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The Atlanta-Tbilisi Healthcare Partnership was formed in 1992, under the auspices of the American International Health Association of Washington, DC, and the United States Agency for International Development. The US partners include: Emory University (Schools of Medicine and Public Health); Georgia State University; Morehouse School of Medicine; Grady Memorial Hospital; and Georgia Institute of Technology. The country of Georgia partners include: the Ministry of Health; Tbilisi State University; Georgian Technical University; and Tbilisi State Medical University. There have been close interaction and joint projects with other institutions and organizations: the World Bank; the World Health Organization; the Soros Open Society Institute; the Partnership for Peace Information Management System; and others. The resources of Atlanta-Tbilisi have been leveraged substantially through these joint programs.

A central theme of the Partnership has been a dual focus upon both short term and long term projects. Some projects have had a sharply limited focus and others a broad scope. The steadily developing collegial relationships that have occurred during the years as the partners have traveled back and forth have been richly productive of increasing insights into the ways in which Atlanta-Tbilisi can be of benefit to Georgia in the present and future. The accomplishments of the past ten years are viewed by the partners as stepping-stones into the future.

The breakup of the former Soviet Union led to decay of societal institutions and deterioration of the well being of its peoples. The Republic of Georgia is an example of what occurred. Georgia is a nation with a rich past, a dire present, and a bleak future. The health services are in disarray. Health care facilities are crumbling, unheated, ill equipped and without modern technology. Tuberculosis, rabies, botulism, malaria, hepatitis, AIDS, anthrax and other infectious diseases are a constant hazard. Electricity is uncertain. The US State Department in 1992 moved to aid the problems by establishing partnerships between US institutions and counterparts in the former Soviet Union, of which the Atlanta Tbilisi partnership is an example.

The Atlanta-Tbilisi Healthcare Partnership began in 1992 by supplying principally human expertise, but recognized early that a crippling obstacle to success was the lack of access to Western information by the Georgians, in printed or electronic form. Medical libraries were empty or filled with decaying Russian periodicals; there were no scientific journals from other countries, either old or new. In stark contrast the citizenry was sophisticated and highly educated, with almost 100% literacy. As soon as this was understood, plans were developed for the National Information Learning Center, which is described below, and was opened in 1996. As other projects began to materialize--the MBA School, continuing education efforts--the partners came to feel that access to Western and other global information was one of the keys to ultimate success of efforts to transform and revitalize societal institutions and to improve the health of the public.

There have been a number of accomplishments in the last ten years:

- **Health policy reform:** this was one of the initial projects. An Atlanta partner spent one year on site in Tbilisi working closely with the Ministry of Health and nongovernmental organizations to assess the state of the health care system and to plan for change. Atlanta-Tbilisi sponsored five National Health Policy Workshops in Georgia, focusing on reform, health care policy and human resources. As a result of this work and other planning President Shevardnadze issued Decree 400 on December 23, 1994, establishing the State Health Care Funding, ensuring licensure of medical facilities, creating registration and quality control of medications and supplies, and certifying and licensing health care providers. Another consequence of the workshops was the decision by the World Bank to initiate a series of loans for their Georgia Health Project.

- **Access to information:** the National Information Learning Center (NILC) was opened by President Shevardnadze and US Ambassador William Courtney in Tbilisi in December, 1996, funded by \$180,000 of partnership funds. It provides training of medical librarians, health care providers and the public in searching electronic databases. Services include on site materials, reference services, document delivery, classes and consultation. Librarians from the US have spent time in Tbilisi training personnel and setting up the library, and Tbilisi staff have come to the US for training. Remote satellite sites have dial up access. An Internet connection provides web access for these services. The NILC has teamed with the Partnership for Peace Information Management System (part of the Partners for Peace group of NATO) to establish a wireless two-megabyte local area network that links six institutions in Tbilisi. Part of this project has been a state of the art demonstration of distance education using video streaming and connection with leading US medical experts for health care providers in the fields of cardiology, tuberculosis, field trauma and handling of catastrophes such as nuclear disasters and earthquakes. The NILC issues a biweekly bilingual bulletin, the *Internet Medical Digest*, that is the only local journal produced for health care providers. The bulletin contains eight pages that provide digests of current information from Western journals in: public health; preventive medicine and health promotion; cardiology; oncology; AIDS and other infectious diseases; epidemiology; clinical pharmacology; obstetrics and gynecology; and other subjects. A young Georgian physician who worked at the NILC was helped by the Partnership to obtain a fellowship in informatics at Vanderbilt University, funded by the US National Library of Medicine, and he is now back providing leadership for the NILC.

- **Medical education and biomedical research:**
 - Postgraduate medical education: twenty-three graduates of Tbilisi State Medical University (TSMU) were accepted into residency programs at Emory University School of Medicine: internal medicine; psychiatry; radiation oncology; transitional medicine. Further sub specialization has been or is being accomplished in: neurology; surgery; infectious diseases; cardiology; geriatrics; and endocrinology.
 - Thirty medical students from Tbilisi have spent four to six months each as students at Emory University School of Medicine, and twenty medical students from Emory have spent one to two months in Tbilisi.
 - Seven Georgians have obtained their MPH at Emory School of Public Health.
 - Curriculum reform: faculty from TSMU spent time at Emory observing the medical curriculum, and faculty from Emory visited TSMU, contributing to the first significant medical curriculum reform in seventy years.
 - Biomedical research: Georgian medical leaders visited the Fogarty International Institute of the National Institutes of Health, and leaders of the Fogarty made two trips to Georgia, devising recommendations for the path of future research in Georgia.
 - Grants: two Emory faculty joined with Georgian medical scientists to receive three grants totaling \$385,000, for tuberculosis and AIDS from the NIH Civilian Research and Development Foundation (CRDF) for the Newly Independent States. The work resulting from these grants has resulted in scientific papers and improvement in the treatment of these areas in Georgia.
 - An additional three year partnership grant (\$306,000) to study the clinical and molecular epidemiology of drug resistant tuberculosis in the Republic of Georgia and the Caucasus has been awarded recently from the U.S. State Department Biotechnology Engagement Program (BTEP)-International Science and Technology Center (ISTC) partner project program. The ongoing work resulting from these grants has resulted in several scientific papers and other publications and has helped the process of beginning to initiate improvement in the treatment of diseases in Georgia. These projects have also fostered collaborations among different centers (AIDS, TB, National Center for Disease Control) within the Republic of Georgia.

- Micronutrient malnutrition: a medical student who visited Georgia for one month collected samples of cord blood from newborns from three areas in Georgia, and had them analyzed for thyrotrophic stimulating hormone on his return to Emory. A surprising finding was that 60% of the newborns were significantly hypothyroid, resulting from the lack of iodinated salt in Georgia. This information was provided to the Minister of Health, who with the Partnership initiated a series of workshops and information gathering, that resulted in a law mandating iodinated salt and a plan of surveillance and a national health program. UNICEF and the CDC were involved, and Kiwanis International gave a grant of \$105,000.

- **Nursing education**

- Institutional reform of nursing as an independent profession was begun.
- A core curriculum for nursing continuing education was developed and intensive train the-trainers sessions were taken by numerous Georgian nurses in Atlanta.
- The Georgian Nursing Association was established, and has had profound effects on the profession throughout Georgia
- Ministry of Health established a Chief Nurse's office.
- A Nursing Learning Resource Center was established in the World Bank Continuing Education Center in May, 1998
- Curriculum has been planned, space developed and faculty trained for a new Nursing School to be opened at Tbilisi State University.

- **Emergency Medical Services Training Center (EMS)**

- The EMS center was opened October 23, 1995, for the purpose of training individuals throughout Georgia in pre-hospital care, a new concept in Georgia.
- Instructors were trained in the US and Armenia
- By 1998 sixty training courses had been held in Tbilisi and other sites. Twenty-two programs had been given to the public, including children. Other programs included training for guards, mountain guides and pipeline company workers. Total: 1492 individuals have been given these courses.
- A Web page was produced, three manuals published and a Learning Resource Center established.
- The staff established sites for emergency care of pipeline workers and the public.

- **Maternal and Child Health**

- Multiple training exchanges occurred between Atlanta and Tbilisi in the practice of obstetrics and neonatology. Fetal monitoring equipment was donated and providers were trained in its use at hospitals in Tbilisi and Kutaisi
- Train the trainers courses were given on neonatal care, and a book on neonatal resuscitation was translated and published in Georgian.
- Two delegations of health care managers spent a month in Atlanta, learning the functions of a regional perinatal center.
- A Women and Children's Wellness Center was established in Kutaisi in 1999

- **Business Education**

The Caucasus School of Business (CSB) was founded in 1988 by a consortium of Georgian Universities: Tbilisi State University, Georgian Technical University, Tbilisi State Institute of Economic Relations, in partnership with Georgia State University. CSB offers MBA and BBA degrees. The programs are modeled according to a flexible MBA program and full time traditional BBA program. CSB also offers short-term non-degree certificate programs for managers already in

the work place, as well as emphases in subject areas such as healthcare management. The project is funded by two grants from the US Government Agencies: the Eurasia Foundation (\$314,552) and the Bureau of Cultural Affairs of the State Department (\$300,00)). There are seventy MBA and 125 BBA students.

- **Tuberculosis and AIDS**
 - The director, physicians and microbiologists from the Tuberculosis Institute have been trained in WHO/IUATLD methods and technology of the diagnosis and treatment of tuberculosis.
 - A physician from the Georgian AIDS and Clinical Immunology Research Center is currently getting his MPH in Atlanta. In addition two physicians and the head of the serology Center at the Center have been to Atlanta (Emory and the NCDC) and San Francisco (Center for AIDS Prevention Studies) to receive short-term training in AIDS research and prevention.
 - Three CRDF grants--an AIDS International Training and Research Program (AITRP) from the NIH, and a BTEP-ISTC grant from the US State Department have been awarded to Emory investigators in collaboration with Georgian investigators. A goal of the BTEP ISTC project is to expand TB activities into the Caucasus and facilitate collaboration in this area among Georgian, Armenian and Azerbaijani investigators.
 - Joint symposia concerning epidemiology, research, treatment and future trends in these diseases have been given in Tbilisi, with the CDC and NIH participating
 - A counseling and testing center for HIV/AIDS was established with a \$50,000 grant from the World AIDS Foundation.
 - A knowledge and attitudes survey of sexual behavior among high school students was carried out and presented at an International AIDS Conference.

- **Prosthetics:** there are about 10,000 lower limb amputees in Georgia, half of them from landmines laid during the war with Abkhazia, with 77% in individuals between 20 and 65 years of age. About 300 prostheses of very cheap materials are produced each year. The Partnership gave the prosthetics equipment from Fitzsimmons Army Hospital when it was closed. A needs assessment was done by the Partnership, and plans have been drawn up to provide CAD-CAM production of up to thirty prostheses a day. Samples of the low-cost Georgian prostheses have been tested at Georgia Tech to understand better their properties and function. A team of researchers from Georgia Tech, Emory University and the Medical College of Georgia is working to improve the function of the prosthetic knee and foot while maintaining their low cost. A search is currently being made for funding sources.

- **Scholarly Activities**
 - A medical anthropology study exploring healthcare reform in Georgia, with a focus on transformations in the Georgian TB infrastructure. PhD thesis for the New School.
 - Casarella, W: *Radiology in Tbilisi; The Legacy of 70 years of Soviet Government*. Am. J. Radiol. 1993; 161; 23-25.
 - Skarbinski, J., et al: *Ten Years of Transition: The Severe Burden of Out-of-Pocket Payments for Healthcare in Tbilisi, The Republic of Georgia;* submitted.
 - Weinstock DM, et al.: *Risk for tuberculosis infection among internally displaced persons in the Republic of Georgia*. Int J Tuberc Lung Dis 2001; in press.
 - The following abstracts have been presented (or will be presented) at national or international scientific meetings:
 - Briggs DP et al.: *Molecular epidemiology of tuberculosis in Georgia*.
 - Baker JC et al.: *Seroprevalence of HIV and HCV infection among patients with tuberculosis in the Republic of Georgia*.
 - Weinstock DM et al: *Risk for tuberculosis infection among refugees in Georgia*
 - Blumberg HM et al.: *Emergence of drug resistant tuberculosis*

- Markovic A, *et al.*: *Prevalence and risk factors for testing tuberculin skin test positive in the Republic of Georgia.*
- Gvetadze R. *et al.*: *Prevalence and Incidence of HIV In Selected Populations in the Republic of Georgia.* Clin Infect Dis 1999; 29(4): 1027.
- Tservatze T. *et al.*: *Risk Factors for HIV-Infection at a Counseling and Testing Center in Tbilisi, Georgia.* Clin Infect Dis 1999; 29(4): 1029.
- del Rio C *et al.*: *Knowledge, attitudes and practices about HIV/AIDS and sexuality among high school students in Tbilisi, Georgia.*

In conclusion, a vision of the future has evolved between the Georgian and US partners, where information technology is used as leverage to transform institutions and influence individuals who can be agents of change. There are two principles that have evolved out of the experience of the Atlanta-Tbilisi Partnership:

- The United States has both the matchless opportunity and the responsibility to share information and human expertise with countries of the former Soviet Union and other similar countries, supporting the goals of improving the lives of their peoples and strengthening their fragile democracies.
- It is possible now to store vast collections of recorded multimedia information and to transfer the information virtually anywhere in the world at almost the speed of light. A question to ask at the outset of the new millennium is: how can humanity benefit from this new and suddenly acquired ability to use modern information technologies? The answer is brief and unequivocal: we must place the wealth of existing, purposeful human knowledge and expertise at the disposal of the less advantaged peoples and countries of the world, and assist them in using it in ways appropriate to their culture.

The crucial essence of the Atlanta Tbilisi Partnership is that it is a group of institutions and individuals in two countries who have formed a highly productive collegial collaborative relationship in which information is exchanged of benefit to both groups. Information technology is used as a leverage. This model is a template that can be generalized for the benefit of all human beings of the world.

As a result of the experiences and insights gained in establishing the projects listed above the partners have developed plans for the future based upon the present accomplishments. These plans include: a school of public health; significant expansion of the business education activities; completion of the new nursing school; a school of law; an allied health school; a strategic plan for infrastructure development of the informatics, electrical energy and telecommunication sectors; a comprehensive program to educate the teachers of kindergarten through high school students; expansion of the education of physicians and the public in health care; and an extensive distance learning network to support the educational activities.

These activities will be expanded to Armenia and Azerbaijan as templates are developed and refined in Georgia.