to achieve greater capturing of people with HIC, as well as referral, care and follow up to those who already are on ART.

- MDTs technical strengthening and involving all attending staff for PLWHIV has enabled care quality improvement.
- PLWHIV care protocol compliance from capturing has enabled patients to recover good clinical status quicker and to decrease opportunistic infections and complications and therefore improve survival.
- Exchange sessions between SILAIS and primary and secondary care have enabled strengthening the relationship between levels, thus improving timely capturing and PLWHIV referrals, active search of missing PLWHIV on ART, recovery and decrease of abandons, home follow up to difficult cases, improving patients' clinical status and decreasing complications.
- It is fundamental to provide greater drive to ART decentralization to primary care units, particularly in those SILAIS with difficult Access communities.
- To emphasize FP services promotion during technical assistance from the human rights perspective facilitated informed choice by users.
- Other strategies supporting institutional delivery increase as cultural adaptation and humanization, contribute to the opportunity of more women having access to post obstetric event contraception.
- Health staff involvement in designing FP management tools including their experience, contributed to these responding to real needs and being easy to implement. In addition it facilitated use standardization among teams where technical assistance was expanded.
- Evidence of FP strategies' success for quality improvement in MOH health units enabled SILAIS authorities to use this experience to start health direction at PMCs.
- Comprehensive care promoted by the family and community health model facilitated involvement of all staff in FP services offer in all moments of contact by users with health units.
- To know the universities' situation previously allowed to Schedule technical assistance activities in a more realistic way.
- Having started technical assistance in one university with help from a consultant in teaching methodology facilitated technical support to strengthen teaching staff's competencies.
- Including greater number of decision makers in improvement actions in teaching leads to changes more rapidly.
- Making use of preexisting materials at universities, taking it as a base to drive changes reduces resistance.
- Including new actors such as informatics teachers in universities, strengthens the team and brings dynamism to knowledge management.
- Respecting and promoting knowledge and experience gained by teachers in universities favors effectiveness of technical assistance.
- Reinforcing competencies among students in a simulated scenario enables learning without the stress of reality and application of these in practice can lead to better results.
- Opportunities must be taken advantage of, we had the chance and we took it.

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- Better results can be obtained by doing things differently: better trained students which can have good performance after graduating and feel proud of their university.
- Systematic follow up to the study of thematic contents and application of the teaching package's methodology is a core aspect to improving quality of training and assessing teacher's performance.

## **VIII. Conclusions and recommendations**

### **General conclusions**

Under the USAID Nicaragua health cooperation program, the two projects QAP and HCI as implementing partners, met 100 % of the action lines assigned. This was through direct and systematic participation of counterparts, leading to transcendental achievements through cooperation.

QAP led counterparts to the introduction of mechanisms to ensure quality of health care by implementing, among others, the organization of services and the collaborative learning model that allowed rapid dissemination of national improvements.

HCI provided continuity to the processes started with QAP, strengthening primarily the regulatory framework for health services, the development of staff skills, continuous quality improvement and introduction of evidence-based clinical interventions to improve care outcomes in maternal and child health, family planning and HIV/Aids to the Nicaraguan population, achieving greater efficiency and reduced care costs. Also, HCI included experiences transfer to health training centers as an important factor for sustainability of results achieved by the counterparts.

The nationwide contributions of these projects in health are significant:

1. In maternal health, contributed to reducing of hospital maternal mortality from PPH and gestational hypertension syndrome and improved obstetric complications care.
2. In child health, favored the reduction of neonatal deaths by severe asphyxia at birth and newborn sepsis, as well as improving neonatal complications care.
3. In family planning there was an important contribution to the cooperation graduation process in this component, by increasing the use of modern family planning methods and fertility rates reduction
4. In HIV contributed to the decision of MOH to switch from a vertical program to an integrated one in the various healthcare services, thus improving access to rapid testing and antiretroviral therapy. USAID/PrevenSida was transferred methodological guides for stigma and discrimination associated with HIV and sexual diversity in health units.
5. At universities, contributed to updating curriculum for medical and nursing according to the educational package, both in terms of content and teaching methodologies and the learning assessment contained in the package.

However, there are still important gaps limiting progress in improving the quality of care, identified by these two projects.

1. High rates of hospital caesarean sections implying higher risks to the health of the mother and the newborn, as well as increased institutional costs.
2. Few measures to prevent hospital infections.
3. Newborn sepsis diagnostic algorithm pending institutionalization.
4. Mother Kangaroo Care pending institutionalization and sharing.
5. Strengthening Mother and Baby Friendly Hospital Initiative and institutionalization of its indicators.
6. Limited link between the different levels of care to promote exclusive breastfeeding.
7. The need to monitor health units certified as Mother and Baby Friendly Units.
8. Considerable stigma and discrimination towards people of sexual diversity in health units.

## **General recommendations**

In view of the challenges that would hinder continuity of the main achievements of these two projects and reducing gaps in care still faced in these areas, there are some recommendations that could be considered by both counterparts and cooperation agencies in the country through their programs and projects.

1. In maternal and child health, the process of systematic review and updating of norms, protocols and quality standards associated must remain with continuing education of human resources.
2. In family planning, sexual and reproductive health programs for teenagers should be developed.
3. In HIV, the work to reduce stigma and discrimination should continue.
4. At universities, strengthen the study of the sexual diversity topic and knowledge management (generation and use of information) and including aspects on gender equity and gender-based violence.
5. At health human resources training centers, civil society organizations and professional and health technicians associations, continue to promote the CQI approach with the improvement collaborative's strategy.

## IX. Annexes

### Annex I: USAID Projects Interventions (QAP and HCI)

Table 19 below summarizes the development of USAID projects (QAP-HCI) according to the different interventions, in chronological order, specifying objectives, coverage and advisers who accompanied improvement teams at MOH health units and other participating institutions.

**Table 19: Technical assistance interventions of the USAID (QAP and HCI) projects**

Period	Interventions	Objectives	Coverage	Advisers
<b>Maternal and child health</b>				
2000 -2002	Improving the quality of care for pregnant women and newborn in health units from SILAIS affected by Hurricane Mitch	To provide support to implementation of Quality Assurance activities. Their emphasis was establishment of the quality culture, focusing on the pregnant women and newborn care program.	<ul style="list-style-type: none"> <li>• 4 SILAIS</li> <li>• 33 municipalities</li> <li>• 2 hospitals</li> </ul>	Oscar Nuñez Luis Urbina
2003 –Sept. 2012	Essential Obstetric and Newborn Care (EONC)	<ul style="list-style-type: none"> <li>• To provide Support to continuous quality improvement in essential obstetric and neonatal care (EONC) to reduce maternal and newborn deaths due to obstetric complications with emphasis on Postpartum hemorrhage (PPH) and preeclampsia-eclampsia and neonatal complications emphasizing on severe perinatal asphyxia, neonatal sepsis, hyaline membrane- RDS</li> <li>• To strengthen compliance with the governing function of the MOH, through active</li> </ul>	<ul style="list-style-type: none"> <li>• 17 SILAIS</li> <li>• 8 PMCs ascribed to INSS</li> </ul>	Oscar Nuñez Luis Urbina César Rodríguez Ivonne Gómez Yudy Wong Sergio López

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<b>Period</b>	<b>Interventions</b>	<b>Objectives</b>	<b>Coverage</b>	<b>Advisers</b>
		integration of PMCs in surveillance actions and improving the quality of maternal and women health care.		
2003 – Sept. 2012	Improving the quality of care for children under 5 years of age with pneumonia and diarrhea	To provide support to the improvement of the quality of care of children under 5 years of age severely ill, with emphasis on pneumonia and diarrhea in hospitals with the highest fatality rates for these causes.	<ul style="list-style-type: none"> <li>• 16 SILAIS</li> <li>• 97 Health centers</li> <li>• 19 hospitals</li> </ul>	Ivonne Gómez Yudy Wong
2007 – 2011	Humanization and cultural adaptation of delivery care (HACAP)	To promote implementation of cultural adaptation of delivery to increase the demand for institutional deliveries and contribute to reducing maternal and neonatal deaths due to obstetric complications (birth asphyxia, sepsis, pneumonia and diarrhea).	<ul style="list-style-type: none"> <li>• 9 SILAIS</li> <li>• 22 municipalities</li> <li>• 4 hospitals</li> </ul>	César Rodríguez
2007 - 2011	Prevention and control of hospital infections	Promoting rational use of antiseptics, disinfectants and hand hygiene to reduce fatality rates by sepsis associated with hospital infections.	<ul style="list-style-type: none"> <li>• 17 SILAIS</li> <li>• 50 health centers</li> <li>• 21 hospitals</li> <li>• 3 IPSS</li> </ul>	Sergio López
2009 - Sept. 2012		To provide support to surveillance, prevention and control of ventilator-associated pneumonia in neonatal and pediatric intensive care units.	<ul style="list-style-type: none"> <li>• 6 SILAIS</li> <li>• 8 hospitals</li> </ul>	Sergio López
2009 - Sept. 2012		To provide support to surveillance, prevention and control of bloodstream infections associated with venous catheters in neonatal and pediatric intensive care units.	<ul style="list-style-type: none"> <li>• 10 SILAIS</li> <li>• 12 hospitals</li> </ul>	Sergio López

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Period	Interventions	Objectives	Coverage	Advisers
2009 - Sept. 2012		To provide support to neonatal sepsis (NS) diagnosis based on a laboratory package.	<ul style="list-style-type: none"> <li>• 8 SILAIS</li> <li>• 8 hospitals</li> </ul>	Sergio López
2010 – 2011	Mother and Baby Friendly Hospitals Initiative (BFHI) (breastfeeding)	To provide support to reactivation of the Mother and Baby Friendly Hospitals Initiative (BFHI).	<ul style="list-style-type: none"> <li>• 8 SILAIS</li> <li>• 8 hospitals</li> </ul>	Ivonne Gómez Yudy Wong Alba Castillo
2010 - Sept. 2012	Humanization of care for preterm and low birth weight newborns	To provide support to humanization of premature and low birth weight newborns care, through implementation of Kangaroo Mother Care.	<ul style="list-style-type: none"> <li>• 1 hospital</li> </ul>	Ivonne Gómez
2011 - Sept. 2012	Helping Babies Breathe (HBB) strategy	To provide support to implementation of the Helping Babies Breathe (HBB) Strategy.	<ul style="list-style-type: none"> <li>• 5 SILAIS</li> </ul>	Yudy Wong
<b>Quality assurance institutionalization in other health institutions</b>				
2002 - 2009	Quality assurance Institutionalization	To promote institutionalization of quality assurance to obtain higher quality and contextualization of services in national health priorities.	PROFAMILIA AMOCSA (PMC) MIFAMILIA Pro Mujer	Oscar Núñez Luis Urbina César Rodríguez Ivonne Gómez Yudy Wong
<b>Quality management strengthening</b>				
2003 - 2004	Reorganization of emergency departments	To provide support to reorganizing hospital emergency departments to improve access, flow and timely care and with technical quality to critical cases.	<ul style="list-style-type: none"> <li>• 8 SILAIS</li> <li>• 9 hospitals</li> </ul>	Federico Muñoz
<b>Family Planning</b>				
2008 - Sept. 2012	Family planning (FP)	To provide support to implementing USAID Nicaragua's Action Plan for the FP Graduation Strategy	<ul style="list-style-type: none"> <li>• 18 SILAIS</li> <li>• 20 hospitals</li> </ul>	César Rodríguez Claudia Evans Carla Martínez

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Period	Interventions	Objectives	Coverage	Advisers
		using continuous quality improvement in management and care processes in the family planning program based on promoting a culture of quality, professional competence and user satisfaction.	<ul style="list-style-type: none"> <li>• 66 health centers</li> <li>• 4 IPSS</li> <li>• 17 PMC</li> <li>• 3 NGO</li> </ul>	René Villalobos
<b>HIV/Aids</b>				
2006 - Sept. 2012	Decentralizing HIV VCT to priority groups (people with STIs, pregnant women and people with TB)	To provide support to organizing quality services for decentralization of HIV testing and prevention of mother-to-child transmission (PMTCT), as well as VCT for people with sexually transmitted infections (STIs), pregnant women and people with TB.	<ul style="list-style-type: none"> <li>• 17 SILAIS</li> <li>• 106 health centers</li> <li>• 20 hospitals</li> <li>• 6 NGO</li> <li>• 2 Universities</li> </ul>	Danilo Núñez Indira Moreno René Villalobos
2006 - Sept. 2012	Organization of quality services for ART decentralization	To provide support to organizing quality services for ART decentralization through multidisciplinary teams in health units including stigma and discrimination reduction.	<ul style="list-style-type: none"> <li>• 17 SILAIS</li> <li>• 11 health centers</li> <li>• 20 hospitals</li> </ul>	Danilo Núñez Indira Moreno René Villalobos
<b>Technical-methodological transfer to MOH, PMCs and universities</b>				
Oct. 2011 – Sept. 2012	Sustainability of clinical improvement and institutionalization of quality improvement in FP, maternal and child health and HIV	To develop management and teaching skills among local and nationwide officials at MOH to contribute to organization and sustainability of continuity in maternal, child, FP and HIV care processes.	<ul style="list-style-type: none"> <li>• 18 SILAIS</li> <li>• Universities: UNAN León, UNAN Managua, POLISAL, BICU</li> </ul>	Luis Urbina César Rodríguez Ivonne Gómez Yudy Wong Claudia Evans Carla Martínez René Villalobos Danilo Núñez Indira Moreno
Oct. 2012 – Sept. 2013	Transferring management and methodological tools on FP,	To develop skills among teachers in 8 universities to use management and methodological tools in	<ul style="list-style-type: none"> <li>• UNAN León</li> <li>• UNAN Managua</li> <li>• POLISAL</li> </ul>	Ivonne Gómez Luis Urbina César Rodríguez

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Period	Interventions	Objectives	Coverage	Advisers
	maternal and child health and HIV/Aids to universities	order to contribute to sustainability and institutionalization of quality improvement in FP, maternal and child health and HIV/AIDS with support from USAID (QAP and HCI) projects at MOH.	<ul style="list-style-type: none"> <li>• BICU/RAAS</li> <li>• URACCAN/RAAN</li> <li>• UCAN</li> <li>• UPOLI</li> <li>• UAM</li> </ul>	Yudy Wong Danilo Núñez

## Annex 2: Products obtained with support from USAID projects (QAP and HCI)

Most interventions developed by USAID projects (QAP and HCI) included technical and financial support actions to design standards, protocols, technical tools and educational materials; which have been formalized and institutionalized by MOH and other participating institutions. These constitute the work tools for health staff in Nicaragua.

**Table 20: Standards, protocols, technical tools and educational materials issued by MOH and other institutions with assistance from USAID (QAP and HCI)**

Standards, protocols, technical tools and educational materials issued by the Ministry of Health and other institutions with assistance from USAID (QAP - HCI)			
Title of the Norm, Guide or Protocol		No. Edition	Edition Date
<b>Maternal-child</b>	<b>Tools</b>		
	Quality Standards and indicators for care processes in pregnancy, delivery and for newborns <i>la embarazada, parto y recién nacido</i> )	1 <sup>a</sup>	August 2003
	Quality Standards and indicators for care processes in pregnancy, delivery and for newborns	2 <sup>a</sup>	February 2004
	Quality standards and indicators in health care processes: family planning, maternal health, neonatal and child health, HIV/Aids and proper use of antiseptic solutions and hand hygiene	3 <sup>a</sup>	October 2009
	Pediatric Emergency Ribbon	1 <sup>a</sup> y 2 <sup>a</sup>	October 2005 October 2009
	<b>Guides</b>		
	Guide to address most common infectious diseases of childhood and malnutrition	1 <sup>a</sup> y 2 <sup>a</sup>	July 2004 January 2009
	Quick guide of protocols for obstetric complications care	1 <sup>a</sup>	February 2007
	Newborn management guidelines	2 <sup>a</sup>	March 2007
	Quick guide for the rational use of antiseptics, disinfectants and hand hygiene	1 <sup>a</sup>	June 2009
	Guidelines for diagnosis and treatment of asymptomatic and symptomatic urinary tract infections in pregnant women, using nitrite and leukocyte esterase ribbon or urinalysis reagent test strip in urine without centrifuge	1 <sup>a</sup>	February 2010
	Guidelines for suctioning the endotracheal tube in pediatric patients with mechanical ventilation	1 <sup>a</sup>	March 2010
	<b>Norms and protocols</b>		
	Gynecology Standard - Pro Mujer	1 <sup>a</sup>	February 2006
	Standards and protocols for obstetric complications care	1 <sup>a</sup>	December 2006
Technical Standard and guidance for the use of antiseptics, disinfectants and hand hygiene	1 <sup>a</sup>	June 2008	

**Standards, protocols, technical tools and educational materials issued by the Ministry of Health and other institutions with assistance from USAID (QAP - HCI)**

Title of the Norm, Guide or Protocol		No. Edition	Edition Date
	<b>Educational materials</b>		
	Flipchart: Let`s take care of your pregnancy so that you can give birth safely	1 <sup>a</sup>	March 2009
	Let`s take care of your pregnancy so that you can give birth safely (in Spanish, English and Miskito)	1 <sup>a</sup>	March and May 2009
	Banner: Warning signs during pregnancy, delivery, postpartum and newborn	1 <sup>a</sup>	May 2009
	Clean hands save lives Video	1 <sup>a</sup>	May 2010
	"Live saved" video in Waslala-Matagalpa	1 <sup>a</sup>	December 2009
HIV	<b>Tools</b>		
	HIV diagnostic algorithm	1 <sup>a</sup> , 2 <sup>a</sup> y 3 <sup>a</sup>	July 2006 2007, 2012
	<b>Guides</b>		
	Practical Guide on HIV diagnostic procedures for laboratory analysts	1 <sup>a</sup>	November 2007
	Management guidelines for vertical exposure to HIV and the HIV disease and AIDS in children and teenagers	1 <sup>a</sup>	November 2008
	<b>Norms and protocols</b>		
	Standard and Protocol for prevention of HIV vertical transmission	1 <sup>a</sup>	November 2008
	Protocol for comprehensive management of adults with HIV/AIDS	1 <sup>a</sup>	March 2009
	<b>Educational materials</b>		
	Proper Condom Use	1 <sup>a</sup> , 2 <sup>a</sup> y 3 <sup>a</sup>	November 2009, 1010, 2012
	Myths and facts about HIV	1 <sup>a</sup> , 2 <sup>a</sup> y 3 <sup>a</sup>	November 2009, 2010, 2012
	Mutual aid group: People with HIV and our families, united and solidary ( <i>Grupo de ayuda mutua</i> :	1 <sup>a</sup> y 2 <sup>a</sup>	May 2011, July 2012
	What is HIV testing?	1 <sup>a</sup> , 2 <sup>a</sup> y 3 <sup>a</sup>	November 2009, 1010, 2012
	USAID/HCI Supporting the Ministry of Health of Nic. In prevention, early capturing and care for HIV and AIDS care with a quality assurance approach		November 2007
	Our response to universal access. Year 2007		November 2007
	Banner: You can help your baby ... keep him from getting HIV during pregnancy and delivery	1 <sup>a</sup> , 2 <sup>a</sup> y 3 <sup>a</sup>	2009
	Banner: Comprehensive care for HIV: In this health unit, we provide counseling, HIV testing and care to people with HIV	1 <sup>a</sup>	October 2010
	Protective measures for health care staff during procedures	1 <sup>a</sup>	March 2010

**Standards, protocols, technical tools and educational materials issued by the Ministry of Health and other institutions with assistance from USAID (QAP - HCI)**

Title of the Norm, Guide or Protocol		No. Edition	Edition Date
	Working on stigma and discrimination associated with HIV and sexual diversity in health units. Participant Material	1 <sup>a</sup>	February 2011
	Quality Counseling on Family Planning- STI /HIV/AIDS	1 <sup>a</sup>	April 2006
	Working on stigma and discrimination associated with HIV and sexual diversity in health units. Methodological guide	1 <sup>a</sup>	May 2014
FP	<b>Tools</b>		
	Family planning clinical note	1 <sup>a</sup>	March 2010
	<b>Guides</b>		
	Rapid guide for family planning care	1 <sup>a</sup>	December 2008
	<b>Norms and protocols</b>		
	Family planning Norm and Protocol	1 <sup>a</sup>	May 2008
	<b>Educational materials</b>		
	Integrated counseling flipchart for decision making	1 <sup>a</sup>	2008
	Banner: Family planning methods offered in this health unit	1 <sup>a</sup> , 2 <sup>a</sup> y 3 <sup>a</sup>	2006, 2010, 2012
Brochure: Family Planning Saves Lives	1 <sup>a</sup>	April 2011	
CQI	<b>Tools</b>		
	Quality Standards and Indicators- PROFAMILIA	1 <sup>a</sup> y 2 <sup>a</sup>	2003 2005
	Quality Assurance and Control System – MIFAMILIA	1 <sup>a</sup>	November 2006
	National Program for Quality Assurance Health of Services at Pro Mujer Nicaragua	1 <sup>a</sup>	May 2007
	Quality Management Program- AMOCSA	1 <sup>a</sup>	2007
	<b>Educational materials</b>		
TOT Manual for Training on Quality Assurance Concepts and Methodologies – Frist and Second Part	1 <sup>a</sup>	January 2002	

Source: USAID files (QAP and HCI)

**Table 21: USAID`s studies (QAP and HCI)**

<b>USAID`s studies (QAP y HCI)</b>	
<b>Maternal Child Topics</b>	Assessing the quality of care provided to hospitalized children in Pediatric Hospital Care (baseline 2003 )
	Evidence of progress, difficulties and new challenges in "Hospital Pediatric Care Improvement " ( 2005 Interim Evaluation)
	Competencies Assessment. In care for pregnancy, delivery, postpartum, newborn and its complications. June- September . 2005. Published in 2006
	Competency assessment of medical and nursing staff providing care during pregnancy, delivery, postpartum, newborn and complications in five Nicaragua SILAIS. Comparative 2005 and 2010 . Published Sep. 2011.
	Factors influencing the success and sustainability of breastfeeding
	Mother and Baby Friendly Health Units Initiative in Nicaragua. USAID/QAP - UNICEF –2006
	Cost -effectiveness of interventions implemented to improve care for children hospitalized for pneumonia or diarrhea in 7 departmental hospitals of the Ministry of Health
	Costs and Cost -Effectiveness Study of Mechanical Ventilator associated pneumonia in hospitals: " Bertha Calderon " and Child Hospital " Manuel de Jesus Rivera " Managua - 2011
	Cost-effectiveness analysis of the Kangaroo Mother Care strategy implemented at Bertha Calderon Hospital -2012
<b>HIV-AIDS Topics</b>	Diagnosis on provision of health services targeting women of childbearing age for prevention and care of STIs, HIV and AIDS, by the Ministry of Health in Nicaragua. Results Report - 2005
	Cost-effectiveness in the quality of care for people with HIV in Nicaragua - 2012
<b>Family Planning Topics</b>	Continuity of care in family planning to post-partum women with reproductive risk in two SILAIS of Nicaragua. Julio 2008 –Julio 2010
<b>CQI General Topics</b>	Demonstrational Phase Improvement Collaboratives: Hospital Pediatric Care, Essential Obstetric Care and Family Planning and HIV in the Ministry of Health of Nicaragua. Sharing Learning - 2010
	Sustainability of Improvement made in Maternal and Child Care and Institutionalization of Continuous Quality Improvement in Nicaragua - 2011
	Sustainability of Actions and Capacity to Promote Continuous Quality Improvement in Maternal and Child Care in Chinandega - AMOCSA - 2011
	Expanding quality improvement in maternal and child care. Expansion phase of the Quality Improvement Collaboratives in Essential Hospital Obstetric and

	Pediatric Care, implemented by the Ministry of Health of Nicaragua - 2012
Source: USAID files (QAP and HCI)	

**Table 22: USAID`s systematizations (QAP and HCI)**

<b>USAID`s Systematizations (QAP and HCI)</b>	
<b>Maternal-Child Topics</b>	Making Progress in Maternal and Child Mortality Reduction - MOH - 2005
	Knowledge Award. A novel and feasible training strategy – 2005
	Pregnant women and Newborns Healthcare Improvement is assumed with responsibility PMCs ascribed to the Nicaraguan Social Security Institute - 2006
	Joint effort: fundamental pillar to achieve our vision. Relevant experiences to reduce maternal and neonatal mortality – SILAIS Río San Juan – 2006
	USAID encourages social responsibility in Health Services Provider Institutions (IPSS) in Nicaragua. AMOCSA: First IPSS certified as "Mother and Baby Friendly Unit" by promoting breastfeeding - 2008
	Intercultural dialogue for delivery care between community and health staff. Municipalities Quilalí, Villanueva y Corinto 2009
	CQI experiences in maternal and neonatal and childhood - 2009
<b>General CQI Topics</b>	Quality Teams: A Meaningful Experience at Jinotega SILAIS - 2003
	Quality Teams: A positive influence to promote change at SILAIS Matagalpa - 2003
	PROFAMILIA Clinics: Insisting that all staff should always provide quality services - 2003
	Implementation of the National Quality Assurance Program at PROFAMILIA Clinics - 2003
	Improving the Quality of Care to our Users– MIFAMILIA - 2005
Source: USAID files (QAP and HCI)	

## **Bibliographic References**

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<sup>1</sup> Oficina de Salud y Educación de USAID Nicaragua Health and Education Office. USAID Nicaragua maternal and child health graduation strategy. Draft. January 2012.

<sup>2</sup> Sandino Margarita, Gomez Ivonne, Bowser Diana. Sustainability of Improvement in Maternal-Child and Institutionalization of Continuous Quality Improvement in Nicaragua. Research Report. Nicaragua: Health Care Improvement Project (HCI/USAID); 2011.

<sup>3</sup> By the end of 2012 MOH created another SILAIS including the mines territory (Bonanza, Siuna and Rosita), which belonged to SILAIS RAAN, as well as Prinzapolka and Mulukukú.

<sup>4</sup>USAID Quality Assurance Project. Annual Report 2004 and Main Actions for 2005. Nicaragua: USAID's Quality Assurance Project; 2004.

<sup>5</sup>Health Care Improvement Project (USAID|HCI). Consolidated data of key informants survey. Improvement Collaboratives' Demonstrational Phase: Hospital Pediatrics Care, Essential Obstetrics Care and HIV-Family Planning in the Ministry of Health of Nicaragua. Sharing Learning. March 2010. Managua, Nicaragua.

<sup>6</sup>Sandino Margarita, Gomez Ivonne, Smith Sara. Expanding maternal child care quality improvement. Research Report. Nicaragua: Health Care Improvement Project (HCI/USAID); 2012.

<sup>7</sup>Sandino Margarita, Gomez Ivonne, Bowser Diana. Sustainability of Actions and Capabilities to Drive Continuous Quality Improvement in Maternal Child Healthcare in AMOCSA Chinandega. Research Report. Nicaragua: Health Care Improvement Project (HCI/USAID); 2011.

<sup>8</sup> Graduation is the process through which a donor withdraws assistance from a program. It consists in developing in consensus with the recipient country, a series of planned strategies implemented gradually for a period of at least 5 years, targeting inclusion of proper funding in the national budget for CM purchase; leadership and sustainability strengthening in FP program activities; and prioritization of care to most vulnerable population groups.