



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

Major Activities of Garo Meghrigian Institute for Preventive Ophthalmology in 2008-2010

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This Report of the Garo Meghriyan Institute for Preventive Ophthalmology (Meghriyan Institute) of the Center for Health Services Research and Development at the American University of Armenia highlights the main activities and accomplishments of the Meghriyan Institute during 2008, 2009 and first quarter of 2010.

The major components of its mission are:

- 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 Meghriyan Institute's goal.

Presentations and Publications

In April 2009, the Meghriyan Institute with the Master of Public Health Program organized a public seminar on the Study of Cataract Surgery Outcomes and Predictors of Poor Outcome in Yerevan, Armenia. During this public seminar Dr. Naira Khachatryan presented the findings from research conducted by support from the Meghriyan Institute. Her research examined cataract surgery outcomes and investigated the factors associated with a poor outcome including ocular and general health, surgery- and patient- related factors. This study was the first one to investigate change in patients' Vision-Related Quality of Life (WHO VF-20) after cataract surgery in Armenia.

Dr. Naira Khachatryan is trained in clinical medicine at the Yerevan State Medical University. In peruse of a career in Public Health, she completed the MPH degree program at the American University of Armenia. In 1999-2007, as the Program Manager of the Garo Meghriyan Institute for Preventive Ophthalmology at CHSR, and, later, Lecturer of Preventive Ophthalmology at CHS, she developed a number of projects, focused on health services research, epidemiological research, education for health professionals and general public, and advocacy. At present she works for the International Agency for Prevention of Blindness (IAPB) as the Regional Coordinator for Europe.

Dr. Khachatryan completed a Doctorate in Public Health (DrPH) program at the London School of Hygiene and Tropical Medicine with a focus on non-communicable diseases.

Strengthening Regional Ophthalmic Services in Gegharkunik Marz of Armenia

The Garo Meghriyan Institute for Preventive Ophthalmology implemented a joint project with the Ararat-1 Lions Club (ALC) Charitable Organization and the Ministry of Health of the Republic of Armenia. The project was supported by the Lions Club International Foundation (LCIF) and the Meghriyan Institute to strengthen the primary and secondary level ophthalmic services in the remote Gegharkunik province (marz) of Armenia establishing the Lions Regional Ophthalmic Unit Fund in Sevan (ROU) and village examination centers. 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. 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 outpatient surgeries. In January, the ROU started performing surgeries. In early 2010 the clinic received an inpatient care license from the Ministry of Health (MOH) allowing conducting inpatient and more complicated surgeries and signed a contract with MOH to provide state guaranteed eye services to vulnerable populations.

People from the whole marz and all neighboring marzes travel to the clinic or are screened through numerous outreach programs, such as vision screenings in remote villages, and school screenings in Gegharkunik and Tavush marzes. Patients are then referred and transported to the hospital when needed. Open five days a week, the clinic has served more than 17,300 people and conducted over 980 surgeries. While many of the services have been provided free to those who could otherwise not afford quality eye care, to ensure long-term sustainability, the clinic also provides services to paying patients. The clinic conducts cataract, glaucoma and other surgeries. 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 ROU medical staff administers ophthalmic examination, including visual

acuity test, ophthalmoscopy, ophthalmometry, A-scan and slit lamp examination of each patient. Follow-up consultations and post-surgery services are being provided to the patients after the surgery at the ROU. The ROU medical personnel examine all patients once a week during the period of 2 months after the surgery.

Lions Clubs International Foundation (LCIF) provided grant funding through its SightFirst program to help establish the center and for manpower and management training for its staff, the majority of whom are female. In April 2009, Joshua Friedman, Assistant Manager of LCIF Sight Programs and Dr. Ramachandra Pararajasegaram, World Health Organization and LCIF Consultant visited Armenia and the Lions Regional Ophthalmic Unit in Sevan to monitor the progress of the ROU. The Meghrian Institute sends annual updates on the progress of ROU to LCIF.

The Meghrian Institute 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 allows 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 helped to establish a continuing quality improvement process at the clinic and gave an opportunity for applied research in the field of ophthalmic epidemiology.



In 2009, Meghriyan Institute in collaboration with the Lions Regional Ophthalmic Unit in Sevan organized several outreach visits in remote and poor villages of Tavush and Lori marzes. The village population was invited for eye screenings to identify eye pathologies, prescribe glasses, and provide frames as needed. In case of having other than refraction error eye pathologies the Meghriyan Institute ophthalmologist referred the residents of these villages for detailed diagnosis and/or treatment to the ROU in Sevan. Overall, 205 people (50 from Haghartsin, 34 from Gandzaqar, 45 from Teghut, and 76 from Getahovit villages) participated in the eye screenings; 132 (64.4%) had different types and degrees of refraction errors and were prescribed eyeglasses. In addition to prescription for glasses, they received frames which would help them to order glasses in the optics.

There are approximately 4500 people living in Haghartsin village, 3500 in Gantsakar village, about 1200 in Teghut village and about 2500 in Getahovit village. The majority of them in all villages are representing socially vulnerable groups of population and do not have easy access to ophthalmic service.



Training of Future Professionals for Blindness Prevention in Armenia

In summer 2009, the first recipient of the Meghriyan Public Health Ophthalmology Fellowship Dr. Marine Nalbandyan, who was trained as a physician and went through a residency program in clinical ophthalmology, graduated from the Master of Public Health (MPH) Program at the American University of Armenia. The Meghriyan fellowship prepared Dr. Marine Nalbandyan for blindness prevention activities in Armenia and the region. While studying in the two-year MPH Program she was engaged in practical training and research at the Meghriyan Institute. The Meghriyan Fellow received a scholarship covering the MPH tuition for two years of studies. Her responsibilities included working up to 20 hours per week in the Meghriyan Institute and maintaining good academic standing.

WORLD SIGHT DAY 2008, YEREVAN, ARMENIA

On October 9, 2008 the Garo Meghriyan Institute for Preventive Ophthalmology at the Center for Health Service Research and Development of the American University of Armenia joined the celebration of World Sight Day. This international day of awareness, held annually on the second Thursday of October to concentrate attention on the global issue of avoidable blindness and visual impairment, focuses on vision impairment in older people this year. With the aging population, blindness from chronic conditions is rising; these same trends are observed in Armenia.

The Garo Meghriyan Institute aims at eliminating avoidable blindness in Armenia and is an active supporter of the World Health Organization's Vision 2020 initiative.

In 2008 the Meghriyan Institute celebrated World Sight Day with the Yerevan Municipality Evening Boarding School for Blind and Visually Impaired Adults. On October 9 and 10, 2008, the Meghriyan Institute's ophthalmic consultants provided detailed eye screening for 137 attendees (age range 16-60) of the boarding school. All visually impaired people in need (38 attendees) received prescribed eye glasses.

The Meghriyan Institute has also donated to the Boarding School a computer with a scanner, printer, headphones, and speakers; "Arev" software is installed on this computer. "Arev" software allows blind people to read books and use the internet in Armenian, Russian or English languages without assistance. Through the scanner the desired text is imported into the computer, letter images are converted into voice and the user can listen the text. With this software blind people can also compose music or play chess improving their quality of life. The Meghriyan Institute currently supports the training of two representatives of the

Boarding School in using “Arev” software.



Summer Camps Project

The strategic objectives of Summer Camp were to screen and treat children for eye pathologies. In addition, data were collected to provide for a population-based assessment of the nature and distribution of eye pathologies. The first objective addressed the immediate needs of the children while the latter provides data upon which to guide future medical interventions, screening programs, and health policy.

During August 2008, the screening was performed in 242 children aged 4-17 in 2 camps located in city of Vandazor (“Tsitsernak”) and city of Dilijan (“Tiezerk”). These children were selected by World Vision Armenia as vulnerable group to spend 10 days in summer camp. Face-to-face interviews, a basic eye exam, and simple anthropometric measurements were administered to all participants. Of these children, 63 (26.0%) were referred for more detailed examinations and/or treatment of suspected eye pathologies resulting in 25 pair of prescription glasses being provided and several referrals for more advanced diagnostics/treatment. The SPSS statistical software package was used to analyze the data through the implementation of the project.

The success and the findings of this limited effort highlights the need for conducting ophthalmologic mass screening programs for all children, but especially for those from vulnerable populations or with limited access to such care.





Trainings

The aim of school nurses training is to strengthen eye care capacity of school health offices in Gegharkunik marz and to raise public awareness of childhood blindness as an important health issue. The curricula of the 2-day “Primary Eye Care” course, developed by Meghriqian Institute team contains 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.

Meghriqian Institute 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, 9 school nurses from Martooni, Gavar, Vardenis and nearby villages were invited to participate in the training.

The Lions Regional Ophthalmic Unit (ROU) of Sevan was selected as a training venue of the project. The Meghriqian Institute ophthalmic consultant delivered the theory classes, while ROU nurses provided practical trainings. The GMEIPO team provided transportation to the trainers and trainees from remote regions. Lunch and Coffee breaks were provided both for trainees and trainers.

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. Amadamyán explains eye anatomy



Group of trainees during the lecture



Head nurse Narine Navasardyan explains visual acuity measurement



School nurses practice visual acuity measurement on each other



Head nurse Narine Navasardyan explains visual field test



Dr. Armen Amadamyán awards certificates to participants

Research: Outcomes of Cataract Surgery and Predictors of Poor Outcome in Lions

Regional Ophthalmic Unit

Introduction: Cataract is the first leading cause of blindness worldwide. It is not preventable and surgery is required to restore vision. World Health Organization classifies outcomes of cataract surgery into three categories based on Visual Acuity (VA): Good Outcome (VA= 6/6-6/18, VA Best Corrected>85%), Borderline Outcome (VA<6/18-6/60, VA Best Corrected< 15%) and Poor Outcome (VA<6/60, VA Best Corrected< 5%).

Aims: 1) to assess the outcomes of cataract surgery in Lions Regional Ophthalmic Unit (ROU) in patients aged 50 years and over operated from January 2008 to April 2009, 2) to identify the reasons for borderline and poor outcome in this study group, 3) to give recommendations for decreasing the rates of borderline and poor outcomes, and 4) to compare the results of this study with the study conducted in Kanaker - Zeytoon Medical Union in 2006.

Methods: The study utilized a cross-sectional study design. People with missing contact information, mental and severe hearing impairments were excluded from the study. The main outcome variable was Best Corrected Postoperative VA. The study collected data using an interviewer - administered questionnaire adapted from a previous study in Armenia.

Results: The proportion of good outcomes in Lions ROU was 78.3%, borderline - 15.5% and poor - 6.2%. The proportion of good outcomes was statistically significantly lower than the WHO recommendation of >85%. Simple Linear Regression showed that age, ophthalmic comorbidity and level of education were significantly associated with VA. All these variables were included in the Multiple Linear Regression, where only age and ophthalmic comorbidity showed significant association. Independent Sample t-test showed that mean VA in the ROU was significantly higher than in Kanaker - Zeytoon Medical Union.

Conclusions: The study results showed that age and ophthalmic comorbidity were negatively associated with the VA and were predictors of poor outcome in this study group. Early detection and treatment of ophthalmic comorbidities may improve outcomes of surgery in Lions ROU.

Other Collaborations

Meghrigian Institute continues to collaborate 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.