AMERICAN INTERNATIONAL HEALTH ALLIANCE

MID-TERM ASSESSMENT OF THE AMERICAN INTERNATIONAL HEALTH ALLIANCE *TBILISI/ATLANTA* PARTNERSHIP

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USAID
FROM THE AMERICAN PEOPLE

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EXECUTIVE SUMMARY

BACKGROUND

Together with USAID, the AIHA team conducted an in-country mid-term assessment of the *Tbilisi/Atlanta* partnership from July 25 to July 28, 2005. The objectives of the assessment were to determine the general accomplishments, constraints, and shortcomings of the partnership activities and to offer recommendations on ways forward.

METHODOLOGY

The assessment of the *Tbilisi/Atlanta* partnership activities was conducted using qualitative research methods of semi-structured interviews, focus groups, site visits, and document review. Statistical data was also gathered from the various partners.

KEY FINDINGS

- ***The* Tbilisi/Atlanta *partnership has been effective in achieving significant improvements in the delivery of nursing services within the two partner hospitals.***

  - Several new nursing services were established at Gudushauri National Medical Center (NMC) and M. Iashvili Central Children's Hospital (CCH). Three documentation forms were developed to help evaluate care being provided, identify nosocomial infections, and improve quality control.

  - US and Georgian partners developed a clinical curriculum consisting of 27 modules for nurse training to be implemented in Tbilisi at partner hospitals. The partnership has emphasized the training-of-trainers (TOT) model in an effort to build capacity and sustainability for training and continuing education of nurses. To date, more than 15 nurses at each partner hospital have become certified as trainers and can provide general training for nurses.

  - A Nursing Resource Center (NRC) opened at CCH and is primarily used for in-service trainings, which occur on nearly a weekly basis. It has been equipped with computers and an internet connection, and houses many resources (e.g., books, literature) for the nurses.

  - The partnership has fundamentally changed the role of nurses through the empowerment of nurses to provide actual care to patients. Nurses are now responsible for IV and catheter insertions, patient monitoring, wound management, and patient education.

  - The partner hospitals have also seen an improvement in patient outcomes and patient satisfaction as a direct result of the nurse trainings. Nurses reported a decrease in the rates of pressure ulcers, average length of stay, and rate of complications.

- Despite the increased skills of the nurses, some physicians and administrators show resistance to the increased nursing role. There have been instances in which physicians prohibit nurses from performing procedures they have been trained to do because those procedures are not the nurses' responsibility as state in protocols. These protocols are occasionally updated, but the nurses need greater flexibility from the administration in order to achieve greater professional independence in their roles. Nurses and their trainers also have emphasized the need for the physicians to be educated on the new role of nurses.

➢ ***The partnership has been effective in strengthening the organization and management of the partner hospitals.***

- The middle management training and technical assistance provided by the US partners have resulted in significant improvements in the cost collection and registration systems at Gudushauri. This has an important benefit for patient awareness of the rules for payment, reducing gray market payments and accounting for all cash due to the hospital. The registration system is very detailed and can provide valuable information to management for decision making and prioritizing.

- Both partner hospitals have made significant changes in the physician compensation system. Physicians were moved from a salary to a "per-procedure" performance-based compensation formula, which has improved quality and efficiency.

- Both hospitals have been in negotiations with a number of private insurance companies, thus increasing hospital revenues from the private insurance companies that are coming into existence in Georgia for the first time.

- Noteworthy changes within the organizational structures of the two hospitals have also occurred. Each department now has its own goals and objectives and functions as an independent unit. The number of committees operating in the hospitals has expanded, and includes: a quality control committee; a committee for rational use of drugs; and an infection control committee.

- Both hospitals have experienced an increase in hospital occupancy and a decrease in hospital mortality.

➢ ***Despite the progress NMC has made with regards to organization, operations, and management, some problems still persist.***

- In the absence of voluntary attrition, the staffing needs to be lowered to reduce expenses.

- There is growing evidence that physicians on staff are referring patients to other entities for lab and imaging work. There was also a suspicion that physicians are also admitting their patients to other facilities where personal compensation can

- be optimized. The split loyalties of the physicians remain a problem for management and the supervisory board.

➢ ***The partnership has been instrumental in the operationalization of the region's first emergency room at Central Children's Hospital.***

- ER physicians have been identified and are accepted as specialists in emergency medicine at CCH. .

- The concept of triage has been accepted at CCH and it is being practiced in the ER.

- The introduction of emergency medicine practices and training has resulted in significant, measurable improvements in patient health in the areas of diarrhea, abdominal pain, nervous system infections, head trauma, febrile seizures, coughing, and pain management.

- Significant training in emergency medicine has led to noticeable decreases in the average length of stay (from 13 days to seven days) and a greater proportion of patients being discharged directly from the ER, resulting in greater efficiency.

➢ ***The partnership has been successful in developing and implementing 16 clinical practice guidelines.*** Retrospective studies to determine changes in the number of complications, secondary admissions, lengths of stay, and treatment costs are under way. While many of the CPGs have been implemented, some challenges have arisen because some of the evidence-based CPGs require care and treatment that go beyond the state standards of care and are thus not reimbursable by the government.

RECOMMENDATIONS

Nursing

- ***The partnership should follow up with the administration at the two hospitals to ensure that nurses are allowed to use their newly acquired skills and to expand nursing practice.*** The partners should encourage joint physician/nurse trainings in order to sensitize physicians to the importance of the expanded nursing role.

- ***Triage should be introduced at Gudushauri and additional training in triage is recommended for the nurses at both hospitals.*** Such training will allow nurses to take on increased responsibility in this area, allowing nurses to be the first point of contact with the patients. Partners should also explore creation of a nurse triage specialty.

- ***Partners are encouraged to develop a strategy to institutionalize the nurse training program and affiliate their nursing faculty with a legitimate training institution, thus creating the start of a Bachelor of Science in Nursing (BSN)***

- ***program.*** Additional faculty members should be identified from the partner hospitals for clinical skills training. The two hospitals should serve as clinical training sites for training of other nurses throughout the country. The partners, with support from AIHA, should work closely with national policy and training institutions, as well as other international assistance programs to ensure sustainability of the nurse training program.

Hospital Management and Operations

- ***The partnership should continue to provide technical assistance to the hospitals in improving administration, in particular by strengthening middle management, building on the training completed this year.*** The US partners should assist the hospitals with the budgeting process with particular emphasis on improving their negotiating power with the Ministry of Health (MOH) and other funding sources.

- ***Special effort should be taken by the partners to foster interest among government officials in a national investment in developing health care management training.*** The partners should ensure that the middle-level management course developed through the partnership project is institutionalized as a certificate training course for middle-level managers throughout the country.

Emergency Medical Services

- ***In order for the partnership's training in emergency medicine to become sustainable, it should be institutionalized through adoption a training-of-trainers approach and development of a standardized curriculum that follows evidence-based emergency medicine.*** This training could then be provided to practitioners beyond just those at partner hospitals. This has to some extent started happening already with the Pediatric Advanced Life Support (PALS) training courses.

- ***The successful experience of the emergency room at Children's Central Hospital should be disseminated and replicated throughout the country through continuous collaboration with the government.*** Not only should the partners replicate the ER at Gudushauri to develop the first adult ER model in the country, but the partners are also encouraged to replicate the ER in other regions such as Kutaisi. Since the funds of the partnership project are limited, this will require financing by the government or other funding sources.

- ***The position of ER physicians should be enhanced at partner hospitals and replication sites through partner advocacy aimed at official recognition of emergency medicine as a specialty for physicians and nurses.*** This would require creation of the specialization in Georgian medical schools and accompanying Board Certification.

Clinical Practice Guidelines

- ***AIHA will facilitate partner collaboration with professional associations as well as relevant government bodies to ensure the review and adoption of the developed evidence-based guidelines and their dissemination throughout the country.*** Partners are also encouraged to work with the MOH to redefine out-of-date national standards of care.

MID-TERM ASSESSMENT OF THE TBILISI/ATLANTA PARTNERSHIP

1. BACKGROUND

Georgia, like many other countries of the former Soviet Union, has suffered through a rapid, difficult transition to democratic rule and market economic reform. Perhaps no other social service has been affected as adversely as the Georgian healthcare system during this transition. Following the breakup of the Soviet Union, health indicators for Georgia deteriorated to reveal a healthcare system increasingly tasked beyond its capacity and in dire need of educational support and institutional reform. In a society in which the distribution of income is extremely unequal, the Georgians poor bear the brunt of worsening health conditions. Inadequate, obsolete facilities, equipment, medications, supplies, and training in the healthcare sector challenge the system's ability to ensure care for those in need. Other problems include: inadequate professional education for doctors, nurses, and health managers; a lack of contemporary standards for nursing practice; limited availability of medical informatics; a lack of training in evidence-based medicine (EBM); and the absence of accepted, country-wide clinical practice guidelines (CPGs).

Recognizing the need for reform, the United States Agency for International Development (USAID), through the American International Health Alliance (AIHA) and its partners, has contributed significantly to critical policy changes initiated by the government of Georgia to improve the quality, equity, and accessibility of health services for the Georgian population. In April 2003, AIHA announced the formation of the partnership between the Partners for International Development – in consortium with Emory University, Georgia State University, and Grady Hospital – in Atlanta, Georgia, and the Gudushauri National Medical Center and Iashvili Central Children's Hospital in Tbilisi, Georgia. The Gudushauri National Medical Center (NMC), a new institution financed by international donors, which opened in 2003, was identified by the Ministry of Labor, Health and Social Affairs (MoLHSA) as a priority because it would serve as the central adult referral hospital in the country. Nearly 12,000 feet of office space at the NMC facilities were designated for partnership program to use in clinical training and other program activities. Central Children's Hospital (CCH) was chosen because of its significance as the main pediatric referral hospital for the region.

In addition to the US and Georgian hospitals, the partnership includes a Georgian NGO, Partners for Health (PfH), which was established through a previous AIHA partnership in Georgia. The current partnership program provides funding to PfH to expand its training capacity and support the Georgian partners in areas such as evidence-based medicine, clinical practice guidelines, nursing, and continuous quality improvement. PfH has also been involved in setting up resource and training centers at both hospitals and in training coordinators to oversee these centers. PfH's expanded training capacity has allowed it to have a national presence, training professionals from other, non-partner institutions and thus promoting sustainability within Georgia.

AIHA Approach – The Partnership Model

A partnership is a long-term commitment that brings people, institutions, and communities together to achieve common goals through the sharing of ideas, labor, and even risks. The US partners provide in-kind contributions and much-needed assistance to their overseas counterparts by drawing on the expertise of American physicians, nurses, administrators, and technical staff whose time is contributed on a voluntary basis to the program.

At the start of a partnership, partners from the US and host country identify the health needs of local populations and develop strategies for meeting these needs. In the case of the *Tbilisi/Atlanta* partnership, US and local partners conducted an 18-month in-depth needs assessment. During this time, the partners met with key stakeholders from hospital institutions and the Ministry of Health to assess the major weaknesses in healthcare delivery. Their main findings revealed that the quality of care being provided to patients was very low, primarily due to the inadequate training and education for healthcare workers. The hospitals had poor information systems, weak management and administrations, and a complete absence of job descriptions and evaluation systems for staff members. Through the collaborative nature of the needs assessment, with participation from both US and Georgian partners, as well as local stakeholders, the partnership instilled a strong sense of ownership and buy-in within the local community. The needs assessment fostered strategic planning processes that focused on appropriate and sustainable solutions to the identified healthcare problems.

Based on the outcomes of the assessment, the partnership developed a project goal and related objectives. Consistent with USAID's **IR 3.1.2.1, Increased Capacity to Deliver Health and Other Services,** the overall goal of the four-year partnership is to improve the quality of health and healthcare services provided by the Georgian partner organizations by developing sustainable and replicable capacity in nursing, healthcare management and hospital administration, continuous quality improvement, and medical informatics. Specific objectives include:

1. To improve the delivery of nursing care services in selected clinical areas within the two partner hospitals.
2. To strengthen the organization, operations, and management of partner hospitals.
3. To increase the use of evidence-based clinical practice guidelines at partner hospitals.
4. To expand the capacity of partner hospitals to offer new services in emergency medicine.

2. METHODOLOGY

The assessment of the *Tbilisi/Atlanta* partnership activities was conducted using qualitative research methods of semi-structured interviews, focus groups, site visits, and document review. Statistical data was also gathered from the partners.

Interview informants included the general director of Children's, the CEO of Gudushauri, and the local project manager, as well as financial and administrative managers, chief nurses, nurse trainers, continuous quality improvement staff, emergency staff, and nurses from both hospitals.

Individual interviews were first conducted with the leaders of the Georgian partner organizations. The focus was to determine their positions on the partnership, to hear their perspectives on achievements and barriers, and to assess the state of institutional commitment. Interviews were also conducted with the chief nurses from NMC and CCH to evaluate the progress that had been made in establishing a professional nursing model. A final interview was conducted with the chief of the emergency room at CCH to explore how the system of emergency care has improved since the opening of the ER in June 2004.

The assessment team also conducted five focus groups consisting of between four and 10 individuals. One group consisted of Georgian nurse trainers who had spent three months in Atlanta working with the US partners to develop continuing education modules. The focus of this session was to assess training capacity and immediate outcomes of the continuing education courses for nurses at NMC and CCH. A second group was comprised of nurses who had received training through the continuing education courses developed through the partnership. This group discussed what nurses have been doing differently since the trainings began. Two focus groups were comprised of finance and administrative managers from NMC and CCH, and these examined issues of organizational structures and financial management systems. A final focus group of continuous quality improvement staff from Partners for Health, NMC, and CCH and explored issues related to the development and implementation of clinical practice guidelines (CPGs) at the hospitals.

3. KEY FINDINGS

3.1 NURSING SERVICES

HIGHLIGHTS AND MAJOR ACCOMPLISHMENTS

- New nursing structures and services established at partner hospitals
- Job descriptions and performance evaluations developed
- Documentation forms for quality control developed
- Nursing Resource Center opened at CCH to provide continuing education and training to nurses from CCH and NMC
- Increased role of nurses in providing patient care

Nursing Structure and Quality Control

Partnership activities have been the main driving force for establishing nursing structures (i.e., defined nursing roles, job descriptions, reporting structures) at the two hospitals. The US partners were particularly influential in determining how nursing services should be structured at NMC since they were involved from the start, prior to the opening of the hospital.

In 2003, the chief nurses from NMC and CCH went to Atlanta to work with the nursing staff from Grady Hospital. During this visit the two became familiar with nursing management approaches, including quality control techniques, protocols, and nursing structures. Following the visit, the chief nurses worked with the leadership of the two hospitals to establish distinct nursing services within their hospitals and the necessary

documents and processes to support these services. Seven nursing services were established at NMC: perinatal services; trauma orthopedics; internal medicine; surgical services (general, neurosurgery, angiosurgery); operational theater; emergency services; and diagnostic services (radiology, lab). Four nursing services were established at CCH: emergency services; surgical services; pediatrics; and out-patient services. This division of responsibilities into different service areas represented a novel approach in Georgia.

The chief nurses also worked with the partners to develop nursing standards and protocols similar to those that they had seen in Atlanta. They wrote job descriptions for nurses in all of the established services at NMC and CCH and have kept these updated. They also created documentation processes to monitor care and assess nurses performance, contributing to quality control. Prior to the partnership activities, nurses did not document any of the procedures they performed; therefore, there was no way of evaluating the quality of care being provided. Through the partnership, the nurses at CCH and NMC jointly developed three quality control forms. These included documentation forms for cleaning the operating room, IV and catheter care, and wound management. Nurses now use these forms regularly and submit them to the dressing room nurse and chief nurse, who review them. This process helps nurses to monitor care being provided, identify nosocomial infections, and improve quality control.

Newly developed performance assessment forms also serve to improve quality of care. These forms are filled in by the unit chiefs every month to monitor the patient load of each nurse and quality of services being provided. The nurses receive feedback on their performance and disciplinary action when needed. The chief nurse submits an annual report to the general director.

Training

Training has been a large component of the partnership activities to improve the delivery of nursing care services. *Table 1* below summarizes the trainings held for nurses from July 2003 – February 2005.

Table 1. Summary of Nurse Trainings

Date	Focus of Training	Trainers	Participating Institution	# of participants
July 2003	Infection Control for Hospital Nursing	US partners	NMC, CCH	24
August 2003	Patient Care for Hospital Nursing	Georgian Nursing Association (GNA)	CCH	41
Sept. 2003	IV Therapy for Hospital Nurses	PfH, EMS training Center	NMC, CCH	20
January 2004	Emergency nursing and triage	US partners	NMC, CCH	40
February 2004	Peri-operative Nursing Practices	US partners	NMC, CCH	21
February 2004	Pain Management Training	US partners	NMC, CCH	23
February 2004	Infection Control	US partners	NMC, CCH	24
February 2004	Surgical Peri-operative Nursing Techniques	US partners	NMC, CCH	22
March 2004	Nursing Pharmacology	PfH, GNA	NMC	21

Date	Focus of Training	Trainers	Participating Institution	# of participants
Feb/March 2004	Understanding Lab Results	NMC, CCH staff	NMC, CCH	125
March 2004	Preparation of Transfusion Materials	CCH	CCH	101
April 2004	Respiratory System Allergies & Intubation	US partners	NMC, CCH	101
May/June 2004	Acute/Chronic Bronchitis, tonsillitis	CCH staff	CCH	64
June 2004	Tuberculosis in Children	CCH staff	CCH	99
June 2004	Perinatal Nursing	NMC staff	NMC	12
July 2004	Acute/Chronic Osteomielitis	CCH staff	CCH	77
October 2004	Nursing Triage	US partners	NMC, CCH	32
Nov. 2004	Emergency Nursing	US partners	NMC, CCH	25
January 2005	Prevention of Gastro-Intestinal infections	CCH staff	CCH	48
January 2005	Hemodialysis in Nursing Practice	CCH staff	CCH	102
February 2005	Nursing Triage	CCH staff	CCH	69
February 2005	Vein Catheterization and IV therapy	NMC staff	NMC	100

From January to March 2005, four Georgian physicians participated in a three-month training-of-trainers program at Emory University's Neil Hodgson Woodruff School of Nursing in Atlanta, Georgia. Between the four of them, the visiting physicians attended all 15 nursing courses offered during the semester at Emory and worked closely with Emory's faculty to develop a clinical curriculum consisting of 27 modules for training to be implemented in Tbilisi at partner hospitals. During their stay in Atlanta, the four physicians also received instruction on adult and clinical training techniques at the teaching institute. They became certified in the American Heart Association's course in Pediatric Advanced Life Support (PALS), in order to be able to teach this state-of-the-art course in Georgia.

With the help of the US partners, a Nursing Resource Center (NRC) was opened at CCH on September 14, 2004. The primary use of the NRC is for in-service trainings, which now occur on nearly a weekly basis since the curriculum has been developed. It has also been equipped with computers and an internet connection, and houses many resources (e.g., books, literature) for the nurses. Nurses from both NMC and CCH find the NRC very valuable, and are happy to have their own center for training and resources. A second NRC is expected to open at NMC by the end of summer 2005. The opening has been delayed due to the time spent acquiring and refurbishing the space.

The partnership has emphasized the training-of-trainers model in an effort to build capacity and sustainability for training and continuing education of nurses. To date, more than 15 nurses at each partner hospital have become certified and can provide general training for nurses. Certificates are received after nurses pass 15 of the 27 nursing modules. Those who are certified also participate in the development of hospital protocols for nursing, and serve on Infection Control and Quality Improvement committees within the hospitals.

Two of the Georgian physician trainers (who studied at Emory) follow up with the trained nurses on a quarterly basis to assess their skills since the training. Follow-up procedures include observation and review of the documentation forms the nurses fill out. The trainers provide feedback to the nurses in the form of a written report, and also discuss any issues with the chief nurse.

There is a general consensus among the nurse administrators, trainers, and trainees that the trainings have brought very positive results. The nurses participating in the trainings report increased knowledge and confidence in their work and feel that they have a higher level of professionalism as a result of the trainings. *Table 2* below summarizes the pre- and post-test scores from the most recent trainings.

Table 2. Pre- and Post-test Scores, June-July 2005 Trainings

Title of Training	# of Participants	Average Pretest Score	Average Post-test Score
Post-operative care of orthopedic patients	18	79.5%	91.3%
Post-operative care of genitourinary patients	23	81.9%	89.6%
Adult Physical Assessment	18	48.7%	81%
Triage	16	51.8%	72.2%
Child respiratory system	25	58.0%	73.0%
Pediatric Physical Assessment	16	69.0%	94.5%

One of the major outcomes of the nurse trainings is the increased role the nurses play in patient care. Prior to the trainings, the involvement of nurses in patient assessment and monitoring was minimal. Now the nurses are responsible for IV insertions and monitoring, catheter insertions and manipulations, wound management, and patient education – all of which used to be done by physicians. Nurses are also increasingly involved with the documentation of procedures and patient monitoring. The nurses find documentation to be useful rather than burdensome, reporting that the forms help them provide better care to patients.

The partner hospitals have also seen an improvement in patient outcomes and patient satisfaction, perhaps as a direct result of the nurse trainings. The rate of pressure ulcers, the average length of stay, and the rate of complications have decreased, while surveys conducted show that patient satisfaction has increased. According to the nurses, patients (and their parents) now receive much of the patient education from the nurses. The patients are now aware of this and consider the nurses a source for more information about their (or their child's) condition.

In general there has been a positive reaction among the physicians over the increased role of the nurses. Most physicians are confident of the skills of those nurses who have undergone extensive training and allow them to be work more independently and take on more responsibilities. However, the nurses' ability to perform their role in this manner remains contingent on the flexibility of individual physicians and administrators. There have been

instances in which physicians prohibit nurses from performing procedures that they have been trained to do because those procedures are not the nurses' responsibility as state in hospital protocols. This indicates that the protocols developed through the partnership may need to be updated to include greater flexibility to take into account how increased training has improved nurses' abilities to perform certain tasks. Nurses and nurse trainers also emphasize the need for the physicians to be educated on the new role of nurses. This has started to take place within the healthcare management trainings the physicians are participating in, but continuous education is needed.

In summary, the professional role of the nurses at NMC and CCH has greatly improved since partnership activities began. Nurses' knowledge and confidence have increased through training, and all nurses interviewed emphasized the importance of and continuing education courses. Nurses expressed the need for additional training in triage and PALS and would like to focus on practical application skills. Those that had the opportunity to visit the hospitals in Atlanta enjoyed their experience and found that it helped their own practice tremendously to see how nurses in the US cared for patients. The nurses' overall satisfaction with their jobs has improved as the nursing role expands, but they do not feel that they have achieved a level of professional independence commensurate with their skills since some physicians and hospital administrators show resistance.

There was consensus among all nursing administrators, trainers, and staff members interviewed that in order for the increasing role of nurses in patient care to be recognized and accepted, it must be institutionalized. They consider the continuous education to be valuable and important for the short-term, but would like to see a university Bachelor of Science in Nursing (BSN) program established for the long-term goal of improving the profession of nursing.

3.2 *HOSPITAL MANAGEMENT AND OPERATIONS*

HIGHLIGHTS AND MAJOR ACCOMPLISHMENTS

- Significant training for mid-level managers from NMC and CCH
- Improvements in organizational structures with goals and objectives developed for each department within both partner hospitals
- Contractual packages with insurance companies have increased at NMC and CCH
- Changes in physician compensation at both partner hospitals from a salary to a "per-procedure" performance-based compensation
- Increased occupancy rates at NMC and CCH
- Decreased mortality rates seen in both partner hospitals

Georgia started reforming its healthcare system more than a decade ago, after the fall of Communism. As with many reform efforts, the results have been mixed. Despite notable achievements at the two partnership hospitals, they retain many of the serious problems endemic to the healthcare system. The partners have taken steps to engage the Ministry of Labor, Health and Social Affairs (MoLHSA) and the State Unified Social Insurance Fund (SUSIF) in the trainings, technical assistance activities, and discussions in order to address some of these problems at a national level. Nevertheless, major challenges at the level of national healthcare financing remain to be defined and addressed. These shortcomings in the

system go beyond the scope of the partnership and require more effective regulating principles and standards, backed with adequate financing of the system.

National health policy and system restructuring in Georgia are significantly influenced by donor organizations, and policies are often defined in collaboration with major donor agencies, such as the World Bank, USAID, European Union, and the British Department for International Development. Despite these efforts, a cost-effective, equitable, efficient, and solvent system has not yet been put in place.

Given these pre-existing conditions, AIHA's *Tbilisi/Atlanta* partnership has had to contend with a number of external factors which entail working closely with the MoLHSA. Some of the challenges which still need resolution are: identifying the basic benefit package, with core services to be covered by the government; regulating the structure of the healthcare system in terms of number of hospitals and other healthcare providers; building legal referral links between providers; determining the need for types of services and defining and introducing clinical protocols; achieving the optimal mix of public and private financing in delivering health services; and introducing unified payment standards.

The partnership has been very active in strengthening the organization, operations, and management of both Gudushauri NMC and CCH. During visits to Tbilisi in the first year of the program, partners laid the groundwork for improving organization management and infrastructure and assisted in the development of budgets and financial statements ascribing to Generally Accepted Accounting Principles. On two visits from hospital administrators to Atlanta, activities focused on metrics concerning cash flow, receivables, balance sheet development, income statements, allocation of direct and indirect expenses, cash versus accrual accounting, administration organization, board structure and function, and quality assurance.

In addition to providing individual technical assistance in operations and management to the partner hospitals, the US partners have also provided several trainings to management staff from both Gudushauri NMC and Iashvili Central Children's Hospital on such topics as: budgeting and monitoring tools; external reporting documentation; essential functions of financial management; organizations and their functions; human resource management; leadership functions; and methods of assessing patient care and quality outcomes. In addition, three Tbilisi partners participated in a one-month intensive TOT course in healthcare management in Atlanta. The course represents an effort by the partnership to assist Georgia in introducing a Master's-level program in healthcare administration (MHA), while broadening the base of individuals qualified to lead a financially sound and outcomes-based healthcare system. During the TOT course, the Georgian trainers developed training modules and case studies for MHA certificate courses used by the partnership.

Management at Gudushauri National Medical Center

The AIHA/Tbilisi office hosted an orientation workshop for the *Tbilisi/Atlanta* partnership to outline and discuss the goals and objectives for the four partnership components: nursing; organization and infrastructure development; hospital management and operations; quality improvement and continuing education. The first deputy minister of health and key representatives of Gudushauri National Medical Center, Iashvili Children's Central Hospital

and Partners for Health, as well as partners from Atlanta, Georgia, participated in the workshop. As part of this workshop, the Atlanta partners worked with the management team of Gudushauri NMC and the MOH to plan for the opening of the hospital. The Atlanta partners gave recommendations on departmental opening plans, the staffing plan, and the budget for the hospital opening.

During an exchange to Atlanta early in the partnership, partners discussed the operational and management structures of the hospital and measures to improve them. In January of 2004, a US partner visited Gudushauri NMC and spent extensive time with the leadership of NMC to determine the financial condition of the hospital and to review historic balance sheets and income statements for the period ending December 2003. After careful analysis and review, the US partners determined that the hospital was on the verge of bankruptcy, based on a cash accounting basis. Much of this had to do with the fact that NMC had borne the full cost of the hospital renovation, a total of over 20,000,000 Georgian Lari (approximately 11,000,000 USD). NMC could not realistically be expected to have sufficient cash reserves for 30 days of expected expenditures, considering the negative earnings and the outstanding accounts receivable.

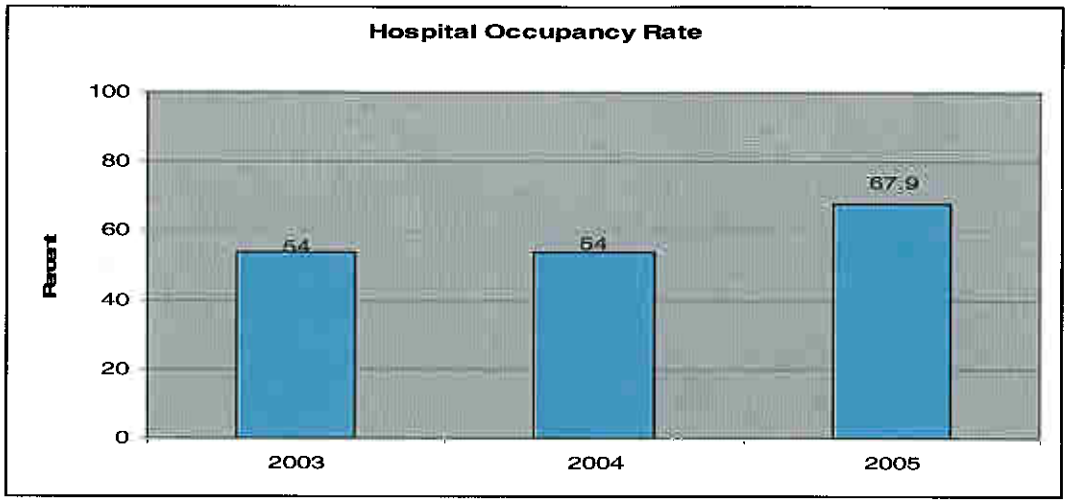
The US partners met with human resources and reviewed the organizational chart and persons allocated to each major hospital function. The US team's staff recommendations had not been followed and the team continued to question the high level of staffing for a hospital of its size. The team suggested NMC analyze staffing against a reasonable level of care per patient hour or day.

The US partners also met with the deputy chairman from the State United Social Insurance Fund to review healthcare financing issues and recent changes in the structure of the organization. The deputy chairman stated that NMC had paid higher than expected wages for physicians, thus creating a cash problem for the hospital. The US partners also found problems with SUSIF's method of reimbursement, which was based on length of stay and therefore consumed resources in an unrealistic manner. SUSIF also expected an 80 percent occupancy rate, which is unrealistically high for Gudushauri.

Following this assessment in early 2004, US partners made a series of recommendations in order to streamline finances and account for inefficiencies. NMC's implementation of these recommendations, along with the extensive training for middle managers, has lead to important changes in the management and financing of NMC:

- Gudushauri NMC is recognized as the national hospital and referral center for the country. Because of this, the hospital has been able to rapidly increase its occupancy rate from 54 percent in 2003, its opening year, to nearly 68 percent in 2005, thus increasing income to the hospital. See *Figure 1*.

Figure 1.



- Laboratory services are now being sold in the private market with beginning success. This is an important revenue opportunity and sets the example for other services like imaging. Reagents are now routinely available and volumes have increased. However, this has a downside, in that with increased availability, clinical utilization of testing may increase without clinical justification. The quality improvement system should monitor utilization for evidence-based usage.

- To cut off patient and physician bypassing of the institution fee collection system, a new ambulatory prepayment system has been designed. This has a significant benefit for patient awareness of the rules for payment, reducing the gray market payments and accounting for all cash due to the hospital. This new system has increased income from formal fees-for-service. It also transitions the ambulatory area to more closely resemble a clinic and supports the NMC physician compensation structure.

- With the assistance of the US partners, the management team from NMC has been able to develop a sophisticated and unified patient registration system that assists in tracking what care provided and expenses incurred. The registration system is very detailed and can provide valuable information to management for decision making and prioritizing. It is now transparent, so the SUSIF can easily also access data about resources used and expenses incurred for each patient. The registration team composed of the nurse supervisors who perform the data entry, six accountants, and two economists who conduct the analysis. All team members were trained in 2003. A total of 98 computers are used in the registration network. This system was tested and evaluated by two of the Atlanta partners, and the Ministry of Health has expressed its interest in replicating the system in Kutaisi.

- Significant changes in the physician compensation system have been made. In October 2004 the physicians were moved from a salary to a "per-procedure" performance-based compensation formula. This change needs to be communicated within the Ministry of Health and to competitor hospitals to position NMC as a price and salary competitive institution.

- Significant progress has been made on timely payroll payments. With the SUSIF being generally prompt in their payments, all non-physician staff, except for a few nurses, are current on salary compensation. The hospital has been able to pay 44 percent of the debt to the staff. Physicians have been paid regularly in the past 6 months.

- NMC is currently in negotiations with a number of private insurance companies, including several international companies. Between 30 and 40 percent of doctors practicing at NMC now have contracts with these companies to perform services at NMC, thus increasing hospital revenues from private insurance companies.

- The management team has had some success with reducing operational expenses. Some reductions can be attributed to reduced income taxes, but the hospital is also making more efficient use of its resources. For example, two generators have been replaced with one, thus cutting fuel costs. The hospital has also outsourced laundry services and shares equipment and maintenance staff with Children's Hospital.

- Noteworthy changes within the organizational structures have also occurred based on assessments of workload. Each department now has its own goals and objectives and functions as an independent unit. The responsibilities of the administration are shared by the chiefs of departments. It is the hospital's goal to delegate the development of budgets to these chiefs. The number of committees operating in the hospital has expanded and includes: a quality control committee, a committee for rational use of drugs, and an infection control committee.

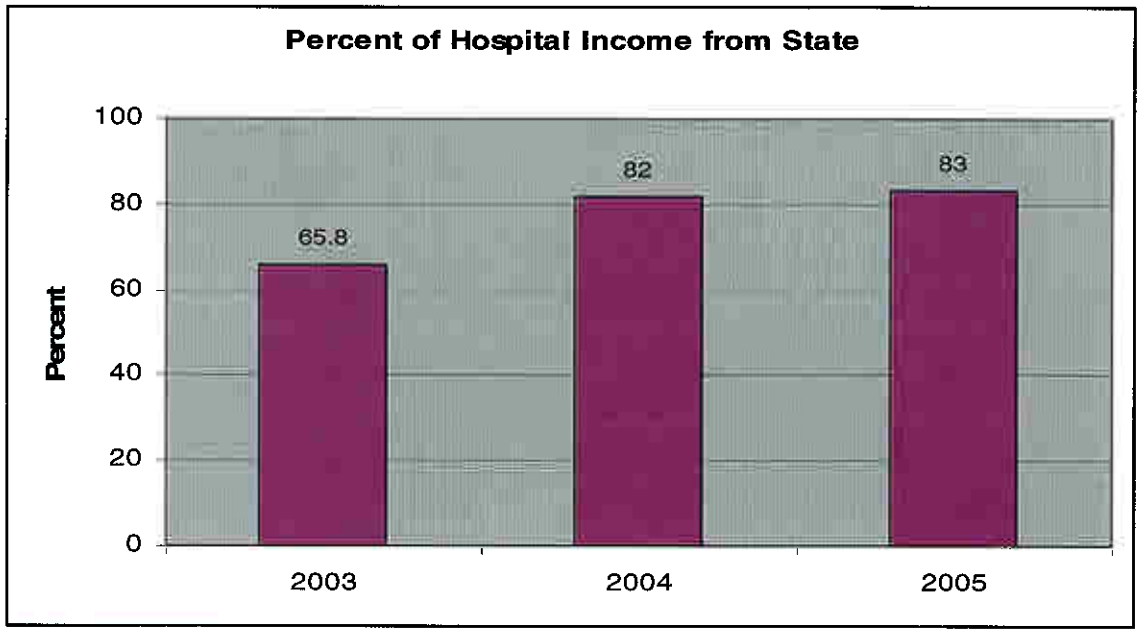
- With the support of the US partners, NMC has developed a quality assurance system, which includes an improved patient records system. This system of paper-based medical records is much more sophisticated than systems at other Georgian hospitals. Various departments provide input and mutual control which adds to the quality control because work is checked by multiple people. The nurse supervisors are responsible for compiling all patient forms and archiving the records.

- Efficiency of inpatient flow has improved. For example, when the partnership was initiated, re-allocation of beds would happen only once a year, even if one or more departments were overloaded. Now, the re-allocation of beds is much more flexible and efficient; beds are re-allocated based on the actual, current needs of each department.

- Recognizing that the outpatient system is not efficient, NMC management is in the process of changing the outpatient registration system. Specifically, management is modifying the organizational structure and payment procedures to better facilitate outpatient flow. Management hopes to have the new outpatient system operational by next year.

- As seen in *Figure 2,* below, hospital income generated by the state has increased from 65.8 percent in 2003 to 83 percent in 2005. This is mainly because the hospital now operates as a referral center for the country and services provided under the referral program are covered by the state. This shows that NMC is increasingly supported by the state, and operates more as a public hospital, as opposed to operating as a semi-private institution.

Figure 2.



Despite the progress NMC has made with regards to organization, operations, and management, some problems still persist. One remaining issue is the necessary reduction in physician staffing levels. The new performance-based compensation system may result in some physicians leaving on their own. However, in the absence of voluntary changes, the staffing needs to be lowered to reduce expenses. US partners provided specific recommendations for lowering staff in limited services (anesthesia, traumatology, and imaging). The most difficult hurdle to change seems to be the apparent inhibition of management by the supervisory boards on the reduction in physician forces. Other institutions have made physician reductions without undue complication. The supervisory board should provide the political authority to enact the necessary changes.

A report of increased patient visits in early 2005 was short-lived. The MoLHSA transferred responsibility for the vulnerable program to district, municipal, and local authorities. This change resulted in decreased outpatient volume and lowered admissions to the hospital. Additionally, there is growing evidence that physicians on staff are referring patients to other entities for lab and imaging work. In interviews, some staff member also expressed a suspicion that physicians are admitting their patients to other facilities where personal compensation can be optimized. The split loyalties of the physicians remain a problem for management and the supervisory board. The medical staff seems at times to be NMC's worst enemy. Corrective action needs to be made by management with the support of the supervisory board to require staff physicians to support the programs of the institution.

Management at Iashvili Central Children's Hospital

Since Central Children's Hospital had been in operation since 1973, it was not in the financial and organizational crisis that Gudushauri was in when the *Altanta/Tbilisi* partnership began. However, there were still financial and managerial weaknesses within CCH that the partnership has been instrumental in addressing. Hospital operations are improving through the implementation of the mid-level management training. With the support of the US partners, the management at CCH has modified organizational structures to become much more flexible. Each department now has a unit chief who reports to the general director. Several new organizational structures have also been created and include a department of continuing education and committees on: ethics, the rational use of drugs, infection control, and protocol/guideline development.

Goals and objectives of each department are now established, and job descriptions have been developed for all staff members. In 2000, a total of 890 staff members were employed at CCH – too many for the low level of occupancy. However, since the implementation of the job descriptions and performance evaluations, many employees have left voluntarily, bringing the total number of staff members to 688 in 2004 (see *Table 1* below). This voluntary attrition has been a tremendous cost savings for the hospital.

Table 1.

Year	# of Physicians	# of Nurses	# of Cleaners	# of Admin/Tech	TOTAL
2000	229	357	134	170	890
2001	222	328	96	166	812
2002	195	302	100	147	744
2003	190	280	116	135	721
2004	181	259	109	142	688
Difference	**48**	**98**	**25**	**28**	**202**

The main goal, with respect to management and operations of the hospital, was to improve performance outcomes, which were quite poor. Specifically management wanted to improve financial indicators, increase the number of patients served, and improve the quality of care provided. Prior to partnership activities, there were unnecessary long hospital stays, and admission rates were low. Through the opening of the emergency room, the admission rate has increased from just 5,000 patients a year to 15,000 a year. The implementation of clinical practice guidelines has decreased the average length of stay from 13 days to seven, and the hospital mortality rate has decreased from 6 percent in 1999 to 2.3 percent as of 2004.

Financial indicators have improved since the partnership initiated. Because of the quality improvement initiatives and the increased number of patients served, CCH has greater negotiation power with the state insurance companies; therefore contractual packages with insurance companies have increased (see *Figure 3*).

Figure 3.

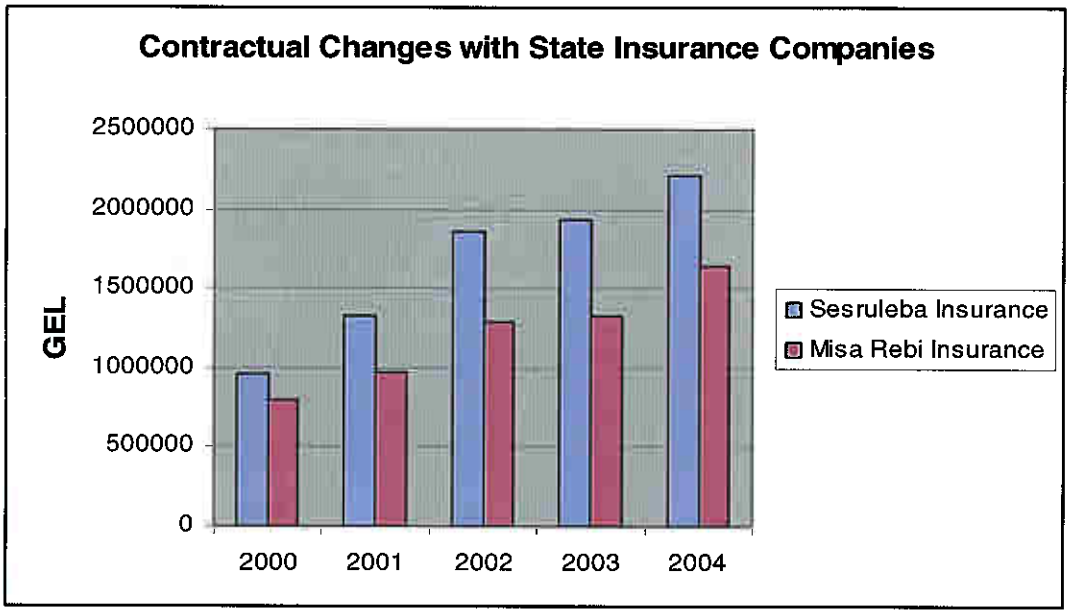


Figure 4.

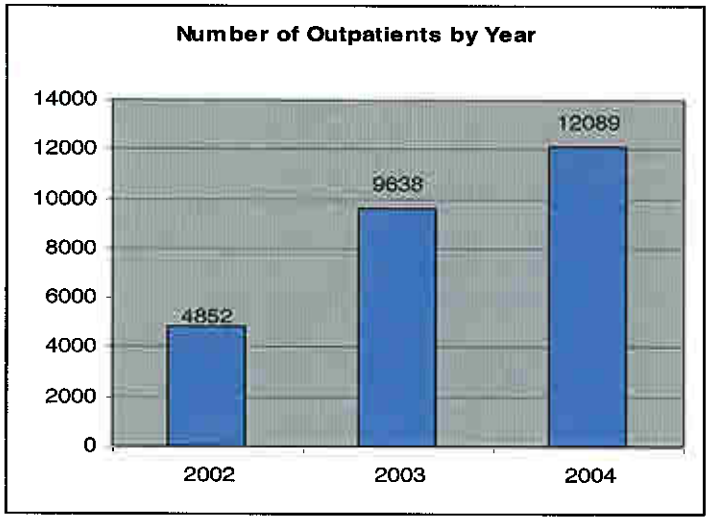
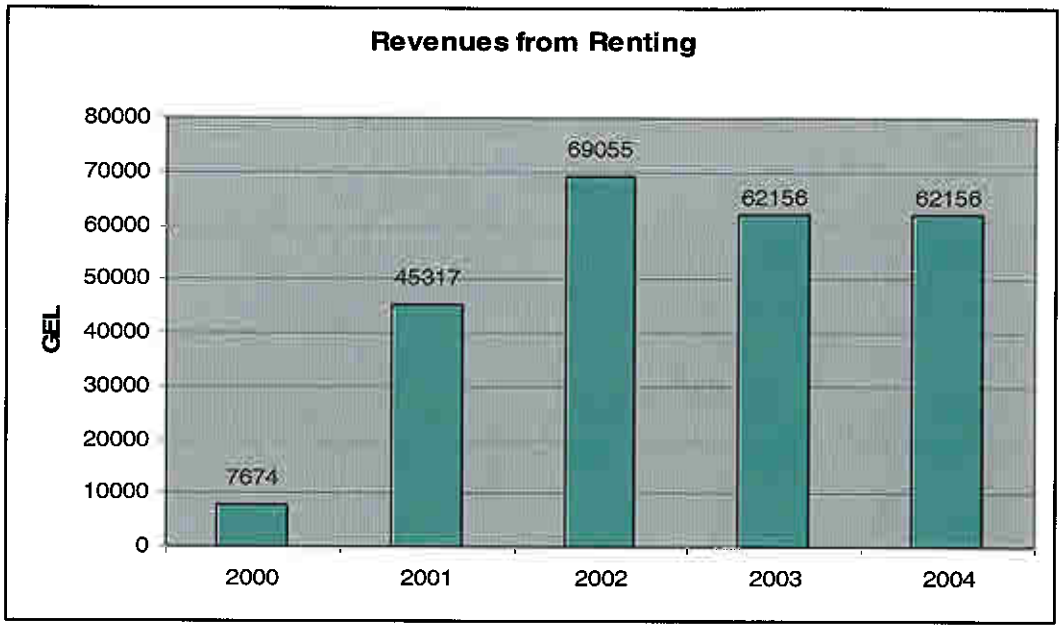


Figure 4 shows that the number of outpatients being served has been increasing since 2002. Since insurance companies do not cover outpatient services, this represents a growing source of fee-for-service revenue. Revenue for outpatient services was 10,000 Lari (approximately 5,500 USD) last year. Non-medical revenues, from renting space and gift shop sales, have also increased since 2000 (see *Figure 5,* below).

Figure 5.



Management at Central Children's Hospital has created a system where the physicians are motivated to participate in the revenue system because half of the money that is generated by that doctor (number of services provided) is transferred into the salary fund. In order to increase the motivation of staff, the salary for physicians has been tripled, and the salary for nurses doubled. The budget for salaries has increased by 350 percent since 2000. For the first time in Georgia, physicians are actually earning money making it a profitable profession at CCH. As a result, many physicians are attempting to get a job at CCH. Approximately 25 junior doctors go through a year-long selection process at CCH in which their work is evaluated by CCH staff, and then the top five are selected to become staff physicians.

3.3 EMERGENCY MEDICAL SERVICES

HIGHLIGHTS AND MAJOR ACCOMPLISHMENTS

- First modern pediatric emergency room in the region opened at CCH
- ER physicians identified and recognized as specialists at CCH
- Decreased hospitalization rates at CCH
- Significant training and continuing education in emergency medicine
- 100 percent of suturing performed by ER physicians
- Pediatric pain-management practices adopted at CCH
- First Pediatric Advanced Life Support (PALS) training

Iashvili Central Children's Hospital

Prior to the 2004 opening of the emergency room at Children's, there was no comprehensive pediatric triage and emergency room in the Caucasus. Medical emergencies were handled in intensive care units (ICU), many of which were located on the top floor of hospitals, causing precious time to be lost in transport. Complications frequently transpired, and three deaths occurred in the elevator at CCH while attempting to get the patient up to the ICU. In

addition, admission departments were inappropriately staffed, and care was inefficient, resulting in a high hospitalization rate (91 percent) for emergency patients.

After witnessing the efficiency of emergency services in other areas of the world, the general director of CCH decided it was time to open the first modern pediatric emergency room in the region. With the help of its staff, and independently of the AIHA partnership program, CCH raised money from 22 organizations and individuals and worked with emergency physicians from the Children's Hospital of Philadelphia to develop an architectural plan for the emergency room. Approximately 500 square meters of CCH were renovated for the ER, and it officially opened on June 1, 2004. The pediatric ER provides critically injured children with state-of-the-art emergency care. It is open 24 hours a day, seven days a week, and has its own lab, X-ray and ultrasound machines, a trauma room, a computerized management information system, and a 24-hour hotline.

Though not initially part of the *Tbilisi/Atlanta* partnership workplan, an ongoing relationship has developed between pediatric emergency medicine physicians from Emory University, and administrators, doctors, and nurses at the M. Iashvili Central Children's Hospital. Creating a viable emergency medicine system through training, development of emergency practice guidelines, and operationalization of the emergency department have become critical components of the *Tbilisi/Atlanta* partnership activities. Even prior to the opening of the ER, US partners played a key role in the development of clinical practice guidelines (CPGs) for emergency care. Seven conditions were chosen for CPG development, on the basis of severity and frequency at which these conditions occurred among the hospital's patients. They included: diarrhea; abdominal pain; nervous system infections; head trauma; febrile seizures; coughing; and triage. Following implementation and training on the CPGs, there was a noticeable decrease in the average length of stay for hospital patients (from 13 days to seven days), and fewer patients were being hospitalized while more were being directly discharged from the emergency room, (as seen in *Figure 6),* thus resulting in greater efficiency. With decreased hospitalization and subspecialty utilization (i.e., surgeons and neurosurgeons), the estimated savings for a nine-month period were 712, 411 Lari (equal to 389,295 USD).

Figure 6.

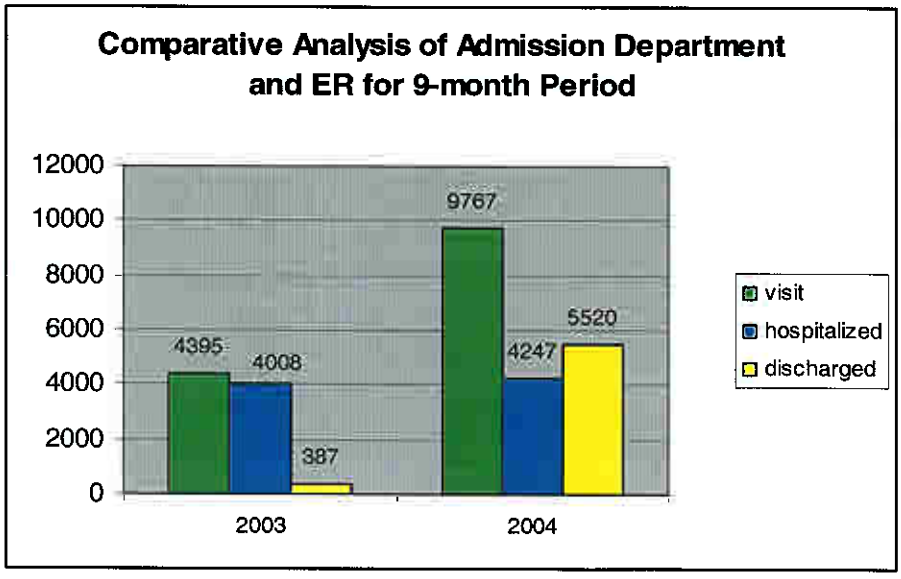


Figure 6 shows that the hospitalization rate has decreased over time in comparison to the discharge rate. In 2003, prior to the opening of the ER and implementation of CPGs, the hospitalization rate of patients admitted was 91 percent. Nine months later, patient visits had increased, and the hospitalization rate had decreased to 44 percent.

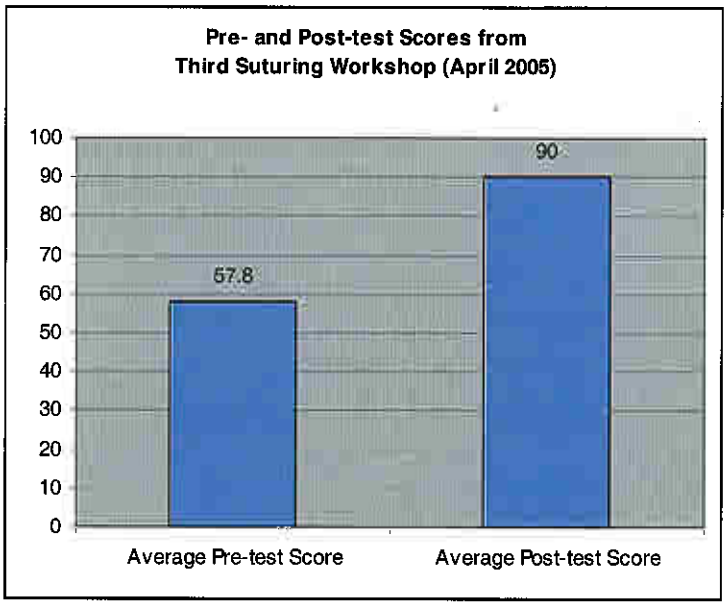
Four months following the opening of the emergency room, a physician from Atlanta conducted a needs assessment of the emergency services at CCH by distributing surveys and shadowing the staff of the emergency admission unit during the night shift. The physician also held meetings with the chiefs of the ER and neurology departments at CCH in order to develop recommendations for restructuring the existing emergency and ambulance services. The assessment revealed the following information:

1. *Clinical suturing skills* – Very few physicians in the ER were suturing. Instead, they relied on specialists (surgeons, and neurosurgeons) for laceration repair.
2. *Triage* – Nurses were not doing triage at all; rather, junior doctors were assigned to triage and were doing the job without any nursing help. Staff questioned members about this indicated that the nurses lacked the skills to perform this job.
3. *Pain management* – Utilization of pain control practices was very low. Only Tylenol and ibuprofen were given for pain. Local anesthesia was given for suturing, but no topical anesthetics were employed. There was no lockbox with pharmacy control to store or provide narcotics.
4. *Continuing education* – Little continuing medical education was being done. Quality improvement conferences and morbidity and mortality reviews common in Western hospitals were lacking.
5. *Staff development* – The chief of the ER indicated that no formal plan for staff development or delegation of administrative and teaching responsibilities had been devised.
6. *Data collection for quality improvement* – Data collection about actual progress (clinical skills, utilization of the emergency room, and quality improvement using specific clinical indicators) was not taking place routinely.

Based on the findings from the assessment, pediatric emergency physicians from Emory University in Atlanta devised a training and continuing education plan for the emergency room staff. Trainings have been in the form of lectures, workshops, and case studies, and have covered: scope of work for pediatric ER physicians; emergency nursing and triage; suturing; pediatric pain and sedation; trauma; Pediatric Advanced Life Support; and morbidity and mortality in the ER.

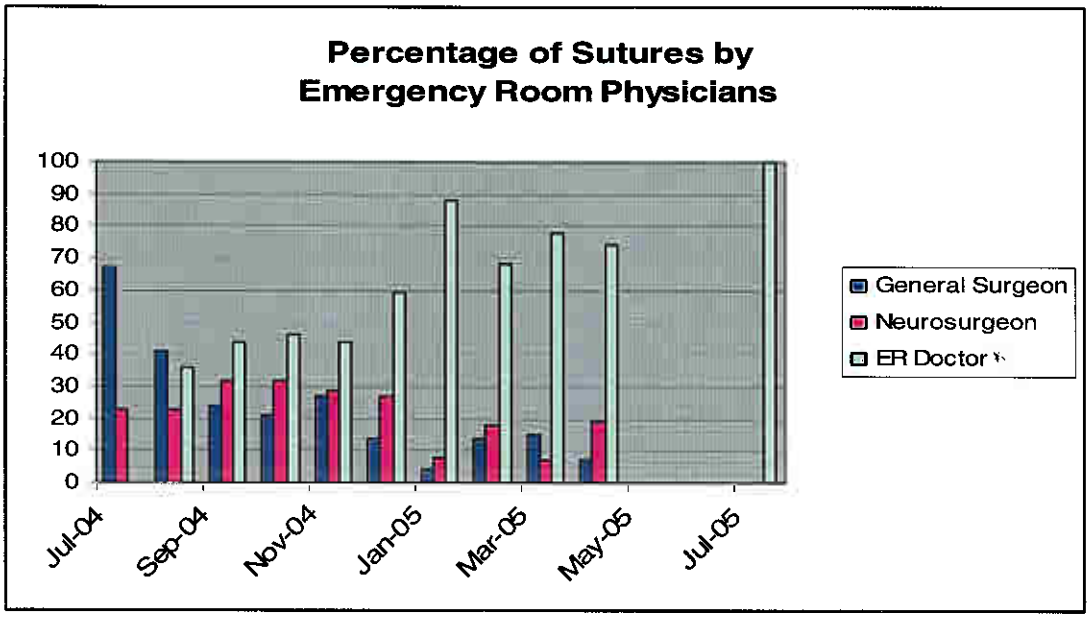
Perhaps the biggest accomplishment of the trainings has been the improvement in suturing. *Figure 7* below shows the pre- and post-test scores for the third suturing workshop.

Figure 7.



After two small suture workshops, the number of ER physicians who were suturing totaled five. The remaining 13 physicians relied on these five to perform the sutures. In April 2005, partners held a comprehensive lecture and skills clinic to teach suturing to all ER physicians. The clinic was successful, and all participants passed a required procedural component. The five physicians who had already been suturing earned plastics surgery certification and began to serve as teachers and mentors for the other group members and for the junior doctors. This provided ongoing educational opportunities and introduced teaching as an important role of the pediatric emergency physician. *Figure 8* below shows the increasing percentage of sutures being performed by ER physicians over time. As of July 2005, all suturing in the ER is done by ER physicians.

Figure 8.



*No data available for the months of May-June 2005

Building upon EMS training capacity established through a previous AIHA partnership program, a group of US physicians and Georgian trainers from the National EMS Training Center conducted Georgia's first Pediatric Advanced Life Support course in July 2005.

Fourteen Georgian physicians from Children's and Gudushauri were trained in a day-long course to be instructors. These 14 instructors then taught the course to another 25 participants while being monitored and proctored by the original trainers. All participants were certified as PALS instructors by the American Heart Association. Due to the huge success of the training, partners are discussing means to strengthen the PALS program at the National EMS Training Center in Tbilisi in order for the PALS training to become self-sustaining.

Objectives to implement a nursing triage system were initially outlined during a US partner visit to CCH in October 2004. However, follow-up trips and email communication revealed that pre-requisite changes in clinical practice were not taking hold as well as had been hoped and that reassessment and reinforcement of previous objectives was necessary. Training in triage for nurses continues, and plans to implement nursing triage are underway. Junior doctors, who are currently doing triage, will train the nurses over a six-month period so that over time, the nurses will be able to take on this role.

Prior to the initiation of the partnership, pain management services provided to children were minimal. The staff at CCH believed that children should not be given pain medications stronger than Tylenol. The physical set-up of the facility reflected this belief: there was no place in the ER to keep pain medications. Through the partnership, physicians and nurses working in the ER have undergone a series of pain management workshops. Major topics that have been discussed are: the definition of pain, the negative psychological effects of pain, the physiology of pain, assessment of pain, pain assessment scales, management of pain, side effects of pain medications, dependence, addiction, and non-pharmacologic pain management strategies. Since the trainings began, a lockbox with appropriate pharmacy control has been acquired and is in place in the ER, and the concept and practices of pain management have been adopted. The general director and chief of the emergency room at CCH report anecdotally that the number of crying children in the ER has substantially decreased.

Data collection for quality improvement has also been a focus of the partnership activities. US partners worked with the general director and chief of the emergency room to implement a routine data collection system for quality improvement within the ER. Clinical indicators focus on admission rates, pain control, and sub-specialist consultation, number of sutures performed, and hospitalization versus discharge rates. Nurses collect the data, which is then entered into the computerized information system by the chief nurse. The chief of the emergency room reviews the data weekly and presents it to the staff.

Prior to the partnership involvement, routine learning did not occur in the emergency room department, and there was no review of mortality or poor outcomes. For continuing medical education, US partners felt that planned conferences reviewing pediatric emergency medicine should be mandatory. Their objective was to have the Georgian partners understand the need for educational conferences and to demonstrate how to conduct conferences. During the April 2005 exchange, "grand rounds" were conducted daily. These consisted of two cases per day of interactive learning sessions focused on critical thinking skills and clinical management. Since the exchange, weekly conferences have been conducted.

The partnership's future goals in emergency medicine include:

- Training nurses to conduct triage and otherwise expanding continuing nursing education
- Establishing surveillance registries and a database program to help analyze data
- Quarterly Emory visits to monitor progress and teach clinically
- Utilizing physicians from CCH to train other emergency physicians in Georgia
- Implementing a coordinated pre-hospital care system
- Replicating the ER model established at CCH to create an adult ER at Gudushauri
- Strengthening of PALS training within the National EMS Training Center
- Institutionalizing emergency medicine positions in Georgia: While ER physicians are recognized as specialists within Children's, the specialty is not recognized on a national level. Georgian physicians would like to work with Atlanta partners to organize and advocate for official recognition of nurses and physicians specializing in emergency medicine. This would require creation of the specialization in medical schools and accompanying Board Certification.

3.4 CLINICAL PRACTICE GUIDELINES

HIGHLIGHTS AND MAJOR ACCOMPLISHMENTS

- National guideline template developed
- A total of 16 guidelines have been implemented between NMC and CCH
- Five guidelines published in the *Journal of Contemporary Medicine*

With the support of the Atlanta partners, the continuous quality improvement (CQI) staff from Gudushauri NMC, Iashvili CCH, and Partners for Health has developed 18 clinical practice guidelines, and implemented 16 of these, since the partnership was initiated. During 2003 and 2004, substantial time was devoted to the development of a national guideline template. The idea was to create a format that would be easily understandable for practitioners and that would include a concise but thorough description of the most important aspects of the guidelines as well as a detailed reference list. Over a period of five months Georgian partners drafted the national guideline template.

CPGs at Iashvili Central Children's Hospital

Central Children's Hospital, in collaboration with Partners for Health and the Atlanta partners, developed the following clinical practice guidelines for the following conditions:

1. Acute diarrhea
2. Febrile seizures
3. Neuroinfections in children
4. Acute bacterial meningitis
5. Neonatal bacterial meningitis
6. Viral meningitis
7. Tuberculosis meningitis
8. Acute viral encephalitis

The decision to develop guidelines on these topics was based on the importance of the problem, as defined by such variables as the rate of patients presenting with the condition

and the difficulty of managing the condition. A working group, consisting representatives from relevant departments, was formed for each CPG. The guidelines were drafted by the working groups and sent to Partners for Health and the US partners for review and revisions. Once a guideline was finalized, it went to the implementation phase.

Implementation of the guidelines was a somewhat difficult process due both to internal (hospital) and external (country-wide) problems. In order to resolve some of the internal issues, the working groups focused on changes in organizational culture, quality improvement strategies, and continuing professional development. Communication and teamwork were considered as critical issues to successful implementation. Hospital leadership was actively involved in the guideline implementation process, serving to introduce the guidelines and organizational changes.

Hard copies of each guideline were disseminated to all relevant departments at the hospital. Educational strategies – such as conferences and training clinics – were employed to assist with dissemination and implementation of the guidelines. Professionals from other institutions were invited to participate in these activities alongside staff members from CCH. The activities acquainted participants with new approaches, knowledge, and skills that they will be expected to adopt and disseminate to others. The guidelines for managing febrile seizures and diarrhea were published in a Georgian medical journal, the *Journal of Contemporary Medicine*, Vol. 3, No2 (8), 2004 (November), and are available online at www.nilc.org.ge. AIHA will publish all the guidelines in booklet form for distribution at the AIHA regional conference in October 2005.

Adhering to the guidelines is considered to be a semi-obligatory responsibility of the hospital staff. The administration strongly recommends that staff members follow the guidelines and those pursuing an alternate course must provide their reasons for doing so. The director for quality control and the chief of services systematically monitor clinicians' adherence to the guidelines during daily rounds, conferences and meetings, and discussions of complicated or interesting case reports.

Evaluation of the implementation process is quite difficult, especially in quantitative terms, for several reasons:

- True health outcomes often take a long time to become obvious (to measure the effect of a guideline by showing, for example, a decrease in deaths would require following thousands of patients, including a control group in which the guidelines are not being used, over several years);
- An objective evaluation is time-consuming and costly;
- It is difficult to obtain appropriate and precise data given that the hospital information system is still under development.

However, the CCH partners propose evaluating the success of the implementation of a guideline with an interventional survey with "before/after" design, using historical control in cases where the data exist.

A) Suggested variables for interventional studies

- time from admission till approved diagnosis

- length of hospitalization

B) Outcomes

- Mortality (rate)
- Complication (rate)

CPGs at Gudushauri National Medical Center

In 2004 Gudushauri National Medical Center participated in a project designed for development of evidence-based practice (EBP) guidelines within the framework of the *Atlanta/Tbilisi* partnership. As a result of the project, guidelines on the following conditions were developed:

1. Septic shock
2. Anaphylactic shock
3. Hypovolemic shock
4. Status asthmaticus
5. Chest trauma
6. Burns in the pre-hospital stage
7. Head trauma in the pre-hospital stage
8. Mild head trauma in the hospital
9. Antibiotic prophylaxis in surgery
10. Management of pre-eclampsia.

In collaboration with PfH, eight of the guidelines (all but 2 and 5 from above) were chosen, translated from Georgian into English and Russian, revised by Georgian and American partners and approved:

Main stages of the project

1. Assignment of EBP task force. The EBP task force group was assigned by the managerial team under the supervision of NMC's Quality Assurance Committee to develop the guidelines. Physicians with EBM knowledge from all departments were included in the task force group. The chief of the Quality Assurance Committee led the task force.

2. Needs assessment: determination of topics within departments. All task force participants priorities for guideline development within their departments. The following were some of the results of those discussions:

- The most severe cases of pre-eclampsia were those referred from other hospitals and were caused by improper management. Thus, the guideline on management of pre-eclampsia would be designed not only for gynecologists and obstetricians working at NMC, but for physicians from other hospitals in Tbilisi and from other regions in Georgia.
- The Quality Assurance Committee discovered cases of improper antibiotics prophylaxis use in surgery. Retrospective research was conducted to determine the scale of the problem. Research showed that third generation and expensive antibiotics were administered *after* surgery for a few days, thus preventing fewer infections. This gave rise to the decision to develop a guideline on usage of antibiotics for prophylaxis in surgery.
- Physicians working in the hospital's Center of Disaster Medicine prioritized development of an EBP guideline for management of burns, because they very

frequently have cases of burns and need to transport casualties in severe general conditions long distances from regional hospitals.

3. *Information search.* After determining which guidelines should be developed, physicians from the task force collaborated with the coordinators of the AIHA-established Learning Resource Center in Tblisi to develop a search strategy. The task force members obtained EBP information on each topic, analyzed it, and adapted it to Georgian conditions to create drafts of the guidelines.

4. *Review by Georgian and American partners.* The Georgian partners reviewed the guidelines and English versions were forwarded to Emory experts who further refined the guidelines and also provided additional information sources. The final versions were completed in February 2005.

5. *Guidelines dissemination and implementation process.* Implementation of the guidelines at NMC was successful in general. All guidelines were printed and distributed within the relevant departments. Workshops were held for the guideline on antibiotic prophylaxis in surgery. Unfortunately, the project was not able to distribute all its developed guidelines to other facilities as had been planned. However, with support from the National Information Learning Center (NILC) and PfH, three guidelines were published in the *Journal of Contemporary Medicine.* NMC's Center of Disaster Medicine will distribute these three guidelines more widely throughout other regions of the country.

6/ *Analysis of guideline implementation impact.* Prospective studies to evaluate the guidelines will be somewhat difficult due to financial and time constraints. However, it is possible to perform retrospective study to determine changes in number of complications, secondary admissions, average length of stay, and treatment costs. Retrospective studies are already underway to find out how use of antibiotic prophylaxis in surgery has changed since that guideline was implemented. Evaluation of the impact of other guidelines like those for managing hypovolemic shock, septic shock, and status asthmaticus may be a bit more difficult, given that these are not being uniformly implemented because they differ from state standards of care, an issue that is explored in more detail below.

General Challenges to CPG Implementation

Both Gudushauri NMC and Iashvili CCH have run into similar problems with the implementation of some of the guidelines. One such problem has to do with the availability of certain medications listed within the guidelines. Both groups attempted to compile the guidelines in accordance with a modern, evidence-based approach. Yet, a few of the medications that research and US partners recommended for use are not registered by the Pharmacological Committee in Georgia. The Georgian partners would like to use the CPGs to attract the committee's attention and encourage the registration of pharmaceuticals accepted in evidence-based medicine.

Another barrier to implementation has been the state standards of care, or Diagnosis Related Groups (DRGs). As it stands right now in Georgia, hospitals are reimbursed by the MoLHSA in accordance with their adherence to the DRGs. Care and treatment that falls

within the DRGs is reimbursable, but treatment methods that fall beyond the scope of the DRGs are not reimbursable by the Ministry, leaving the patient responsible for payment. The methods of treatment in some of the evidence-based CPGs fall beyond the state standards of care, which were developed based on experiences with care in the 1990s. This has created some problems with implementation since there is more financial incentive for physicians to follow the DRGs. The reality is that many officials in the Ministry recognize the fact that the DRGs are not adequate, but they feel that there are too many other competing priorities to spend resources adjusting the DRGs. Again, Georgian partners hope to use their adoption of the CPGs to have an impact on changing the state standards of care. The Georgians would like the assistance of the US partners to advocate to the Ministry on the use of accepted evidence-based guidelines.

4. RECOMMENDATIONS

Nursing Services

- The attitudes and skills of the nurses at the partner hospitals have greatly improved since partnership activities began. However, there was consensus among the nurses that complete independence on the job has not been achieved since some physicians and hospital administrators show resistance to their expanded roles. One of the important tasks for the partnership will be to follow up with the administration at the two hospitals to ensure that nurses are allowed to use their newly acquired skills and to expand nursing practice. The partners should encourage joint physician/nurse trainings in order to sensitize physicians to the importance of the expanded nursing role.

- In addition to introducing triage at Gudushauri, training in triage is recommended for nurses at both hospitals in order to create a nurse triage specialty, thereby allowing nurses to be the first point of contact with the patients and relieving physicians of triage responsibility.

- Interviews with nursing staff from the partner hospitals revealed the need to institutionalize the nursing profession in order for the increasing role of nurses in patient care to be recognized and accepted. The nursing faculty members who received Western-level training at the Emory Nursing School developed a comprehensive nursing curriculum for hospital nursing and primary care. Unfortunately, the existing nurse education system in the country does not allow for proper utilization of these nurse trainers to provide continuing education. Partners are encouraged to develop a strategy to institutionalize the nurse training program and affiliate their nursing faculty with a legitimate training institution, thus creating the start of a Bachelor of Science in Nursing (BSN) program. Additional faculty members should be identified from the partner hospitals for clinical skills training. The two hospitals should serve as clinical training sites for training of other nurses throughout the country. The partners, with support from AIHA, should work

closely with national policy and training institutions, as well as other international assistance programs to ensure sustainability of the nurse training program.

Hospital Management and Operations

- During the interviews with management staff at the partner hospitals, the staff emphasized the need for the continuation of middle-management training. The partnership should continue to provide technical assistance to the hospitals in improving their employees' skills in administration, in particular through strengthening of middle management, building on the training completed this year. The US partners should assist the hospitals with the budgeting process, with particular emphasis on improving their negotiating power with the MoLHSA and other funding sources.

- Special effort should be taken by the partners to foster interest among government officials in making a national investment in developing healthcare management training. The partners should ensure that the middle-level management course developed through the partnership project is institutionalized as a certificate training course for middle-level managers throughout the country.

Emergency Medical Services

- The partners are encouraged to use a systematic approach to improving the emergency care for children in Georgia by focusing on the pre-hospital care and trauma systems and by continuing to strengthen training in PALS and emergency medicine. The partners should complete the in-service training cycle at CCH to ensure that the ER provides high-standard, modern care to patients. In order for the training to be sustainable, it should be institutionalized. This will require adoption of the training-of-trainers approach and development of a standardized curriculum that follows evidence-based emergency medicine. This training could then be provided to practitioners beyond just those at the partner hospitals. This has to some extent started happening already with the Pediatric Advanced Life Support (PALS) training courses.

- The successful experience of the emergency room at Children's Central Hospital must be disseminated and replicated throughout the country through continuous collaboration with the government. Not only should the partners replicate the CCH model at Gudushauri to develop the first adult ER model in the country, but the partners are also encouraged to replicate the ER in other regions such as Kutaisi. Since the funds of the partnership project are limited, this will require financing by the government or other funding sources.

- While the pediatric ER physicians identified at Children's have been accepted as specialists, there is still no recognized institution of emergency medicine in Georgia. The position of ER physicians should be enhanced at partner hospitals and replication sites through partner advocacy aimed at official recognition of emergency

medicine as a specialty for physicians and nurses. This would require creation of the specialization in Georgian medical schools and accompanying Board Certification.

Clinical Practice Guidelines

- The partners should continue to work on the development and implementation of guidelines and protocols. AIHA will facilitate partner collaboration with professional associations as well as relevant government bodies to ensure the review and adoption of the developed evidence-based guidelines and their dissemination throughout the country. Partners are also encouraged to work with the MOLHSA to redefine of out-of- date national standards of care that currently serve as a basis for the DRGs.