

**Boston University Medical Center - Armenia Medical Partnership Program
Cooperative Relationship Agenda and Implementation Plan for Partnership
Between Boston University Medical Center and Municipal Hospitals of the
Republic of Armenia**

February 8, 1993

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I. General Statement of Partnership Goals

A. Justification

The health care system in the Republic of Armenia is currently under serious stress. The major earthquake of 1988 left more than 25,000 dead, 50,000 seriously injured, and approximately 500,000 homeless. The problems in health care have been compounded by the breakup of the Soviet Union which provided major support to the system, the long-standing war in Karabagh, and the resultant blockade of Armenia by Azerbaijan. The hospital system in Armenia is poorly organized, networking between the hospitals and out-patient clinics is lacking, and linkages between the medical school and teaching hospitals are weak.

Since the earthquake and war, accidents have represented the major cause of death and care of trauma victims has become a very high priority. A major focus of this partnership program is to address the critical needs of Armenia in the areas of emergency medicine and trauma care. In addition, the program aims to improve the academic medical system in Armenia from a systems perspective. Education and training exchanges relative to emergency medicine between the two countries are a key programmatic output. Conceived as a cooperative partnership, this program provides two-way technical assistance from which both Armenia and the Boston community can benefit.

B. Specific Goals

The specific goals of the overall program include the following:

1. To assist in organization of emergency medical care in the Republic of Armenia in order to develop a cohesive and efficient system that can meet the needs of the country.
2. To facilitate development of a trauma center that can become a model for other major hospitals of Armenia.
3. To help in the establishment of a model municipal teaching hospital system and to train senior hospital administrators, financial officers, computer system technologists, and physician and nursing leadership regarding modern methods for hospital management and state-of-the-art approaches to the delivery of medical care.
4. To assist in the development of standards for training of medical specialists, residents and medical students that can also potentially serve as national standards in these areas.

During the initial 18 months of the program, attention will be placed primarily on the first and second goals, namely the improvement of the emergency medical system and the development of the trauma center. Although some work also will be initiated on the third and fourth specific goals during this time, the major efforts in these areas would depend on funding of the program beyond the initial project period.

II. Education and Training Modules

A. Background

In June, 1991, Boston University School of Medicine signed an affiliation agreement with Yerevan Medical School, the Postgraduate Medical Institute of Armenia, and the Ministry of Health of Armenia. The agreement was designed to help Armenia restructure its medical school and hospital teaching curricula and to assist in the development of standards for residency programs and for accreditation of specialty physicians. Initial measures to achieve these goals have included meetings between the Dean of Boston University School of Medicine, Aram V. Chobanian, M.D., and faculty of the School of Medicine with the Minister of Health of the Republic of Armenia, Dr. Ara Babloyan, the Rector of Yerevan Medical School, Dr. Vilen Hagopian,

and the new head of the National Institute of Health of Armenia, Dr. Haig Nicogosian. Such meetings have established close ties with the institutions and provided an excellent foundation on which the proposed program can be built.

In September, 1992, Dean Aram Chobanian and Dr. Michael Eliastam, Medical Director of Boston City Hospital, had the opportunity to visit the Republic of Armenia and evaluate some of its hospitals as members of a survey team organized by the American International Health Alliance (AIHA). With respect to future collaborations, two municipal hospitals in Yerevan were of particular interest to Drs. Chobanian and Eliastam: the Emergency Hospital and the Erebuni Hospital. Their observations follow:

The Emergency Hospital is a multi-service hospital that also manages the ambulance system for the country. It is the major trauma center in Yerevan. While it is a municipal hospital, it also provides service to Karabagh and to outlying areas of the Republic. Of the 800 beds at the Emergency Hospital, 15-20% recently have been utilized for war casualties. The hospital has a residency program and has medical school students rotating through it as well. Eight of the heads of clinical departments at the Yerevan Medical School are housed at the Emergency Hospital. The hospital director and department chiefs were enthusiastic about reorganizing the emergency medical system of the country, creating a true academic teaching hospital with well-trained staff and developing new standards for medical student and house officer education programs.

The second large municipal institution, the Erebuni Hospital, also is of considerable interest. It has approximately 900 beds and provides a full range of medical services. Its hospital director is an impressive physician who appears intent on improving the standard of health care in this facility and on cooperating with the partners to make this goal achievable. Approximately 30 house officers work at Erebuni Hospital. A major accomplishment recently has been the development of an excellent Women's Health Center, made possible by the involvement of our other Boston partners, Harvard Medical School and Beth Israel Hospital and its obstetrics/gynecology department.

The leadership at both the Emergency Hospital and the Erebuni Hospital have committed to work together with us to develop a joint program involving both hospitals. Their inputs are critical to the shaping of the program in all of its aspects, as, for example the formulation of this implementation plan. In spite of the communication breakdown recently experienced in the country, critical review of this plan is taking place by all of the partners.

B. Needs Assessment and Program Development

Building on the preliminary observations noted above, we will institute an in-depth analysis of the ambulance system in Yerevan including the ambulances themselves and their equipment, personnel, types of calls received, methods of dispatch, patients served, triage mechanism, and interactions between the emergency medical system and the major municipal and other hospitals and polyclinics in the city. This analysis is already in progress, aided by an institutional assessment that, as evidence of the partnership aspect of this program, is being carried out on-site by senior officials of the Yerevan hospitals.

1. Preliminary Assessment

Carolann Najarian, M.D., President of the Armenian Health Alliance and an important member of our program, began our preliminary assessment during her visit to Armenia from Oct. 19 to Nov. 9, 1992. Her findings can be summarized as follows:

a. The Boston University Medical Center - Armenia Medical Partnership Program has been well-received in Armenia.

b. Yerevan partner institutions have, in the past year, made some "positive changes" that "encourage learning and change." For example, training objectives for those going abroad are clearer and have to be formally stated prior to initiation of the trip. Trainees are selected based on likelihood of their potential future contributions.

c. The emergency system of Yerevan delivers both emergency and primary care. There is an awareness that this type of system is costly; officials are interested in the training and utilization of paramedics as a model for delivery of emergency care in an urban setting.

d. Certain characteristics of the emergency response system include:

Operations: Yerevan is divided into districts of 300,000-400,000 persons, each serviced by an ambulance station equipped with examining room, garage and repair shop, as well as food preparation facilities. The station communicates with a centralized station via radio. Emergency calls are received at the center, logged in, and information is relayed to a doctor for triage. A clerical person identifies the district, relays the information to the local station, and the personnel are dispatched from there. The fuel shortage has grounded some ambulances resulting in a smaller number of ready dispatch teams.

Response Time: Within 15 min. of an emergency call to the emergency telephone number (03), an ambulance with both doctor and nurse will be at caller's door.

Information Processing: At Morning Report at the center, calls and outcomes are given. On one day in November, the total number of emergency calls numbered 669, which resulted in 106 adults and 21 children being admitted to hospitals. The remaining 542 were treated at home. One patient was found dead on arrival and there were no calls that day for transfer of wounded soldiers.

Personnel: The system employs 1600 persons, 381 physicians, 618 RNs, 363 drivers, and 238 clerical staff. Doctors, nurses and drivers work 24-hour shifts. Thus, 54 physicians, 88 nurses, and 52 drivers -- who are further broken down into dispatch teams during a call -- serve roughly 350,000 persons at each station.

Medical Equipment: Each dispatch team carries a kit of medicines and basic equipment (including EKG set) that is maintained and distributed by its ambulance station. EKGs are read by a cardiologist at the central who manages the patient remotely using a print-out of signals transmitted over telephone wires. Cardiac defibrillators, however, are rarely included on ambulances.

Delivery of Emergency Cases to Hospitals: Night call is rotated among major Yerevan hospitals according to centralized schedules made up by the Ministry of Health.

e. Characteristics of admissions to Emergency Hospital:

Emergency Admission: The treatment areas are divided into surgical and medical wings with a small diagnostic center located centrally. There is an Intensive Care Unit (ICU) and several small rooms for specific purposes such as bathing, trauma treatment, infectious disease referrals, and follow-up outpatient visits. The diagnostic area is equipped with ultrasound (abdominal, kidney and bladder); gastroscope; bronchoscope; colonoscope. The ICU is equipped with a few cardiac monitors, portable oxygen, and laboratory (for basic chemistries and pH, pO₂, pCO₂, bicarbonate).

Intensive Care Unit (ICU) Admission: On one day in November, ICU admissions included 3 females and 7 males, 3 of whom were wounded soldiers from Karabagh. One woman had a post-operative pelvic surgery abscess; another, hepatitis secondary to cholecystitis; a third female had complications of ovarian cancer. One man had complications of diabetes after surgery; another, hypertensive crisis; a third male had infectious diarrhea and hypotension; a fourth, peritonitis. There were three soldiers with head and neck injuries.

We recently sent another representative to Yerevan, Richard Aghababian, M.D., Chief, Department of Emergency Medicine, University of Massachusetts Medical Center. Dr. Aghababian was not able to reach his destination due to the instability and uncertainty of airline operations in Eastern Europe and the former Soviet Union. Subsequently, in Boston, Dr. Aghababian was able to meet his counterpart, Ara Minasian, M.D., Director of the Emergency Hospital, to begin discussions of the status of the Armenian emergency medical care system.

2. Program Development in Emergency Medicine

To carry out the above-stated goal of establishing an effective emergency medical system for Armenia, we will expand our preliminary needs assessment and have an interchange of emergency medicine leaders between Yerevan and Boston. The first medical personnel from Yerevan are expected to arrive in Boston in February or early March. They will have the opportunity to examine intensively the ambulance system in Boston. The initial visitors are Sarkis Abrahamian, M.D., Chief of Ambulance Services, Emergency Hospital, and Hovaness Sarkavagan, M.D., Chief of Thoracic Surgery of the Emergency Hospital and of the Department of Thoracic Surgery at the medical school.

The visitors are expected to be in Boston for at least three weeks and will be involved in the emergency room of Boston City Hospital and with the ambulances. In addition, they will be introduced to David Raines, director of a nationally-known paramedic training program at Northeastern University, Boston, Mass. Mr. Raines will describe the program to them and provide the teaching materials that are used in the courses.

Because of the current national crisis in Armenia, it is unclear when other Armenian emergency medical personnel will be able to come to Boston, although we expect that such visits will occur throughout the spring and summer. Preliminary selection of Armenian professionals has been made but some revision of the list (following) may be made, depending on the results of our needs assessment and further interviews:

- Tigranoohi Alikhanian, Director of Laboratory Services, Emergency Hospital
- Grigor Boghosian, M.D., ambulance cardiologist
- Robert Garoian, M.D., Chairman of the Department of Neurosurgery, Emergency Hospital
- Gaghik Manoogian, M.D., Chief, Intensive Care Unit, Emergency Hospital
- Samuel Antanosian, M.D., ambulance pediatrician
- Yuri Hovagimian, M.D., Chief of Surgery, Emergency Hospital
- Robert Orkoosian, M.D., Physician in Chief, Emergency Hospital
- Sonja Danielian, M.D., ambulance cardiologist
- Emma Hovanessian, M.D., ambulance physician and neuropathologist
- Anooshavan Virabian, M.D., director of an ambulance station, cardiologist

Several individuals from the United States have agreed to travel to Armenia in 1993 as part of our partnership program. For the work relating to the emergency medical system, these individuals include:

Peter Moyer, M.D., Professor and Chief of Emergency Medicine at both Boston City Hospital and University Hospital -- Dr. Moyer's initial trip will probably occur in April or May 1993, and will involve needs assessment and early phases of program planning and development. The length of his stay is expected to be one week.

Richard Aghababian, M.D., Director of the Department of Emergency Medicine at University of Massachusetts Medical Center, Worcester, Mass. -- Dr. Aghababian's role will be similar to that of Dr. Moyer and both will lead the development of the implementation plan. Dr. Aghababian plans to travel twice to Armenia in April and May, 1993, and to remain there for 7-10 days.

In addition, Drs. Moyer and Aghababian have indicated that two or more other faculty members of their departments will participate in the development and implementation phases of the program during 1993. Their roles, travel dates, and lengths of stay will be determined following Dr. Moyer's and Dr. Aghababian's trips.

Laurence Motley, Director of Ambulance Services, City of Boston -- Mr. Motley will provide important expertise on how the ambulance system of a large, U.S. city functions, including maintenance of vehicles, inventory of equipment, dispatching, response times, and integration of activities throughout the metropolitan area. The date of his visit has not been determined as yet.

David Raines -- As noted above, Mr. Raines is the head of the paramedics course at Northeastern University. He is willing to visit Armenia and to assist in the development of a formal paramedics course in Yerevan. The dates of his travel and length of stay remain to be determined.

3. Program Development of a Model Trauma Center

The Emergency Hospital is the major trauma center in Yerevan, although trauma cases go to other major hospitals in the city. Our current knowledge of trauma care in Yerevan is sketchy, but in general, most patients who are brought by ambulance to the hospital are given little care in the Emergency Room and are transferred directly to in-patient units within the hospital or at a specialty hospital.

The goals of the proposed trauma care programs will address the following key issues:

- a. Access to trauma centers;
 - b. Stabilization of patients prior to arrival at a trauma center;
 - c. Evaluation of clinical, administrative, and academic functions of the trauma center;
- and
- d. Long-term follow-up and rehabilitation of trauma patients.

Initially, we plan to evaluate the trauma capabilities at the Emergency Hospital, including current clinical practices, facilities, equipment, and human resources. The educational and other academic activities for physicians, nurses, and others in the trauma field also will be examined and a pilot educational program which will meet local needs will be developed. The needs assessment will include establishment of multidisciplinary forums to review and prioritize needs to improve the care and rehabilitation of trauma patients. Written reports will be prepared, summarizing the near-term, long-term, and overall program requirements in clinical care, administrative support, and education.

To meet these goals, certain selected Armenian medical professionals who are involved in trauma care will visit Boston University Medical Center for training. These will include:

Ara Minasian, M.D., Director of the Emergency Hospital -- Dr. Minasian plans to visit Boston in October 1993 and remain for approximately three weeks.

Haroutioun Koushikian, M.D., Director of Erebuni Hospital -- Dr. Koushikian will travel to Boston in 1993 but the date is uncertain as yet.

In addition, the Armenian professionals listed in the prior section also will probably participate in development of the trauma center.

Traveling from Boston to Yerevan will be:

Erwin Hirsch, M.D., Professor of Surgery and Director of the Trauma Center at Boston City Hospital -- Dr. Hirsch will assess the current status of trauma services at the Emergency Hospital and Erebuni Hospital and with other experts (see below) will develop an implementation plan for creation of a modern trauma center. He plans to be in Armenia in April or May, 1993 for a two-week period.

James Menzoian, M.D., Professor of Surgery, Director of Vascular Surgery, and Director of the Surgical Training Program at Boston University School of Medicine

Richard Babayan, M.D., Professor of Urology, Boston University School of Medicine

Michael Eliastam, M.D., Professor of Medicine and Public Health, Boston University School of Medicine and Medical Director of Boston City Hospital -- Dr. Eliastam visited Armenia in September 1992 and plans to return in the summer of 1993 to assist in the development of the Trauma Center.

Paul Barsam, M.D., Associate Clinical Professor of Ophthalmology -- Dr. Barsam, a very experienced eye surgeon, will help develop trauma services related to eye injuries. He will visit Armenia for approximately two weeks in summer 1993.

Carolann Najarian, M.D., President, Armenian Health Alliance -- Dr. Najarian is a frequent visitor to Armenia. As a representative of our partnership, she will assist in the evaluation of trauma care at the Emergency and Erebuni Hospitals as she already has done for our preliminary assessment of emergency medical services there. She is expected to travel to Armenia late in March, 1993, and to remain there for approximately 3-4 weeks.

Jane Roman, Head of Operating Room Nursing Education at University Hospital -- Ms Roman will be involved in the training of Armenian nursing leaders who are involved in trauma care management. Details regarding her exact role and travel to Armenia have not been established as yet.

In addition to the above individuals, we expect that specialists in anesthesia, laboratory medicine, radiology, orthopedics, neurosurgery, and infectious disease from both the Boston and Yerevan communities will be involved in this partnership program. Their names, specific roles, and time and duration of visits will be provided at a later date after the initial assessment phase has been completed.

4. Establishment of a Model Academic Teaching Hospital System

A third specific aim of our program is to develop a model municipal teaching hospital system in Yerevan built around the Emergency and Erebuni Hospitals. To develop such a system will require a wide range of expertise including involvement of hospital administrators, financial officers, systems experts, and health professionals. This aspect of the partnership probably will not be measureable by the end of the initial 18-month contract period. Nevertheless it will be started and forms a necessary, long-term prong of our approach.

In order to assist in the development of a model teaching hospital system in Yerevan and prior to making specific recommendations or embarking upon programs or interchange, it will first be necessary to assess the financial and organizational structure and administrative capacity of the current system for support of teaching hospitals in Armenia. It will do little good to recommend improvements which cannot be sustained with the existing funding base available for health care.

Thus, our first effort will be to assess the teaching hospital system in Yerevan, its source of finance, and its existing organizational capacities. This will begin with a visit by William J. Bicknell, M.D. and an associate, Richard Feeley or Michael Trisolini (see below). Their visit will take place during the spring of 1993 for one to two weeks. To the extent possible, they will build on and corroborate information already obtained in previous visits by Boston University Medical Center staff or contained in reports such as the Institutional Inventory currently being prepared. The team will interview key officials in the Ministry of Health and administrators at the Emergency and Erebuni Hospitals in an effort to develop the following information:

- a. Type and source of funding for hospital operations. Trend in funding. Status of exploration of new funding sources (service fees, etc.).
- b. Staffing levels, occupancy and activity statistics, and cost trends for major services in the target teaching hospitals.
- c. Organizational relationships among hospitals, medical schools, and the Ministry of Health.
- d. Relationship between teaching hospitals and private practice conducted by hospital staff, if any.

e. Referral arrangements for patients reaching the teaching hospitals. Do they come in off the street? Are they seen first at other health care facilities? To what extent is primary care being provided in the teaching hospitals? What is the relationship between the teaching hospitals and primary care centers?

Obviously, at a time of such great economic stress, it is very difficult to anticipate future funding levels for health services in Armenia. Based on discussions with Ministry of Health officials, the team will develop estimates of the funds available to the nascent teaching hospital system under different scenarios. Team members also will identify organizational improvements which might enhance the integration of teaching and patient care. This information will be an input for the rest of the partnership as it surveys the skills and training of senior physicians, nurses, and administrators at the hospitals. It also will be useful for the design of training programs to enhance those skills, consistent with the organizational challenges that are presented by this opportunity.

The initial phases of needs assessment and program development will include the following experts. These individuals are available for training of Armenian professionals either in Boston or are willing to travel to Armenia in 1993:

Dr. Eliastam will be involved with this aspect of the program as well as with the Trauma Center (see above), drawing on his administrative expertise in leading a major municipal hospital.

William J. Bicknell, M.D., Professor of Public Health, Director, Center for International Health, Boston University, and former Commissioner of Public Health, Commonwealth of Massachusetts

Rich Feeley, J.D., former assistant Commissioner of Public Health for the Commonwealth of Massachusetts and former chair, Finance Committee, Brigham and Women's Hospital, Boston, Mass.

Michael Trisolini, M.B.A., Assistant Professor of Public Health, Director of Training at the Center for International Health, Boston University, former financial and management analyst at Brigham and Women's Hospital

Michael Varadian, J.D. -- Mr. Varadian is a hospital consultant who was Vice President for Administration at Newton-Wellesley Hospital, Newton, Massachusetts, a large community hospital in this area. He travelled to Armenia in 1992 and consulted on hospital structure and health care in Armenia during his visit. He has recently become involved in our program and looks forward to assisting in the development of hospital management systems.

Marie Vartanian, Vice President for Nursing, Metro-West Medical Center, Framingham, Mass. -- Ms Vartanian is an expert in nursing administration and nursing education and will lead the program's efforts in this domain. She will visit Armenia in the spring of 1993 and remain there for approximately three weeks.

5. Development of Education and Accreditation Standards for Armenian Medicine

The major work on this specific aim will not be carried out until the second and third years of the program. However, initial meetings between the Dean of Boston University School of Medicine, Dr. Aram V. Chobanian, and the Minister of Health of the Republic of Armenia, Dr. Ara Babloyan, the Rector of Yerevan Medical School, Dr. Vilen Hagopian, and Dr. Haig Nicogosian, head of the National Institute of Health of Armenia already have taken place to address these questions.

Dr. Chobanian, in addition, is chairman of an international committee to assess the needs in medical education in Armenia. This committee delivered an initial report, "Report of the Workshop on Medical Education," to the General Assembly of the Fifth Armenian World Congress, July 19, 1992 (a summary is included in the Appendix) which covered a broad range of topics including the Medical School curriculum, the integration of medical education in Armenia, residency programs, licensures and certifications, continuing medical education, current programs of medical education involving the Diaspora, and possible funding opportunities from the Diaspora. Among its recommendations:

- * Standardization of criteria for accreditation of medical schools and residency programs;
- * Standardization of residency programs themselves;
- * Strict definition of admission criteria for medical students;
- * Establishment of medical licensure examinations for certification at various levels of training;
- * Coordination of medical education between the medical school, teaching hospitals, and clinics in order to expand the practical clinical training of students;
- * Focus on faculty development and enrichment programs;
- * Focus on development of a broad range of Continuing Medical Education programs, with the Medical Education Coordinating Committee taking the leadership in their development.

The individuals who will be participating in this aspect of the program and who will be travelling from Armenia to Boston include Dr. Haig Nicogolian; Dr. Vilen Hagopian; and Dr. Haroutioun Koushikian, as well as Sevak Avakian, M.D., staffmember of the Ministry of Health, Republic of Armenia.

In addition, various chairmen of clinical departments at the Armenian Medical Institute are expected to participate.

Faculty from Boston University Medical Center who will be involved in the program development and training in both Boston and Yerevan include Drs. Aram Chobanian, James Menzoian, and Richard Bababyan, as well as:

John Noble, M.D., Professor of Medicine and Director, Primary Care Center, Boston University School of Medicine

Vigen Babikian, M.D., Associate Professor of Neurology, Boston University School of Medicine

Faculty members representing other important disciplines also will participate and will be identified during the coming months.

6. Public Relations and Fund-Raising Programs

This effort is designed to increase the level of awareness, within the United States, of the medical needs of Armenia and to initiate a fund-raising campaign to assist in the long-term funding of this program after AIHA support has ended. Many business leaders and physicians of the Armenian-American community have expressed enthusiastic support for this effort and have agreed to assist in these efforts. A fund-raising effort has been organized by the Boston University School of Medicine's Office of Development (see Appendix D). This campaign provides the project with immediate funds that enhance in-kind donations, lengthen the duration of the project and increase the likelihood of securing funds after 18 months. Also, the fund-raising has an impact on the community beyond the scope of the project in providing support and the ongoing commitment of the Armenian community at large.

Among our dedicated partners can be found members of community institutions. For example, the Armenian Health Alliance, which works extensively to lobby our government for wider awareness of the critical problems faced by the country, is represented by Dr. Carolann Najarian. Several representatives of the Boston medical and business community are members of the Boston University School of Medicine's governing Board of Visitors. Participants of major international events on the Armenian theme, as for example, the Armenian World Congress (see above), also are involved with us.

C. Structure and Organization of Program

1. Agenda

The agenda items to be covered during the first 18 months of the program (see timetable below) can be outlined as follows:

a. Emergency Medical System

- * Assessment of current activities and needs
- * Assessment of organization and operations of the ambulance system
- * Establishment of training programs for paramedics and emergency medical physicians
- * On-site training of Armenian professionals in Yerevan and in the U.S.

b. Model Trauma Center

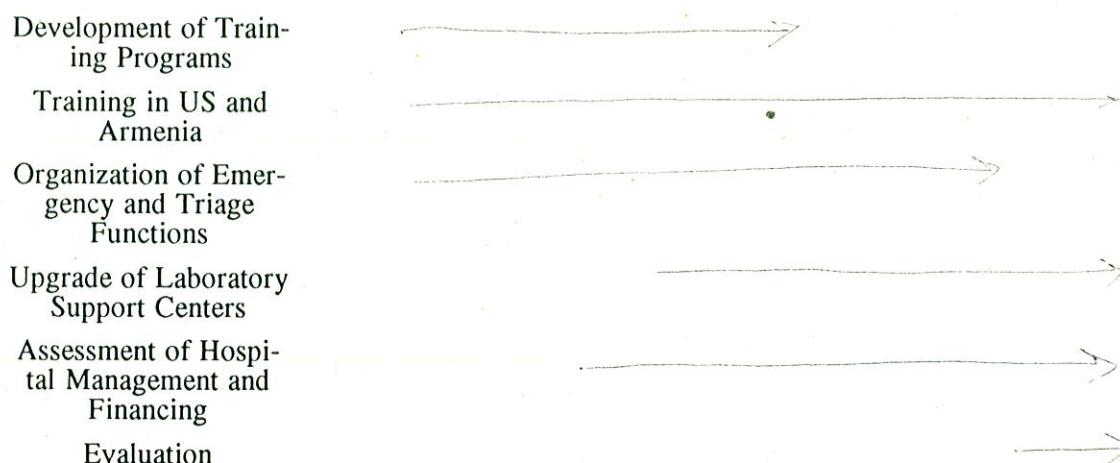
- * Assessment of current activities and needs
- * Assessment of emergency room functions and patient triage
- * Establishment of professional staff training programs
- * On-site training in Yerevan and in the U.S.
- * Assessment of hospital management and financing trends
- * Assessment of hospital laboratory and other support centers

c. Evaluation of Activities

2. Timeline

The timetable which is currently proposed is shown below. Because of the unstable situation in Armenia, the times may need to be modified. The anticipated educational exchanges are summarized and scheduled in Appendix A.

Item	Jan 93	Apr 93	July 93	Oct 93	Jan 94	Apr 94	July 94
Emergency Medical System	→						
Needs Assessment							
Paramedic Course Development		→					
Emergency Staff Training		→					
Ambulance System Upgrade		→					
Evaluation							
Trauma Center							
Needs Assessment	→						



3. Itinerary

Appendix B summarizes the planning format, purpose, and budget of each proposed educational exchange.

4. Internal Resources

The expertise to accomplish our proposed goals will come from Boston University Medical School and its associated institutions, Boston City Hospital, University Hospital, and the Boston University School of Public Health. The physician staff members of this Medical Center serve at both hospitals and are faculty members at Boston University School of Medicine. A broad range of expertise exists in both hospitals which are the major teaching hospitals for the School of Medicine. Boston City Hospital has the most important trauma unit in the City of Boston and manages the ambulance system of Boston. University Hospital includes in its centers of excellence the cardiovascular center, pulmonary center, spinal cord injury center, and neurosurgical center.

5. External Resources

Dr. Chobanian has organized a large group of Armenian-American medical academicians, nursing leaders, and hospital administrators from the Massachusetts medical community who have agreed to participate in the program. These include hospital directors, nursing directors, emergency medical physicians, anesthesiologists, vascular surgeons, urologists, internists, pediatricians, cardiologists, psychiatrists, neurologists, and radiologists. As an example of the commitments by such individuals to the program, Dr. Richard Agababian volunteered to be part of the first team to Armenia to define the needs in emergency care and trauma (see above). Such a pool of medical professionals should help greatly in insuring success of the program.

6. Budget

See Appendix B for budgets of each proposed educational exchange.

III. Evaluation Criteria

It is too early in the project to propose all of the evaluation measures that will be required. Instead, we can conceptualize the evaluation of the program, based on what we have learned in our visits to Armenia so far. The selection of specific measures at each step of the evaluation will depend on data available about baseline conditions and future changes. With the system under so much stress, the Armenian health-care establishment may not be able to change its data collection priorities in the near future. The selection of specific evaluation criteria also will depend on the specific interventions that are possible, given the resources available and the priorities set by Armenian and Boston University officials.

Nevertheless, in evaluation of development assistance projects such as this, it is useful to think in terms of the following five steps. We discuss each briefly, with its relationship to the program elements as we currently visualize them:

A. Goals

Our goals in the initial project period are to improve the quality of health care in Armenia by upgrading the skills of physicians, related professionals, and administrators and to re-orient clinical education by establishment of a model teaching hospital system with lasting effects on the delivery of medical care as a whole.

B. Objectives

1. Relative to the organization of emergency medical care in the Republic of Armenia, to improve the survival of patients through better organization, communication, and training of ambulance crews and emergency room staff;
2. Relative to development of a model trauma center, to reduce the morbidity and mortality of accident victims and war casualties through training of physicians who treat such patients;
3. Relative to the establishment of a model municipal teaching hospital system, to improve the quality of clinical education received by Armenian medical students, resulting in improved medical care for Armenian citizens. This objective assumes that funding will be extended beyond the initial 18-month period since only the initial aspects of this work can be performed in this timeframe.
4. Relative to education and accreditation standards for Armenian medicine, to improve the average skill level of Armenian health-care providers by setting minimum standards for medical education and perhaps, physician certification. This objective likewise assumes funding beyond the current 18-month period.

C. Inputs

For each of the four statements of work to be accomplished (specific goals, see above and p. 1), the primary input will be the expertise of our U.S.-based team based on in-kind donations of our own institutions, resources supplied from our agreement with AIHA, and resources that we have raised on our own. The inputs for each project include consultation, on-site training in Armenia, training of Armenian clinicians and administrators in the United States, and establishment of medical school electives enabling medical students to participate in medical education in Armenia. The exact mix of these inputs for each project will depend on such factors as: English language ability of Armenian professionals; availability of Armenian professionals to leave for training in the U.S.; conditions in Armenia with respect to blockade, war casualties, winter climate; and the specific needs in each project area.

D. Outputs

Output measures show what the program expects to accomplish, although we realize that they will tell relatively little about our success in meeting the overall goal of improving health status by raising the level of technical competence within the Armenian medical community. Thus, we can and will measure the number of trainee weeks in the U.S. or in Armenia; the number of trips to and from Armenia; the number of individuals or organizations who receive technical consultation; or perhaps the development of a specific set of operational standards for emergency medical service, trauma, or for training programs.

Other concrete accomplishments that we expect to be able to implement during the initial 18-month period and upon which we expect to be evaluated:

1. Establish a paramedic training course that will become part of official emergency medical training for the country. We will develop and provide English- and Armenian-language curricular materials for this course. In addition to the development of the program, we hope to train and certify at least 25 Armenian medical personnel during the first 18 months.
2. Establish standard equipment for ambulances and assist in the acquisition of needed equipment for ambulances. Our preliminary information indicates that cardiac defibrillators and certain essential cardiotoxic medications are lacking in all ambulances in Yerevan. A goal of our efforts during the initial period will be to provide such defibrillators and medications for at least five ambulances.
3. Have senior Armenian leaders participate and experience on-site delivery of emergency medical care and trauma care at Boston University Medical Center and University of Massachusetts Medical Center. Our goal will be to train at least 12 Armenian professionals in the U.S.
4. Have senior U.S. medical leaders participate in the program and provide on-site training for senior Armenian medical professionals. Our goal will be to involve directly at least 30 academic physicians and other appropriate health professionals in the program during the initial project period and to have at least 15 of these persons travel to Armenia to participate directly in the training and evaluation phases of the program.
5. Establish and enroll U.S. medical students in three new Boston University School of Medicine electives to take place in Yerevan in the specialties of: rehabilitation medicine; emergency medicine; women's health. This provides a perfect example of partnership from which all partners benefit as well as a foundation for restructuring clinical education in Armenia. Our objective is to have at least five fourth-year U.S. medical students participate in the initial project period for one to two months each.
6. Expand financial resources available to the program by fund-raising in the private sector. We expect to raise at least \$50,000 in direct cash contributions from these efforts during the first 18 months of the program. An additional goal is to obtain donations of at least five cardiac defibrillators from equipment manufacturers and medical institutions as well as necessary medications from the pharmaceutical industry (see #2 above).

E. Impact

Within the brief 18 month timeframe and in view of the current unstable conditions in Armenia, it probably will not be possible to measure the impact of the program. We may be able to determine if pre-hospital mortality is reduced, or if positive results are achieved in certain standardized trauma cases. However, such measures could be confounded by deterioration -- or improvement -- in the overall situation in Armenia. Nevertheless, we will attempt to develop appropriate outcome measures relative to emergency medicine and trauma service.

When measuring the impact of steps taken to upgrade medical education (model teaching hospital, or national accreditation standards, for example), it is likely that we will not be able to measure an impact on overall health, such as age or disease-specific mortality. Even if we increase the skill level of Armenian physicians, we may not observe positive changes in treatment outcomes nor overall measures of public health. However, if we can measure a specific increase in average skills in the medical community, we will have shown the impact of the program, at least at an intermediate level. This necessitates being able to determine if baseline data on competence in specific skills is available; we cannot yet determine this and it may be necessary to develop a baseline data collection system for this purpose.

IV. Appendices

Appendix A. Schedule of Trips

Appendix B. Trip Planning, Purpose and Budget

Trip Goal

Trip's relationship with other trips

List of Participants

Curricular and Other Materials Needed

Logistics

Accommodations:

Translation Services:

Local Transportation:

Trip Budget

Local Expenses:

Equipment and Supplies:

Educational Materials:

Appendix C. Report of the Workshop on Medical Education, presented to the General Assembly of the Fifth Armenian World Congress, July 19, 1992

The Workshop covered a broad range of topics including the Medical School curriculum, the integration of medical education in Armenia, residency programs, licensures and certifications, continuing medical education, current programs of medical education involving the Diaspora, and possible funding opportunities from the Diaspora.

A few formal presentations were made. Dr. Vilen Hagopian outlined the current curriculum of the Medical Institute and the progress that had been made in changing the curriculum over the past two years, particularly in the clinical sciences. He indicated that discussions are currently under way regarding development of an affiliation with an Erevan hospital. He discussed the problem of excessive number of medical students with approximately 5000 students currently enrolled at the Medical Institute. He also mentioned the size and national origin of the faculty and the fact that some students are still being admitted from other countries, particularly the other newly independent states and India. Furthermore, he quoted figures indicating that about 30% of medical students have a familiarity with the English language.

Mihran Agababian, President of the American University of Armenia, summarized proposed plans of the AUA for education in health sciences. Graduate programs are to be introduced soon in such areas as health care management, health care financing and insurance, and public health. The AUA is also contemplating establishment of a complete medical school curriculum in five years.

In addition, several other individuals from the Diaspora gave their personal experiences on educational programs in Armenia or involving physicians from Armenia.

Twelve recommendations were offered by this Workshop. They were as follows:

- 1) A standing Medical Education Coordinating Committee should be established which should have reporting responsibilities to AMIC or whatever organization that would be recommended by their Congress or created by the Congress. The Coordinating Committee would assume as its mandate the realization of the recommendations of the Workshop. It would function on an ongoing basis between meetings of the Congress. The Committee would work with the appropriate medical educational institutions and the appropriate governmental groups in Armenia to assist in program development.
- 2) Standardized criteria should be developed for accreditation of medical schools in Armenia. Parenthetically, Workshop members were extremely concerned about the recent creation of three new medical schools in Armenia without apparent quality control.
- 3) Admission criteria for medical students should be strictly defined. Some participants thought that knowledge of English should be a requirement but no consensus was reached on this point.
- 4) The Erevan Medical Institute should have relative autonomy and control of its educational programs and be administered independently by its own Board.
- 5) Residency training should be standardized and appropriate accreditation criteria should be developed.
- 6) Medical licensure examinations should be established for certification at various levels of training.
- 7) Medical education should be coordinated between the medical school, teaching hospitals, and clinics in order to expand the practical clinical training of students.
- 8) Faculty development programs should be expanded.
- 9) Serious consideration should be given to the proposed new health care programs to be offered by the American University of Armenia. However, the Workshop participants generally thought that more details of such programs would need to be assessed before an outright endorsement of them could be made.

10) The new Medical Education Coordinating Committee should provide leadership to develop an inventory of programs of medical education for Armenia that involve participants from the Diaspora. Similarly, an inventory of funding opportunities from the Diaspora should be developed and made available on a broad basis.

11) A broad range of Continuing Medical Education programs is needed in Armenia, and the Medical Education Coordinating Committee should work toward their development.

12) The Workshop also recommended that the emphasis of the proposed educational programs should be on those which are based in Armenia rather than in the Diaspora.

Although sufficient time was not available to discuss the education needs of health professionals other than physicians, the Workshop underlined the importance of developing educational programs for such groups as dentists, nurses, hospital administrators, epidemiologists, laboratory technologists, financial managers, public health workers, medical librarians, informational technologists, and systems specialists.

The goals which have been set in this Workshop are far-ranging and will obviously require years to accomplish. The effort will need to be organized carefully, priorities will need to be established, and extensive resources will be required. However, the need is great, and we must move ahead in a united and coordinated manner to achieve these goals.

Appendix D. Letters of Solicitation to Armenian Community



Boston University Medical Center - Armenia
Medical Partnership Program



Mailing address
80 East Concord Street
Boston, Massachusetts 02118-2394
Tel. 617 638-4018
FAX 617 638-5258

February, 1993

Dear Friend:

The enclosed piece tells of the worsening crisis in health care occurring in Armenia. Since its independence Armenia has witnessed the deterioration of its medical system, and Aram Chobanian, M.D., Dean of Boston University School of Medicine, has taken on the leadership of a program to bring state-of-the-art medical care to our homeland.

Aram is truly an outstanding individual who persists in "doing the right thing." As Dean of the Boston University School of Medicine, he has set a visionary course for both education and research. As a researcher, he has been a national and international figure in his work in hypertension. As a physician, he has shown compassion, intelligence and understanding for his patients. As a member of the Armenian community, he has consistently supported the country, our people there and our people here.

This project that he has undertaken will benefit the entire Armenian community, but unfortunately the grant requires matching funds from the U.S. partners to help in covering some of the expenses for supplies and equipment to Armenia and expenses for Armenian health leaders while in the U.S.

We who are signing this letter all serve as members of the Board of Visitors for the Boston University School of Medicine. Because we have been able to hear first-hand of the significance of the program we are making our own contributions to the cause, and we strongly urge you to do the same. Our support for the restructuring of medical care in Armenia will not only help thwart the crisis, but it will be a way for us to thank Aram for the many contributions he makes daily.

We are especially anxious to receive gifts from \$1,000 to \$5,000 or more to insure the success of the program. Let us all champion this important cause and support Aram Chobanian in his valiant efforts.

Checks should be made out to Boston University School of Medicine with a notation that the gift is to be used for the Armenian project. Gifts of stock may be given as well. For information on how to make a gift of stock please call the Office of Development at (617)638-4570.

We truly thank you for your consideration and concern.

Sincerely,



Gerald Ajemian



Paul C. Barsam



Peter Onanian



Albert Papoyans

Enclosure

ARAM CHOBANIAN HEADS \$1 MILLION BUSM PARTNERSHIP TO AID ARMENIA

Stating that the health care system in Armenia is in crisis, Aram V. Chobanian, M.D., Dean of Boston University School of Medicine (BUSM), has agreed to head a partnership with the American International Health Alliance and the U.S. Agency for International Development to establish an exchange program to halt the deterioration of the health care system in the newly independent state of Armenia. BUSM, under the leadership of Dean Chobanian, and two hospitals in Yerevan, Armenia, will form one of ten long-term health care partnerships. This partnership was announced on Wednesday, October 23rd in Washington by acting Secretary of State Lawrence Eagleburger and Allan Roskins, the administrator of the U.S. Agency for International Development (USAID).

The program will be managed by the American International Health Alliance (AIHA), and will recruit American health care professionals to identify and address the monumental health care problems facing newly independent nations in what was once the Soviet Union. The \$13.5 million partnership program, funded by USAID, will provide technical assistance to many of these new states. The BUSM/Armenia component of the program is expected to receive in excess of \$1 million over a three-year period.

Dr. Chobanian, upon returning from an AIHA-sponsored visit

to the major hospitals in Yerevan, determined that the program is essential to establish a model teaching hospital system, and training physician leaders as well as senior hospital administrators, financial officers, computer system technologists in modern methods of hospital management, and state-of-the-art approaches to health care delivery. Senior academicians, clinicians, nurses, and administrators will travel to Armenia to help their partner hospitals develop plans for meeting the most important clinical and administrative needs. Armenian medical leaders also will be brought to Boston for in-depth training in these areas.

Much of the focus of the program initially will be in the area of emergency care and trauma. Currently accidents represent the major cause of death in the republic, even exceeding the high rates of death caused by heart disease and cancer. "The devastating 1988 earthquake and the long-standing war in Karabagh have underscored the need for a trauma center that can become a model for other major hospitals in Armenia", says Dr. Chobanian.

Teams of leaders from Boston University School of Medicine, University Hospital, Boston City Hospital, and Boston University School of Public Health as well as selected other members of the Massachusetts medical community will help the two largest municipal hospitals in Yerevan, the Emergency Hospital and Erebuni Hospital, work out a strategy for meeting their goals of instituting up-to-date practices for health care delivery.



Boston University Medical Center - Armenia
Medical Partnership Program



Mailing address
80 East Concord Street
Boston, Massachusetts 02118-2394
Tel. 617 638-4018
FAX 617 638-5258

January 27, 1993

Name & Address

Salutation:

The enclosed piece tells of the worsening crisis in health care occurring in Armenia. Since its independence Armenia has witnessed the deterioration of its medical system, and Aram Chobanian, M.D., Dean of Boston University School of Medicine, has taken on the leadership of a program to bring state-of-the-art medical care to our homeland.

Aram is truly an outstanding individual who persists in "doing the right thing". As Dean of the Boston University School of Medicine, he has set a visionary course for both education and research. As a researcher, he has been a national and international figure in his work in hypertension. As a physician, he has shown compassion, intelligence and understanding for his patients. As a member of the Armenian community, he has consistently supported the country, our people there and our people here.

As a result of a recent U.S. government-sponsored trip to Armenia, Aram was able to secure for Armenia two of the ten grants made by USAID to the newly independent states of the old Soviet Union to help establish a modern health care system in Armenia. He is doing what we all wish we were able to do. Probably each one of us would like to go to Armenia and help restore the medical system, but time and other commitments prevent us from doing so. The grant requires that the U.S. partners provide matching funds to the government grant. By supporting this program, we can at least take some small part in the project and help insure its success. The contributions will only be used to support supplies and equipment for Armenia and expenses of senior Armenian health professionals being trained in Boston.

We are especially anxious to receive gifts from \$1,000 to \$5,000 or more to insure the success of the program. Let us all champion this important cause and support Aram Chobanian in his valiant efforts. Checks should be made out to Boston University School of Medicine with a notation that the gift is to be used for the Armenian project. Gifts of stock may be given as well. For information on how to make a gift of stock please call the Office of Development at (617)638-4570.

We truly thank you for your consideration and concern.

Sincerely,



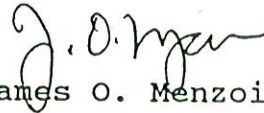
Richard K. Babayan



Viken L. Babikian



Paul C. Barsam



James O. Menzoian

Enclosure

Please tear off and return

BOSTON UNIVERSITY-ARMENIA PROGRAM

80 East Concord Street, A207

Boston, MA 02118

Enclosed please find my gift of in the amount of \$_____ to support the activities to improve health care in Armenia.

My gift will be matched by _____
(Please obtain Matching Gifts Form from employer)

Please make checks payable to:
Boston University
School of Medicine

name _____
address _____
zip _____ telephone () _____

Signed

Date