

Garo Meghrigian Institute for Preventive Ophthalmology 2024 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 the American University of Armenia's (AUA) Turpanjian College of Health Sciences (CHS). 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 2024.

From October to November 2024, Meghriqian Institute conducted eye screening in Masis, Ararat province. The screening campaign targeted forcibly displaced people from Nagorno-Karabakh residing in Ararat province, aged 50 and older. A total of 378 people underwent thorough ophthalmic examinations. Following the screenings, in January 2025, the Meghriqian Institute provided 453 corrective eyeglasses at no cost to those diagnosed with uncorrected refractive errors and unaddressed presbyopia. Additionally, 66 participants diagnosed with various eye diseases received medication to manage their conditions effectively.

Meghriqian Institute and the Community Wellbeing project of the American University of Armenia (AUA) Turpanjian College of Health Sciences organized a joint community event to celebrate World Sight Day 2024. World Sight Day is a global awareness day held annually on the second Thursday of October, focusing the world's attention on the importance of eye health and promoting proper vision and eye care. This year, the theme of World Sight Day is "Children, love your eyes," which emphasizes the critical importance of vision in a child's life. The staff of the Meghriqian Institute conducted eye screenings among 89 school-aged children in the Masis community, Ararat Marz. Seventeen children with uncorrected refractive errors and three children diagnosed with eye diseases received free eyeglasses and medication. In addition to the ophthalmic examination, the project team distributed educational materials on healthy eye care practices for children and their parents, detailing important recommendations and tips for taking good eye care.

In April 2024, the Garo Meghriqian Institute for Preventive Ophthalmology (Meghriqian Institute) published a new study titled "[Migraine headache and other risk factors associated with glaucoma among the adult population living in Armenia: a case-control study.](#)" The

research article appeared in International Ophthalmology, an international, scientific, peer-reviewed journal with a broad international scope that publishes articles on all subspecialties of ophthalmology. The research article is authored by Aida Giloyan, M.S., (MPH '07); Vahe Khachadourian, M.D., (MPH '11), Ph.D.; Varsik Hakobyan, M.D.; Lilit Kirakosyan, M.D.; Varduhi Petrosyan, M.S., Ph.D.; and Tsovinar Harutyunyan (MPH '99), Ph.D.

In October 2024, the Garo Meghriyan Institute for Preventive Ophthalmology (Meghriyan Institute) published a new article titled “[Rapid Assessment of Avoidable Blindness \(RAAB\): a 15-year follow-up in Gegharkunik province of Armenia](#)” in the *American Journal of Ophthalmology (AJO) International*. *AJO International* is an open-access, peer-reviewed journal with a site score of 6.5, committed to fostering a global and international exchange of knowledge in ophthalmology and visual science. The study was authored by Aida Giloyan (MPH '07), M.S.; Vahe Khachadourian (MPH '11), M.D., Ph.D.; Tsovinar Harutyunyan (MPH '99), Ph.D.; Naira Khachatryan (MPH '97), M.D., DrPH; and Varduhi Petrosyan, M.S., Ph.D.

In November 2024 Meghriyan Institute’s project was presented at the 17th European Public Health (EPH) Conference in Portugal. The research topic “[Health-related quality of life among refugees from Nagorno-Karabagh resided in Kotayk, Armenia](#)” was selected as a poster presentation. This study assessed the health-related quality of life and associated factors among Nagorno - Karabagh refugees who settled in Kotayk province of Armenia. The abstract was published in the [European Journal of Public Health](#).

In 2024 the research team of the Meghriyan Institute worked on a number of manuscripts. Some of them are in the 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.

Lions Regional Ophthalmic Unit in Sevan, Gegharkunik province served around 3,675 visits, and 1,189 people and performed 704 surgeries in 2024. Meghriyan Institute conducted eye screenings among 467 people in Armenia in 2024: 89 children and 378 adults. Meghriyan Institute distributed 470 free eyeglasses and medication to 69 people in 2024.

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 (CHSR) at the Turpanjian College of Health Sciences (CHS), 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, promote preventive measures such as screenings, develop professional and public awareness through educational programs, and 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 the 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 future professionals for blindness prevention activities in Armenia;
- Establish a regional blindness prevention network for the Caucasus, emphasizing underserved areas and minority populations.

Starting 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 the quality of life and has a great impact on the socioeconomic development of individuals and society. The Meghriyan Institute's activities include eye screenings and treatment for socially vulnerable children and older adults, for patients with diabetes living in Armenia and for family members of fallen soldiers living in Nagorno Karabagh and Armenia; for forcibly displaced children and adults from Nagorno Karabagh who found refuge in 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 high-quality ophthalmic services, such as the Lions Regional Ophthalmic Unit, established in Sevan, Gegharkunik province. The Meghriyan 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 60,237 visits, 25,097 people, and performed 8,437 surgeries for free or at a cost much lower than in Yerevan. In addition, the Meghriyan Institute has conducted eye screenings among socially disadvantaged children and adults in Armenia and displaced people from Artsakh, and ophthalmic research among different population groups, including people with glaucoma, cataract, and diabetes.

This report highlights the main activities and accomplishments of the Meghriyan Institute in 2024.

Activities and accomplishments

1. AUA's Meghrigian Institute Provides Eye Care to Forcibly Displaced People From Nagorno-Karabakh

The American University of Armenia (AUA) Garo Meghrigian Institute for Preventive Ophthalmology (Meghrigian Institute), in collaboration with the Community Wellbeing Project of the AUA Turpanjian College of Health Sciences, organized a large-scale community eye health event. This initiative aimed to support forcibly displaced people from Artsakh (Nagorno-Karabakh) residing in Ararat province, the region with the highest concentration of displaced people. The program aimed to address visual impairments and blindness within this vulnerable population by offering comprehensive eye examinations and distributing eyeglasses and medications.

From October to November 2024, the experienced team of the Meghrigian Institute conducted comprehensive eye screening in Masis, Ararat province. The screening campaign targeted individuals aged 50 and older, a group at higher risk for age-related vision disorders. Over the course of this period, a total of 378 people underwent thorough ophthalmic examinations. Following the screenings, in January 2025, the Meghrigian Institute provided corrective eyeglasses to those diagnosed with uncorrected refractive errors and unaddressed presbyopia. In total, 453 eyeglasses were distributed, improving the vision and daily functionality of the project participants. Some of them received two eyeglasses for both near and far vision. Additionally, 66 participants diagnosed with various eye diseases, including cataract, glaucoma, and dry eye diseases received necessary medication to effectively manage their conditions. Patients requiring specialized treatment beyond the scope of this initiative were referred to advanced ophthalmic centers for further medical interventions.

This targeted public health intervention emphasizes the importance of accessible eye care services, particularly for displaced populations facing significant socioeconomic and healthcare challenges. By mitigating visual impairment and promoting eye health, the Meghrigian Institute's initiative contributes to enhancing the overall well-being and quality of life of affected people. Continued efforts in preventive ophthalmology, early detection, and timely treatment might be crucial in addressing the eye care needs of vulnerable communities.



2. AUA's Meghriqian Institute Observes World Sight Day

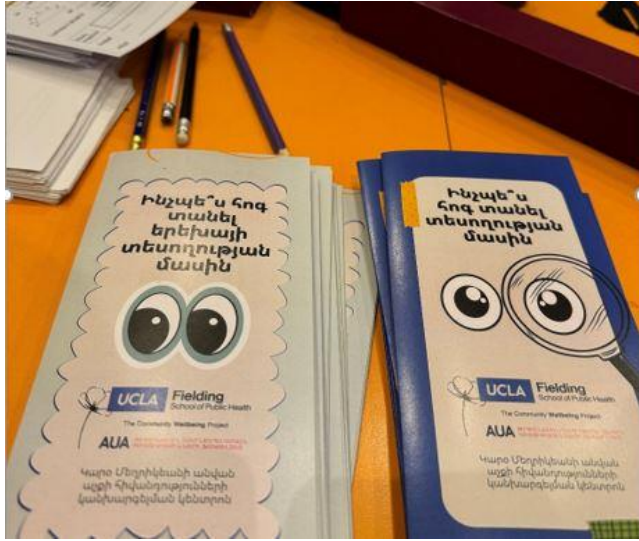
The Garo Meghriqian Institute for Preventive Ophthalmology (Meghriqian Institute) and the Community Wellbeing project of the American University of Armenia (AUA) Turpanjian College of Health Sciences organized a joint community event to celebrate World Sight Day 2024.

The program aimed to reduce visual impairment among school-aged children forcibly displaced from Nagorno Karabagh by providing comprehensive eye examinations, offering eyeglasses and medications to those in need, and increasing awareness about eye health by distributing educational materials on eye care to children and their parents/caregivers. The staff of the Meghriqian Institute conducted eye screenings among 89 school-aged children in the Masis community, Ararat Marz. Seventeen children with uncorrected refractive errors and three children diagnosed with eye diseases received free eyeglasses and medication. Those who were diagnosed with eye diseases that require advanced care were referred to specialized ophthalmic centers.

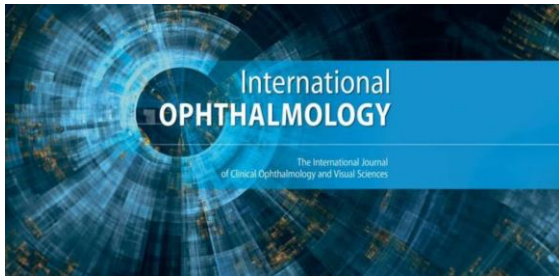
In addition to the ophthalmic examination, the project team distributed educational materials on healthy eye care practices for children and their parents, detailing important recommendations and tips for taking good eye care. These practices will help children save their vision and reduce risks leading to eye problems. By teaching these habits early, the program empowers children to take an active role in maintaining their eye health throughout their life. The eye care recommendations for parents/caregivers inform them about how to prevent common eye health issues and support their child's good vision.

World Sight Day is a global awareness day held annually on the second Thursday of October, focusing the world's attention on the importance of eye health and promoting proper vision and eye care. This year, the theme of World Sight Day is "Children, love your eyes," which emphasizes the critical importance of vision in a child's life.

The Community Wellbeing Project is a novel grassroots initiative aimed at improving the overall wellbeing of the Artsakh population currently residing in the Republic of Armenia. The Project is funded by the Conrad N. Hilton Foundation, with matching funds through a donation made to the Poppy Project at UCLA FSPH. The initiative builds community capacity, links individuals and communities to resources and services, and promotes education and outreach to support and empower the Artsakh population.



3. AUA's Meghrigian Institute Published in International Ophthalmology



The American University of Armenia (AUA) Garo Meghrigian Institute for Preventive Ophthalmology (Meghrigian Institute) at the Avedisian Onanian Center for Health Services Research and Development (CHSR) of the Turpanjian College of Health Sciences (CHS)

published a new study titled “[Migraine headache and other risk factors associated with glaucoma among the adult population living in Armenia: a case-control study.](#)” The research article appeared in International Ophthalmology, an international, scientific, peer-reviewed journal with a broad international scope that publishes articles on all subspecialties of ophthalmology. The journal also features sections highlighting advancements in technologies, products, techniques, and basic research projects. The research article is authored by Aida Giloyan, M.S., (MPH '07); Vahe Khachadourian, M.D., (MPH '11), Ph.D.; Varsik Hakobyan, M.D.; Lilit Kirakosyan, M.D.; Varduhi Petrosyan, M.S., Ph.D.; and Tsovinar Harutyunyan (MPH '99), Ph.D.

The study investigated the potential link between migraine headaches and glaucoma among adults in Armenia, involving 145 cases with glaucoma and 250 controls without glaucoma. Possible migraine was observed in 17.8% of cases and 19.0% of controls. The majority of participants had primary open-angle glaucoma. On average, cases had been diagnosed with glaucoma for five years (standard deviation ± 6.6). In the adjusted analysis, older age, average to low socio-economic status, and a family history of glaucoma were factors associated with high-tension glaucoma. No significant association was found between migraine and glaucoma. Further studies to explore the relationship between migraine and specific types of glaucoma, with particular focus on younger participants, could provide further insights. Timely case detection of glaucoma among those with average/low socio-economic status and with a family history of glaucoma could prevent further progression of the disease.

Glaucoma is the leading cause of irreversible blindness and the second leading cause of blindness globally. It has been estimated that more than 60 million people were affected by glaucoma globally in 2010. In 2013, the number of people with glaucoma worldwide was estimated to be 64 million, increasing to 76 million in 2020 and more than 110 million in 2040.

4. Meghrigian Institute Published in American Journal of Ophthalmology International

The Garo Meghrigian Institute for Preventive Ophthalmology (Meghrigian Institute) at the Avedisian Onanian Center for Health Services Research and Development of the American University of Armenia's (AUA) Turpanjian College of Health Sciences has published a new article titled "[Rapid Assessment of Avoidable Blindness \(RAAB\): a 15-year follow-up in Gegharkunik province of Armenia](#)" in the American Journal of Ophthalmology (AJO) International. AJO International is an open-access, peer-reviewed journal with a site score of 6.5, committed to fostering a global and international exchange of knowledge in ophthalmology and visual science. It serves a diverse and extensive global readership, significantly influencing and shaping advancements in eye care worldwide. The study was authored by Aida Giloyan (MPH '07), M.S.; Vahe Khachadourian (MPH '11), M.D., Ph.D.; Tsovinar Harutyunyan (MPH '99), Ph.D.; Naira Khachatryan (MPH '97), M.D., DrPH; and Varduhi Petrosyan, M.S., Ph.D. The study assesses the changes in the prevalence of visual impairment/blindness, cataract surgical coverage, visual outcomes after cataract surgery, and main barriers to cataract surgery among the population aged 50 years and older in the Gegharkunik province of Armenia from 2003-04 to 2019 using Rapid Assessment of Cataract Surgical Services (RACSS) and Rapid Assessment of Avoidable Blindness (RAAB) methodologies developed at the International Center for Eye Health of the London School of Hygiene and Tropical Medicine. Based on the results from the needs assessment in 2004, the Meghrigian Institute implemented an intervention strengthening the primary and secondary level ophthalmic services in Gegharkunik, the poorest province in Armenia at the time, with support from the Lions Club International Foundation (LCIF)/SightFirst grant, which aimed to reduce avoidable blindness. One of the elements of the intervention was establishing the Lions Regional Ophthalmic Unit (LROU) in the town of Sevan. LROU has become a model for the organization and delivery of regional ophthalmic services in other provinces. To date, LROU has served around 54,562 visits, treated 23,172 people, and performed 7,361 surgeries for free or at a cost much lower than in Yerevan, making eye care more accessible and affordable.

The surveys included 1,787 people in RACSS and 1,099 in RAAB. The age- and sex-adjusted prevalence of bilateral blindness decreased from 2.0% to 1.4%, while severe visual impairment decreased from 5.2% to 2.2% and moderate visual impairment from 16.0% to 7.3% between 2003-04 and 2019. Untreated cataracts contributed to 71.9% and 40.9% of all blindness cases in 2003-04 and 2019, respectively. The cataract surgical coverage at the threshold <6/18 improved

from 23.7% in 2003-04 to 64.8% in 2019. Both surveys mentioned cost as the most common barrier to cataract surgery.

The intervention to strengthen primary and secondary ophthalmic care in Gegharkunik province has proven to be effective in decreasing visual impairment and blindness among people living in the province.

The Meghriyan Institute conducted both the surveys and the intervention with financial support from LCIF.



5. Meghriyan Institute's project was presented at the 17th European Public Health (EPH) Conference in Portugal



Research Associate Diana Muradyan (MPH '20) of the Garo Meghriyan Institute for Preventive Ophthalmology in the Zvart Avedisian Onanian Center for Health Services Research and

Development of the American University of Armenia, was selected to be one of the presenters at the 17th European Public Health (EPH) Conference 2024 held on November 12-15, Lisbon, Portugal. The theme of the EPH conference 2024 was *Sailing the waves of European public health: exploring a sea of innovation*.

The research topic “[*Health-related quality of life among refugees from Nagorno-Karabagh resided in Kotayk, Armenia*](#)” was selected as a poster presentation. This study assessed the health-related quality of life (HRQoL) and associated factors among Nagorno Karabagh (NK) refugees who settled in Kotayk province of Armenia. The mean total SF-36 score was 57.42 ± 23.12 (out of 100); the mean physical and mental health component scores were 63.57 ± 26.28 and 59.37 ± 20.04 , respectively. Only 28% of the participants utilized healthcare services after displacement. Advanced age, sleeping disorder, use of medical services, and multiple non-communicable diseases were significantly associated with decreased physical and mental health scores. This study marks the first assessment of HRQoL among NK refugees. Interventions targeting individuals with restricted access to healthcare services, as well as those affected by multiple health conditions, might be beneficial.

The abstract was published in the [European Journal of Public Health](#), Volume 34, Issue Supplement 3, October 2023.

Giloyan A, Harutyunyan T, Petrosyan V. Health-related quality of life among refugees from Nagorno Karabagh resided in Kotayk, Armenia, European Journal of Public Health, Volume 34, Issue Supplement_3, November 2024, ckae144.2039, <https://doi.org/10.1093/eurpub/ckae144.2039>

6. Meghriyan Institute worked on manuscripts

In 2024, the research team of the Meghriyan Institute worked on a number of manuscripts. Some of them are in the journal submission stage, while others are in progress.

- **Manuscript 1:** *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-year-old and older adults in the Gegharkunik province of Armenia. This manuscript was in the journal submission stage.
- **Manuscript 2:** *The Impact of Refractive error correction on Health-related Quality of Life in nursing home residents in Armenia.* This study assessed the impact of refractive error correction with spectacles on health-related quality of life through baseline and follow-up comparison. This manuscript was in progress.
- **Manuscript 3:** *The impact of chronic non-communicable diseases on health-related quality of life in nursing home residents in Armenia.* This study assessed the impact of non-communicable disease and other factors on health-related quality of life in nursing home residents in Armenia. This manuscript was in the journal submission stage.
- **Manuscript 4:** *Prevalence and risk factors of age-related cataract among adults aged 50 + in Gegharkunik, Armenia.* This study assessed the prevalence of age-related cataract and associated risk factors among people aged 50 years and older in Gegharkunik province of Armenia using the Rapid Assessment of Avoidable Blindness (RAAB) methodology. This manuscript was in the journal submission stage.
- **Manuscript 5:** *Visual impairment and disability among people with diabetes in Armenia: a cross-sectional survey.* This study assessed disability level and examined the relationship between visual impairment (VI) and disability in people with diabetes. This manuscript was in progress.
- **Manuscript 6:** *Factors associated with diabetes self-management in Kotayk province, Armenia in 2022.* The study identified factors associated with diabetes self-management in Kotayk province, Armenia. This manuscript was in progress.
- **Manuscript 7:** *Factors associated with impaired color vision in people with diabetes: A cross-sectional study.* The study aimed to assess the prevalence of and associated factors with color vision deficiency in people with diabetes in Armenia. This manuscript was in progress.

- **Manuscript 8:** *Health-related quality of life and associated factors among refugees from Nagorno Karabagh residing in Kotayk province of Armenia.* This study aimed to explore factors associated with health-related quality of life among refugees from Nagorno-Karabakh residing in Armenia. This manuscript was in progress.

7. Meghriqian Institute: 2024 in numbers

Lions Regional Ophthalmic Unit in Sevan, Gegharkunik province, served around 3,675 visits, 1,189 people, and performed 704 surgeries in 2024. Meghriqian Institute conducted eye screenings among 467 people in Armenia in 2024: 89 children and 378 adults. Meghriqian Institute distributed 470 free eyeglasses and medication to 69 people in 2024.