



**GARO MEGHRIGIAN EYE INSTITUTE FOR PREVENTIVE OPHTHALMOLOGY
CENTER FOR HEALTH SERVICES RESEARCH AND DEVELOPMENT
THE AMERICAN UNIVERSITY OF ARMENIA**

**Major Activities of Garo Meghriyan Eye Institute
for Preventive Ophthalmology in 2007-08**

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This Report of the Garo Meghriyan Eye Institute for Preventive Ophthalmology (GMEIPO) of the Center for Health Services Research and Development at the American University of Armenia highlights the main activities and accomplishments of the GMEIPO during the calendar year of 2007 and first quarter of 2008.

Conferences and Publications

In 2007, Naira Khachatryan, Lecturer of Preventive Ophthalmology and Principal Investigator at the GMEIPO, participated in several international conferences:

1. Prevention of Blindness in Europe, including Armenia. Annual meeting for the European office of IAPB. Bensheim, Germany, September 2007 [oral presentation]
2. Strategies for Prevention of Blindness in Europe, including Armenia. The Council of Members meeting for the International Agency for the Prevention of Blindness (IAPB). Vancouver, Canada, September 2007 [working group participation]
3. Eye Care in Armenia. Annual meeting for the European office of IAPB. Prague, Czech Republic, June 2007 [oral presentation]

In February 2006, Naira Khachatryan presented 2 abstracts in the XXX International Congress of Ophthalmology in San Paulo, Brazil; one of the abstracts was recognized as the best national abstract and her registration fee was waved.

1. Khachatryan N, Najaryan O, Petrosyan V, Thompson M. Rapid assessment of cataract surgical services (RACSS) in Gegharkunik Marz (province) of Armenia: results of a population based survey. Accepted for XXX International Congress of Ophthalmology, Sao Paulo, Brazil, February 2006 [oral presentation]
2. Khachatryan N, Thompson M, Navoyan G. *Impact of Blindness and Low Vision on Quality of Life: Armavir Health Fair Project*. Accepted for XXX International Congress of Ophthalmology, Sao Paulo, Brazil, February 2006 [poster]

Strengthening Regional Ophthalmic Services in Gegharkunik Marz of Armenia

The Garo Meghriyan Eye Institute for Preventive Ophthalmology (GMEIPO) is implementing a joint project with the Ararat-1 Lions Club (ALC) Charitable Organization and the Ministry of Health of the Republic of Armenia. The project is supported by the Lions Club International Foundation (LCIF) and the GMEIPO to strengthen the primary and secondary level ophthalmic services in the remote Gegharkunik province (marz) of Armenia establishing a regional ophthalmic unit (ROU) in Sevan and supporting screening and financing systems.

The ROU in Sevan is providing eye care on the marz level to strengthen the local infrastructure and primary level eye care, and to develop secondary level eye care in the marz. The project helps to develop a model of organization, financing, and delivery of regional ophthalmic services for Armenia that could be replicated as a national model for quality and affordable medical services.

This unique project provides a wonderful opportunity to the GMEIPO to accomplish all the major components of its mission:

- a) Conduct scientific investigations of ophthalmic epidemiology to increase understanding of eye disease in the community
- b) Link ophthalmologic services with expertise in organizing, financing and delivery of services to increase the utilization of ophthalmologic care in Armenia
- c) Educate eye care providers and the general public on scientific advances in detecting, preventing, and treating eye disease and in translating these advances into nationwide clinical practice
- d) Establish an ophthalmic care and prevention network to expand service delivery to under-served populations in need of affordable, accessible, and high quality eye care services for prevention and treatment of blindness at all levels

- e) Develop partnerships with organizations that are interested in blindness prevention and are capable of furthering the achievements of GMEIPO's goal.

During the process of the project implementation, the following phases were successfully completed or are in process.

- **Needs Assessment**

Community needs for cataract intervention in Gegharkunik marz were assessed using the Rapid Survey of Cataract Surgical Services (RACSS) methodology. The RACSS technique optimizes the use of limited sources for data collection, data entry, and analysis through the use of a simplified but valid survey methodology and a specially developed software package. This was a successful attempt to conduct the first population based scientific investigations of ophthalmic epidemiology to better understand eye disease and blinding conditions among adults in the community.

- **Building Infrastructure**

A regional ophthalmic unit (ROU) was established/renovated according to MOH standards and equipped per the WHO standard list. The ROU started functioning at its minimal capacity since August 2005. Standardized systems and procedures for the staff and patients are being developed.

- **Developing Human Resources**

Key medical personnel have received local and international trainings. The trainings were specifically developed for their needs both in the National Institute of Health and in the Lion's Aravind Institute for Community Ophthalmology (LAICO). The trainings covered both treatment and management skills as appropriate for the person's role in the new system of care.

- **Establishing Village Examination Centers**

Ten Village Examination Centers (VEC) were established in the selected village

ambulatories throughout Gegharkunik marz and ten VEC in Tavush marz. These ambulatories received minimal necessary equipment for basic eye screening and the staff (nurses) participated in 2-day primary eye care training.

- **Providing Ophthalmic Services**

Since August 2005 ROU's personnel have been implementing mass screenings of people in Gegharkunik marz during their regular working days and outreach activities to the remote villages and towns (1-4 times per month) providing affordable, accessible, and high quality eye care services for prevention and treatment of blindness to under-served populations.

During the last year and a half, the ROU medical staff has screened and provided ophthalmic services to 4,600 residents of Gegharkunik marz (1600 in 2008) without charging the patients for the provided services. About 400 prevalent cases of bilateral blinding cataract in Gegharkunik marz of Armenia have been identified during the screenings and registered in the waiting list. Many of the patients are in bad health and socially deprived.

In June 2007, the ROU was registered as a Fund (not for profit legal entity) and in early 2008, the Ministry of Health licensed the clinic allowing to conduct surgeries. In January, the ROU started performing surgeries. During January-April months of 2008, 140 patients from the waiting list went through Small Incision Cataract Surgery without any postoperative complications; the ROU medical staff performed these surgeries for free.

Each patient is being examined before surgery at the Sevan Polyclinic for a common blood count, urine analysis, blood glucose test, ECG, and Chest X-ray. The Sevan Regional Ophthalmic Unit's medical staff administers ophthalmic examination, including visual acuity test, ophthalmoscopy, ophthalmometry, A-scan and slit lamp

examination of each patient at no cost to patients. Follow-up consultations and post-surgery services are being provided to the patients after the surgery at the Sevan Regional Ophthalmic Unit. The ROU medical personnel examine all patients once a week during the period of 2 months after the surgery.

- **Scientific Investigations**

The GMEIPO team has developed an instrument for surgery outcome measurements at the ROU, developed a SPSS database, and trained the staff in data collection and entry. This data set will allow evaluating Post Cataract Surgery Outcomes at the ROU, which aims to investigate the proportion and severity of poor outcomes after cataract surgery and patient-related predictors of poor post surgery outcomes. This will help to establish a continuing quality improvement process at the clinic and give an opportunity for applied research in the field of ophthalmic epidemiology.



Opening Ceremony of the Sevan Regional Ophthalmic Unit (ROU)



GMEIPO Principal Investigator, WHO Consultant and Medical Personnel of the Sevan ROU

Training of Future Professionals for Blindness Prevention in Armenia

In September 2007, the Meghriqian Public Health Ophthalmology Fellowship Program admitted its first Fellow. Dr. Marine Nalbandyan was trained as a physician and went through a residency program in clinical ophthalmology. The Meghriqian fellowship will prepare Dr. Marine Nalbandyan for blindness prevention activities in Armenia and the region. She is studying in the two-year Master of Public Health (MPH) Program at the American University of Armenia while engaging in practical training and research at the GMEIPO. The GMEIPO exposes the first fellow to principles of public health ophthalmology. The program complements clinical ophthalmology training, which is focused on providing relief to one patient, to a population/community based perspective of eye health. The Meghriqian Fellow has received a scholarship covering the MPH tuition. Her responsibilities include working up to 20 hours per week in the GMEIPO/CHSR and maintaining good academic standing.

Trainings

GMEIPO organized a 2-day ophthalmic training of 51 primary care nurses working in schools of Gegharkunik marz using GMEIPO resources. The aim of these trainings is to strengthen eye care capacity of school health offices in Gegharkunik and to raise public awareness of childhood blindness as an important health issue. Two phases of training were recommended for project implementation. The first group of trainees received the training in December 2006; the others participated in the trainings in May and June, 2007.

GMEIPO ophthalmic consultants revised/updated the curricula of the 2-day “Primary Eye Care” course, developed by GMEIPO in 2005, based on World Health Organization (WHO) primary eye care guidelines. The curriculum contained information on basics of anatomy and physiology of the eye, common eye problems and disorders which could be diagnosed and dealt with at the primary health care level, including injuries of the eye globe or eyelids, problems or disorders of acute onset, and problems or disorders of gradual onset. In order to emphasize the issue of childhood blindness, more information on refractive errors, counseling of children with refractive errors, basics of eye health education for children were included in the curriculum.

GMEIPO team approached the local Governor and the Head of Health Department of Gegharkunik marz with information about the project. The local authorities recommended selected school nurses for the training. Totally, 8 school nurses from Sevan town and nearby villages were invited to the training during the first phase of the project (December 2006). In May 2007, 12 nurses working at schools in Gavar town and nearby villages and 20 nurses from Martuni town and nearby villages were invited for the training. Eleven nurses from Vardenis town and nearby villages participated in the training in June 2007.

The Lions Regional Ophthalmic Unit (ROU) of Sevan was selected as the training venue of the project. The GMEIPO pediatric ophthalmic consultants delivered the theory

classes, while ROU ophthalmologists and nurses provided practical trainings. Two young ophthalmologists working in health facilities in Yerevan observed the training. They were trained before by an experienced GMEIPO ophthalmic consultant. The GMEIPO team provided transportation to the trainers and trainees from remote regions.

During the training course, the nurses were acquainted with the basics of ophthalmology and learned practical skills to detect eye diseases at an early stage of development. This part was presented by means of lectures and interactive sessions. Different visual aids (color atlases, charts, etc.) were used to assist the learning process.



Dr. Saribekyan explains eye anatomy



Group of trainees during a lecture session

Lectures were followed by practical work, during which the GMEIPO consultant and Sevan ROU ophthalmologists and nurses explained and demonstrated practical skills. Thereafter, the nurses, under the supervision of ophthalmologists, practiced skills on each other (e.g. measured visual acuity by visual charts, performed tonometry, application of eye drops and eye ointments, eye pressure measurement using palpation and Maklakov's tonometer, visual field testing, washing of the conjunctive sac).



Dr. Saribekyan explains visual field test



A trainee demonstrates eye drop application

The majority of primary care facilities (including school health offices) are lacking minimum equipment for primary eye care. GMEIPO team provided all trainees with basic ophthalmic equipment, medication, and supplies to be able to provide primary eye care and screening to school children (visual acuity charts, flashlights, eye drops for primary eye care, and other). All nurses were provided with copies of brochures on basics of ophthalmology, developed by GMEIPO ophthalmic personnel.



Distribution of ophthalmic charts



Head nurse Navasardyan distributed flashlights

Forty-six of fifty-one nurses who attended the 2-day training and successfully completed the quiz were awarded official certificate of completion.



Awarding certificates

All trainees emphasized the importance of this training given the limited opportunities for trainings, especially for nurses from regions of Martuni and Vardenis. The majority of trainees mentioned about the need for having long-term courses and short-term refresher courses. Moreover, the trainees requested courses in medical fields other than ophthalmology.



Research

GMEIPO supports a Research Study of Post Cataract Surgery Outcomes and Predictors of Poor Outcome in Yerevan, Armenia, which aims to investigate the proportion and severity of poor outcomes after cataract surgery and patient-related predictors of poor post surgery outcomes. It is a prospective cohort of 412 people with age related cataract, admitted to the 8th Eye Clinic in Yerevan, Armenia for cataract surgery in June 2006- January 2007. At admission, the study team administered a full eye examination and general health screening (blood glucose, blood pressure, height, weight), as well as a risk factor questionnaire (Socio-demographic, Life style, Environment, General Health questions), and WHO Vision related Quality of Life-20 to each participant. At discharge, the ophthalmic surgeon filled in the detailed record of the surgery, including any complications at surgery or in the post operative period. At 8 week follow up a detailed eye examination, general health screening, Usual Activities in Post-operative Period questionnaire, and WHO Vision related Quality of Life-20 was administered to each participant. Visual Acuity is the main outcome under the study investigation; Quality of life is the secondary outcome of this research. Data was managed and analyzed using the SPSS and STATA statistical software packages. The results were written up and discussed in context of available literature and data from Armenia and world wide.

Other Collaborations

GMEIPO has been also collaborating with Optomed Canada Diagnostic Eye Center, Armenian Branch that provides full diagnostic services in ophthalmology, including Applanation Tonometry, Biomicroscopy of Eye, Electroretinography: Computer-Aided, Ophthalmoscopy, Perimetry: Computerized, Refractometry, Sonography: Eyeballs, and Tomography: Retina, Computed. GMEIPO has been leasing space and equipment to Optomed Canada to generate more revenue for supporting GMEIPO activities in blindness prevention.