

Garo Meghrigian Institute for Preventive Ophthalmology, Avedisian Onanian Center for Health Services Research and Development

2020 Annual Report



Mission: Prevent Avoidable Blindness

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October 2021
Yerevan, Armenia

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 Turpanjian School of Public Health (SPH), American University of Armenia (AUA). 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 2020. In August 2018, Meghriqian Institute launched an eye screening project among family members of deceased freedom fighters and fallen soldiers, as well as disabled freedom fighters and disabled soldiers and their family members in Armenia. During 2018 - 2020, the staff of the Meghriqian Institute carried out eye screenings in Artsakh, Yerevan, Shirak, Lori, Tavush, Armavir, Kotayk and Aragatsotn provinces covering 1,036 people from the target population and 215 people from the general population.

From June to September 2020, Meghriqian Institute completed two internship programs hosting two students as interns from the Master of Public Health (MPH) program. Two abstracts were developed by the interns: "Visual impairment and risk factors among school age children in Armenia" and "The prevalence and risk factors of cataract among people aged over 50 in Gegharkunik province", which were presented in the seventh poster online conference organized by AUA's Turpanjian School of Public Health.

In 2018 to 2020, Meghriqian Institute with financial support from the Lions Club International Foundation (LCIF), conducted the first nationwide epidemiological survey in Armenia using the Rapid Assessment of Avoidable Blindness (RAAB) methodology.

The project aimed to estimate the prevalence of ocular morbidity and its potential causes, as well as vision loss due to cataract and other major causes, among the population aged 50 and over in Armenia. The project also evaluated the effectiveness of the innovative public health approach implemented in the Gegharkunik region of Armenia — an intervention supported by the LCIF SightFirst grant in 2003-2008 that provided high-quality cataract surgery to underserved

populations to reduce cataract-related ocular morbidity and vision loss. The nationwide study in Armenia confirmed that cataract is the main cause of blindness. Strategies should be developed to further increase the volume and quality of cataract surgery in Armenia. The study demonstrated that the intervention to strengthen primary and secondary ophthalmic care in Gegharkunik marz and establish the Lions Regional Ophthalmic Unit of Sevan has been effective in improving access to quality cataract surgery and ophthalmic care to underserved populations.

In November 2020, Aida Giloyan (MPH '07), Senior Researcher at the Meghriyan Institute of AUA's Avedisian, Onanian Center for Health Services Research and Development participated in the European Association for Vision and Eye Research (EVER) Congress 2020, which was held online. Giloyan participated in a poster presentation session of the EVER Congress presenting the topic on "Visual impairment and associated risk factors among school-age children in Kashatagh, Artsakh". The abstract of this study was published in the fall issue of *Acta Ophthalmologica*.

Researchers of Meghriyan Institute of the AUA's Turpanjian School of Public Health, published an article titled "Prevalence and Determinants of Uncorrected Refractive Error Among a Socially Vulnerable Older Adult Population Living in Armenia" in the journal *Public Health*, an international, multidisciplinary, peer-reviewed journal that focuses on all aspects of the science, philosophy, and practice of public health. This study revealed that the prevalence of uncorrected refractive error was found to be high in this study population. Eye screenings and provision of affordable spectacle correction to the socially vulnerable older population in Armenia could eliminate visual impairment due to uncorrected refractive error.

The Meghriyan Institute continued its partnership with the Lions Regional Ophthalmic Unit (LROU) 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. In 2020, LROU has served 3,060 visits, 988 people and performed 397 surgeries. To date, LROU has served around 45 507 visits, 20 051 people and performed 5 831 surgeries for free or at a cost much lower than in Yerevan.

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 Turpanjian School of Public Health (SPH), American University of Armenia (AUA). 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. Meghriqian Institute's mission is to prevent avoidable blindness in Armenia.

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 Meghrigian 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 society. The Meghrigian 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 (LROU), established in Sevan, Gegharkunik province. The Meghrigian 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. In 2020, LROU has served 3,060 visits, 988 people and performed 397 surgeries. To date, LROU has served around 45 507 visits, 20 051 people and performed 5 831 surgeries for free or at a cost much lower than in Yerevan. In addition, the Meghrigian Institute has conducted ophthalmic research among different population groups, including school-age children, socially vulnerable older adults living in Armenia and Arthakh, and people with glaucoma, cataract surgery and diabetes.

This report highlights the main activities and accomplishments of the Meghrigian Institute in 2020.

Activities and accomplishments

1. Meghrigian Institute launched an eye screening project among family members of deceased freedom fighters and fallen soldiers in Armenia

In August 2018, Meghrigian Institute launched an eye screening project among family members of deceased freedom fighters and fallen soldiers, as well as disabled freedom fighters and disabled soldiers and their family members in Armenia with assistance from “Goyamart” National Charitable Union and the Ministry of Defense of the Republic of Armenia. The aim of this project was to provide comprehensive ophthalmic examination to the target population and provide spectacles and medication to those in need.

During July 2018 - February 2020, the staff of the Meghrigian Institute carried out eye screenings in Artsakh, Yerevan, Shirak, Lori, Tavush, Armavir, Kotayk and Aragatsotn provinces covering 1,036 people from the target population and 215 people from the general population. Meghrigian Institute distributed 1,198 spectacles to those who were diagnosed with any type of refractive errors. A total of 259 people diagnosed with eye diseases received medication for treatment by Meghrigian Institute. The severe cases were referred to the nearest hospital for advanced care.



2. Garo Meghrigian Institute for Preventive Ophthalmology completed internship programs

From June to September 2020, Garo Meghrigian Institute for Preventive Ophthalmology (Meghrigian Institute) completed two internship programs hosting two students as interns from the Master of Public Health (MPH) program. With the supervision of senior researcher of Meghrigian Institute, the interns learned how to conduct a literature review efficiently, manage time for the tasks accomplishment in the given period of time, conduct data analysis, interpret findings, and gained report writing skills for professional publications. Two abstracts were developed by the interns: “Visual impairment and risk factors among school age children in Armenia” and “The prevalence and risk factors of cataract among people aged over 50 in Gegharkunik province”. On December 21, 2020 the interns presented their work during the seventh poster online conference organized by AUA’s Turpanjian School of Public Health (SPH) (<https://newsroom.aua.am/2021/01/26/internship-experiences-seventh-mph-poster-conference/>).

3. Nationwide epidemiological survey among people aged over 50 using Rapid Assessment of Avoidable Blindness (RAAB) methodology



**Lions Clubs International
FOUNDATION**

From 2018 to 2020, the Garo Meghriyan Institute for Preventive Ophthalmology (Meghriyan Institute) at the Avedisian Onanian Center for Health Services Research and Development (CHSR) of the Turpanjian School of Public Health (SPH) of the American University of Armenia (AUA) with financial support from the Lions Club International Foundation (LCIF), conducted the first nationwide epidemiological survey in Armenia using the Rapid Assessment of Avoidable Blindness (RAAB) methodology.

The project aimed to estimate the prevalence of ocular morbidity and its potential causes, as well as vision loss due to cataract and other major causes, among the population aged 50 and over in Armenia. The project also evaluated the effectiveness of the innovative public health approach implemented in the Gegharkunik marz (region) of Armenia — an intervention supported by the LCIF SightFirst grant in 2003-2008 that provided high-quality cataract surgery to underserved populations to reduce cataract-related ocular morbidity and vision loss. The nationwide RAAB in Armenia covered all marzes of the country, including Yerevan, with a sample size of 2,258 participants. For the second objective, the sample size included 1,099 participants from Gegharkunik marz.

The age- and gender-adjusted prevalence of bilateral blindness and severe, moderate, and early visual impairment were 1.5%, 1.6%, 6.6%, and 16.0%, respectively. There was no gender-related difference in the prevalence of bilateral blindness. The prevalence of bilateral blindness increased with age and was considerably higher in participants aged 80 and over (9.2%). Untreated cataract was responsible for 43.9% of all blindness cases. Cataract Surgical Coverage (CSC) was 89.8% in the sample. The main barriers to cataract surgery among the population were “cost,” “need not felt,” and “fear.” The nationwide study in Armenia confirmed that cataract is the main cause of blindness. Given that cataract blindness is avoidable, strategies should be developed to further increase the volume and quality of cataract surgery in Armenia. The comparison of the Rapid Assessment of Cataract Surgical Services (RACSS) findings conducted in Gegharkunik marz in 2003-2004 with the RAAB data from Gegharkunik marz in

2019 demonstrated that the prevalence of blindness and visual impairment substantially decreased over time among residents of Gegharkunik marz aged 50 and over. The age- and gender-adjusted prevalence of bilateral blindness decreased from 2.0% to 1.4%, severe visual impairment from 5.1% to 2.2%, and moderate visual impairment from 16.0% to 7.3% in Gegharkunik from 2003-4 to 2019. Untreated cataract was responsible for 71.9% of all blindness cases in 2003-4. This rate was reduced to 40.9% in 2019 — lower than the national estimate. The estimates of untreated cataract as the principal cause of blindness in Gegharkunik marz were lower compared to the estimates of all other marzes of Armenia, excluding Yerevan (47.8%). The CSC for eyes rose in Gegharkunik Province from 16.9% in 2003-4 to 37.4% in 2019 among those with visual acuity of <math><6/18</math>. These findings show that the intervention to strengthen primary and secondary ophthalmic care in Gegharkunik marz and establish the Lions Regional Ophthalmic Unit of Sevan — supported by the LCIF SightFirst grant — has been effective in improving access to quality cataract surgery and ophthalmic care to underserved populations.



4. Meghriqian Institute at the European Association for Vision and Eye Research (EVER) Congress 2020



In November 21-29, Aida Giloyan (MPH '07), Senior Researcher at the Garo Meghriqian Institute for Preventive Ophthalmology (GMIPO) of Avedisian, Onanian Center for Health Services Research and Development (CHSR) of the American University of Armenia (AUA) participated in the European Association for Vision and Eye Research (EVER) Congress 2020, which was held online.

As the largest European scientific organization of ophthalmology and visual sciences, EVER aims to encourage research in the field and the dissemination of knowledge concerning eye and vision through high quality research discourse, publications, and exchange of information. EVER covers subspecialties ranging from epidemiology to optics, the cornea, the retina, immunology and genetics.

Giloyan participated in a poster presentation session of the EVER Congress presenting the topic on “Visual impairment and associated risk factors among school-age children in Kashatagh, Artsakh”. The results of her research have revealed that correctable visual impairment was a major problem in the sample. All visually impaired cases improved their vision to normal vision after best correction. School based vision screening programs and provision of spectacles might decrease visual impairment in school-age children.

The abstract of this study was published in the fall issue of *Acta Ophthalmologica*. The reference to the abstract is provided below.

Giloyan A, Harutyunyan T, Petrosyan V. Visual impairment and associated risk factors among school-age children in Kashatagh, Artsakh. Acta Ophthalmologica. 2021; 99: S265, doi: <https://doi.org/10.1111/j.1755-3768.2020.0162>

5. Meghriqian Institute Researchers Publish on Uncorrected Refractive Error



Researchers of Garo Meghriqian Institute for Preventive Ophthalmology (Meghriqian Institute) of the Turpanjian School of Public Health (SPH), American University of Armenia (AUA), published an article titled “Prevalence and Determinants of Uncorrected Refractive

Error Among a Socially Vulnerable Older Adult Population Living in Armenia” in the journal *Public Health*, an international, multidisciplinary, peer-reviewed journal that focuses on all aspects of the science, philosophy, and practice of public health.

The study, authored by Aida Giloyan (MPH '07), Vahe Khachadourian, MD, PhD, (MPH '11), Varduhi Petrosyan, MS, PhD, dean of SPH AUA, and Tsovinar Harutyunyan, PhD, (MPH '99) estimated the prevalence of uncorrected refractive error (URE) and its determinants among socially vulnerable older adults living in Armenia. The study found that the prevalence of URE was 26% among the study population, which was higher than estimates from similar European studies. The rate of normal vision improved from 58.9% to 81.5%, while the rate of visual impairment decreased from 41.1% to 18.5% after best correction of the better eye. The prevalence of URE was found to be high in this study population.

Eye screenings and provision of affordable spectacle correction to the socially vulnerable older population in Armenia could eliminate visual impairment due to URE. Health education programs to increase awareness of URE among the target population, especially those with lower educational levels, might also reduce the prevalence of URE in the population.

Giloyan A, Khachadourian V, Petrosyan V, Harutyunyan T. Prevalence and determinants of uncorrected refractive error among a socially vulnerable older adult population living in Armenia. Public Health. 2021. 190:30-36. doi: <https://doi.org/10.1016/j.puhe.2020.10.028>.