

Garo Meghriyan Institute for Preventive Ophthalmology

2021 Annual Report



Mission: Prevent Avoidable Blindness

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Executive Summary

In 1999, Mr. Garo Meghriqian of Los Angeles funded a Blindness Prevention Program in Armenia in memory of his daughter, Christine Hripsime. With a generous gift from the Meghriqian family, the Garo Meghriqian Institute for Preventive Ophthalmology (Meghriqian Institute) was established within the Avedisian Onanian Center for Health Services Research and Development at AUA's Turpanjian College of Health Sciences. Meghriqian Institute's mission is to prevent avoidable blindness in Armenia.

This Annual Report highlights the main activities and accomplishments of the Meghriqian Institute in 2021. Meghriqian Institute with the assistance of RA Ministry of Labor and Social Affairs launched an eye screening program among older people living in retirement homes in Armenia to celebrate World Sight Day 2021. In July 2021, the staff of the Meghriqian Institute carried out eye screenings in Nork retirement home and N1 retirement home in Yerevan, the nursing home in Vanadzor, and the day care center of the Armenian Red Cross Society in Gyumri. Overall, the team screened 426 people. In October 2021, the Meghriqian Institute distributed 364 spectacles to those who were diagnosed with refractive errors and provided medication to 142 people diagnosed with eye diseases.

In August 2021, the researchers at the Garo Meghriqian Institute for Preventive Ophthalmology (Meghriqian Institute) at the AUA Turpanjian College of Health Science (CHS) published an article titled “Visual impairment and associated risk factors in patients with diabetes mellitus in Tavush and Armavir provinces of Armenia” in the journal of International Ophthalmology. The findings highlight the importance and need for regular eye screenings and diabetes prevention programs in the country. Continuous educational programs on diabetes self-management among patients with diabetes mellitus can reduce complications of diabetes including vision loss associated with the disease.

From June to September 2021, Meghriqian Institute completed an internship programs hosting a student as intern from the Master of Public Health (MPH) program at AUA. On December 23, 2021 the interns presented their work during the eighth poster online conference organized by the Turpanjian College of Health Sciences (CHS), American University of Armenia (AUA) (<https://chsr.aua.am/2022/01/14/7713/#prettyPhoto>).

From September 27 to October 2, Senior Researcher Aida Giloyan (MPH '07) from the Meghriyan Institute was selected to participate at the 2021 EVER Festival, E-poster week & virtual congress. Aida Giloyan presented on “Health-related behaviors and visual impairment among people aged 50 years and older in Gegharkunik province of Armenia: Rapid Assessment of Avoidable Blindness Survey”. The abstract of this paper was published in *Acta Ophthalmologica*.

In November 2021, the Meghriyan Institute with assistance from the RA Ministry of Labor and Social Affairs launched an eye screening program for socially vulnerable and visually impaired children. Overall, 340 of 416 children from the target population, and 42 adults related to the project, who had limited access to ophthalmic services, benefited from these comprehensive eye screenings. Children, diagnosed with refractive errors, received spectacles and those diagnosed with eye diseases received medical assistance from the Meghriyan Institute.

In 2021 the research team of the Meghriyan Institute worked on a number of manuscripts. Some of them are in journal submission stage, while others are in progress.

The Meghriyan Institute continued its partnership with the Lions Regional Ophthalmic Unit in Sevan, established earlier through the joint efforts of the Meghriyan Institute and the Ararat Lions Club (ALC), and funded by the Lions Club International Foundation-LCIF.

Introduction

In 1999, Mr. Garo Meghriqian of Los Angeles funded a Blindness Prevention Program in Armenia in memory of his daughter, Christine Hripsime. With a generous gift from the Meghriqian family, the Garo Meghriqian Institute for Preventive Ophthalmology (Meghriqian Institute) was established within the Avedisian Onanian Center for Health Services Research and Development at the Turpanjian College of Health Sciences, American University of Armenia. In partnership with local experts, the Meghriqian Institute seeks to assess and characterize the burden of eye diseases in Armenia, to promote preventive measures such as screenings, to develop professional and public awareness through educational programs, and to help increase the local health system's capacity to effectively identify and prevent vision disorders before they lead to blindness.

The main objectives of the Meghriqian Institute are to:

- Conduct scientific investigations of ophthalmic epidemiology to increase understanding of eye diseases in the community;
- Link ophthalmologic services with expertise in organizing, financing and delivery of services to increase the utilization of ophthalmologic care in Armenia;
- 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;
- Establish an ophthalmic care and prevention network to expand service delivery to underserved populations in need of affordable, accessible, and high quality eye care services for prevention and treatment of blindness at all levels;
- Develop partnerships with organizations that are interested in blindness prevention and are capable of furthering the achievements of Meghriqian Institute's goal;
- Train the future professionals for blindness prevention activities in Armenia;
- Establish a regional blindness prevention network for the Caucasus, emphasizing underserved areas and minority populations.

Since 2004, the Meghriqian Institute has also been sponsoring a fellowship program to encourage Armenian ophthalmologists to combine population-based prevention activities with clinical ophthalmology, as part of the Master of Public Health program at AUA.

Vision loss, or blindness, is a major public health problem. The leading causes of chronic blindness include cataract, glaucoma, age-related macular degeneration and diabetic retinopathy. Blindness decreases quality of life and has a great impact on the socio-economic development of individuals and the society. The Meghri Institute's activities include eye screenings and treatment for socially vulnerable children and older adults, for patients with diabetes living in provinces of Armenia and for family members of fallen soldiers living in Artsakh and Armenia; delivering educational programs to ophthalmologists, ophthalmic nurses, endocrinologists, primary health care providers, and school nurses working in rural areas of Armenia; donating ophthalmic equipment to ophthalmic offices of primary care facilities; and establishing a high quality ophthalmic services, such as the Lions Regional Ophthalmic Unit, established in Sevan, Gegharkunik province. The Meghri Institute founded this unit in partnership with the Ararat-1 Lions Club and with funding from the Lions Club International Foundation. The establishment of this center was the first step in expanding affordable, accessible, and high quality ophthalmic service delivery to underserved populations, and serves as a model regional ophthalmic system in Gegharkunik province. The Unit has served around 43,073 visits, 19,256 people and performed 5,331 surgeries for free or at a cost much lower than in Yerevan. In addition, the Meghri Institute has conducted eye screenings among socially disadvantaged children and adults in Armenia and Artsakh, and ophthalmic research among different population groups, including people with glaucoma, cataract surgery and diabetes.

This report highlights the main activities and accomplishments of the Meghri Institute in 2021.

Activities and accomplishments

1. Love Your Eyes: Garo Meghrigian Institute for Preventive Ophthalmology Celebrates World Sight Day 2021

Garo Meghrigian Institute for Preventive Ophthalmology (Meghrigian Institute) of the AUA Turpanjian College of Health Sciences with the assistance of RA Ministry of Labor and Social Affairs launched an eye screening program among older people living in retirement homes in Armenia to celebrate World Sight Day 2021. The program aimed to decrease visual impairment among the target population through provision of comprehensive ophthalmic examination, and distribution of spectacles and medication to those in need.

World Sight Day (WSD) is an annual day of awareness held on the second Thursday of October to focus global attention on blindness and vision impairment. This year World Sight Day is celebrated on October 14, 2021, and the call to action is “**Love Your Eyes.**” More than a billion people worldwide have visual problems because of having limited access to eye care services. The nationwide Rapid Assessment of Avoidable Blindness survey conducted among people aged over 50 in Armenia reported that blindness prevalence was 1.5%, while severe/moderate visual impairment was 8.2%. About 54.6% of participants had uncorrected refractive errors and 35.5% had uncorrected presbyopia.

In July 2021, the staff of the Meghrigian Institute carried out eye screenings in Nork retirement home and N1 retirement home in Yerevan, nursing home in Vanadzor, and all day care center of Armenian Red Cross Society in Gyumri. Overall, the team screened 426 people aged from 45 to 95. In October 2021 the Meghrigian Institute distributed 364 spectacles to those who were diagnosed with refractive errors and provided medication to 142 people diagnosed with eye diseases. Those who had eye conditions needing hospital care were referred to specialized ophthalmic centers for more advanced care.



2. Meghriyan Institute Publishes Research on Visual Impairment in Diabetic Patients



The researchers at the Garo Meghriyan Institute for Preventive Ophthalmology (Meghriyan Institute) at the AUA Turpanjian College of Health Sciences (CHS) published an article, which titled “Visual impairment and associated risk factors in patients with diabetes mellitus in Tavush and Armavir provinces of Armenia”. It

was published in the journal of International Ophthalmology, a peer-reviewed journal that provides clinicians with articles on topics covering all subspecialties of ophthalmology with a broad international scope.

The study authored by Aida Giloyan (MPH ‘07), MS, Diana Muradyan (MPH ‘20), MD, PhD, and Vahe Khachadourian (MPH ‘11), MD, PhD, estimates the prevalence of visual impairment and the associated risk factors in individuals with diabetes mellitus (DM) in Armenia. The research findings show prevalence of visual impairment and blindness in 12.1% and 0.9% of the study population, respectively. Overall, 22.4% of participants had diabetic retinopathy. In the adjusted analysis, advanced age, higher education, DM duration, the presence of diabetic retinopathy, age-related macular degeneration, cataract, and glaucoma were found to be significantly associated with visual impairment.

The findings highlight the importance and need for regular eye screening and diabetes prevention programs in the country. Continuous educational programs on diabetes self-management among patients with DM can reduce complications of diabetes including vision loss associated with the disease.

Giloyan A, Muradyan D, Khachadourian V. Visual impairment and associated risk factors in patients with diabetes mellitus in Tavush and Armavir provinces of Armenia. Int Ophthalmol (2021). <https://doi.org/10.1007/s10792-021-01998-5>

3. Garo Meghriqian Institute for Preventive Ophthalmology completed internship programs

From June to September 2021, Garo Meghriqian Institute for Preventive Ophthalmology (Meghriqian Institute) hosted interns students from the Master of Public Health (MPH) program. With the supervision of senior researcher of Meghriqian Institute, the intern learned how to conduct an interview, literature review efficiently, manage time for task accomplishments in the given period of time, conduct data analysis, interpret findings, and gain report writing skills for professional publications. On December 23, 2021 the intern presented her work during the eighth poster online conference organized by the Turpanjian College of Health Sciences (CHS), American University of Armenia (AUA) (<https://chsr.aua.am/2022/01/14/7713/#prettyPhoto>).

4. Garo Meghrigian Institute for Preventive Ophthalmology at the European Association for Vision and Eye Research (EVER) Virtual Congress 2021



From September 27 to October 2, Senior Researcher Aida Giloyan (MPH '07) from the Garo Meghrigian Institute for Preventive Ophthalmology (GMIPO), Zvart Avedisian Onanian Center for Health Services Research and Development (CHSR) at the American University of Armenia (AUA) was selected to participate at the 2021 EVER Festival, E-poster week & virtual

congress. EVER is the leading ophthalmological research association in Europe which covers all areas of ophthalmology and the visual sciences ranging from epidemiology to optics, the cornea to the retina, and immunology to genetics. One of the main activities of EVER is the organizing of a high quality research meeting annually.

Aida Giloyan presented the topic on “Health-related behaviors and visual impairment among people aged 50 years and older in Gegharkunik province of Armenia: Rapid Assessment of Avoidable Blindness Survey”. The study found that advanced age, self-assessed “poor” general health status and being physically inactive or insufficiently active were associated with visual impairment, whereas moderate alcohol consumption had protective effect on visual impairment. The study concluded that the prevalence of visual impairment in this population was higher compared to the global rate and estimates from the European region. Regular ophthalmic examination and public health interventions might reduce visual impairment and improve health-related behaviors’ among target population.

The abstract was published in *Acta Ophthalmologica*. The reference to the abstract is provided below.

Giloyan A, Harutyunyan T, Petrosyan V. Health-related behaviours and visual impairment among people aged 50 years and older in Gegharkunik province of Armenia: rapid assessment of avoidable blindness survey. Acta Ophthalmologica. 2022; 100: S267, doi: <https://doi.org/10.1111/j.1755-3768.2022.123>

5. Meghriqian Institute Launches Eye Screening Program for Children

In November 2021, the Garo Meghriqian Institute for Preventive Ophthalmology (Meghriqian Institute) of the American University of Armenia (AUA) Turpanjian College of Health Sciences (CHS) with assistance from the RA Ministry of Labor and Social Affairs launched an eye screening program for socially vulnerable and visually impaired children. The program aimed to decrease visual impairment in the target population through the provision of comprehensive ophthalmic examination, as well as the distribution of spectacles and medication to those in need. The staff of the Meghriqian Institute visited the Children's Home in Gavar, Gegharkunik province; Special school No.14 after Nikoghayos Tigranyan in Yerevan, for visually impaired children; Child and family support center in Yerevan; "Zatik" children support center in Yerevan; Children's home in Yerevan; and SOS children's village, Kotayk province, which serves socially vulnerable and displaced children affected by the 44-day Artsakh war in 2020. Overall, 340 of the 416 children from the target population, and 42 adults related to the project, who had limited access to ophthalmic services, benefited from these organized comprehensive eye screenings.

In December 2021, the Meghriqian Institute distributed spectacles and medications to children in need. Sixty-seven children, diagnosed with refractive errors, received spectacles and eight children, diagnosed with different eye diseases, including infectious and allergic conjunctivitis, eyelid chalazion, blepharitis, eyelid coloboma, nasolacrimal duct obstruction, and accommodation spasm, received medical assistance from the Meghriqian Institute. Those with other eye conditions that needed hospital care were referred to specialized centers for follow-up examination and treatment.



6. Meghrigian Institute worked on manuscripts

In 2021 the research team of the Meghrigian Institute worked on a number of manuscripts. Some of them are in journal submission stage, while others are in progress.

- **Manuscript 1:** *Nationwide Rapid Assessment of Avoidable Blindness (RAAB) in Armenia.* This study aimed to estimate the prevalence and main causes of blindness and visual impairment in population aged 50 years and older in Armenia using Rapid Assessment of Avoidable Blindness (RAAB) methodology. This manuscript is in the journal submission stage.
- **Manuscript 2:** *Cataract blindness in Armenia: The results of Rapid Assessment of Avoidable Blindness survey.* This study assessed the prevalence of cataract blindness, cataract surgical coverage, visual outcome after cataract surgery, and barriers to cataract surgery in population aged 50 years and older in Armenia using Rapid Assessment of Avoidable Blindness (RAAB) methodology. This manuscript is in progress.
- **Manuscript 3:** *A comparative study between the Rapid Assessment of Avoidable Blindness (RAAB) in 2019 and the Rapid Assessment of Cataract Surgical Services (RACSS) in 2003-4 in Gegharkunik province of Armenia.* This study assessed the changes in the prevalence of visual impairment/blindness, cataract surgical coverage, visual outcome after cataract surgery, and main barriers to cataract surgery among the population aged 50 years and older in Gegharkunik province of Armenia from 2013-4 to 2019. This manuscript is in the journal submission stage.
- **Manuscript 4:** *Risk factors associated with visual impairment among people aged 50 years and older in Gegharkunik province of Armenia: Rapid Assessment of Avoidable Blindness Survey.* This study assessed the association of smoking, alcohol consumption, physical activity, and several socio-demographic and health status-related factors with visual impairment among 50 years and older adults in Gegharkunik province of Armenia. This manuscript is in progress.
- **Manuscript 5:** *The prevalence and associated risk factors of age-related cataract among people aged 50 years and older in Gegharkunik province of Armenia.* This study assessed the prevalence of age-related cataract and associated risk factors among population aged 50 years and older in Gegharkunik province of Armenia using Rapid Assessment of Avoidable Blindness (RAAB) methodology. This manuscript is in progress.

- **Manuscript 6:** *The prevalence and associated risk factors of Computer Vision Syndrome (CVS) during Covid-19 pandemic among the students of the American University of Armenia.* This study aimed to assess the prevalence of CVS and explore factors contributing to it among the students of the American University of Armenia (AUA). This manuscript is in progress.
- **Manuscript 7:** *Health-related quality of life after cataract surgery in Armenia: a cross-sectional study.* This study explored health-related quality of life and factors associated with it after cataract surgery among patients of Lions Regional Ophthalmic Unit in Armenia. This manuscript is in the journal submission stage.
- **Manuscript 8:** *The impact of visual impairment and other factors on health-related quality of life among people living in retirement homes in Armenia.* This study aimed to examine the effect of visual impairment, eye diseases and other factors on health-related quality of life in retirement home residents in Armenia. This manuscript is in progress.

7. Meghriqian Institute: 2021 in numbers

Lions Regional Ophthalmic Unit in Sevan, Gegharkunik province served around 4,221 visits, 1,415 people and performed 653 surgeries in 2021. Meghriqian Institute conducted eye screenings among 808 people in Armenia in 2021: 340 children and 468 adult patients. Overall, Meghriqian Institute distributed 431 free eye glasses and provided medication to 150 people in 2021.