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COUNTDOWN TOWARDS 2020
ACTIVITIES AND STATISTICS
THE ARMENIAN EYECARE PROJECT



Լույս հայի աչքերին

bringing sight to armenian eyes





MINISTRY OF HEALTH
REPUBLIC OF ARMENIA



USAID
FROM THE AMERICAN PEOPLE



COUNTDOWN TOWARDS 2020 ACTIVITIES AND STATISTICS

ACTIVITIES CARRIED OUT BY THE ARMENIAN EYECARE PROJECT AND THE EYE HEALTH
SITUATION ANALYSIS IN THE REPUBLIC OF ARMENIA

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The contents of this publication are the sole responsibility of the authors and do not necessarily reflect the views of USAID or the U.S. Government.

YEREVAN
2010



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This publication presents the activities carried out by the Armenian EyeCare Project (AECPP) in Armenia and services provided to the population during 2003-2009. At the same time, it presents the estimates of main indicators of eye health and incidence of main eye diseases in Armenia. These indicators will serve as a basis for policy makers to analyze the eye health situation and estimate the demand of eye care services in the country.

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INTRODUCTION

The pain and suffering of blindness is incalculable. The restoration of sight is priceless. Vision problems worldwide as well as in Armenia are ranked among public health issues. A large portion of the population, especially after 50, is in the risk group for blindness. Vision 2020, a worldwide initiative of the World Health Organization and International Agency for the Prevention of Blindness / IAPB/ calls for more active actions to reach the goal of reducing preventable blindness worldwide by 100, 000 persons by 2020. The World Sight Day, celebrated annually since 1999 in many countries at the Vision2020 initiative is meant to voice the problems of those who have eye problems and remind the world of its commitments.

The motto of this year's World Sight Day is "Countdown towards 2020". It calls for a sum-up of the activities and accomplishments in this field and for reasonable planning of the work to be done before 2020, including the implementation process of National Blindness Prevention Strategies. The Armenian EyeCare Project (AECPP) is one of the organizations largely involved in eyecare in Armenia. The AECPP mission is to eliminate preventable blindness in Armenia and to make 21st Century eye care accessible to every Armenian child and adult. Following its mission and the priorities of the Vision2020, the AECPP is pleased to mark the celebration of the World Sight Day, 2010 with the publication of its analytical report "Countdown towards 2020: Activities and Statistics", in cooperation with the RA Ministry of Health and the United States Agency for International Development.

The publication is very much in line with the motto of this year's World Sight Day "Countdown to 2020". It sums up the results of the work done by the AECPP since its establishment in 1992, touches upon the main initiatives and achievements, and presents the results of its scientific research, which would allow estimating the eye health of the population and evaluating the eye care demand for the country. In addition, following the logic of the "Countdown towards 2020" the brochure provides certain information on the accomplishments of the National Blindness Prevention Strategy in Armenia and the AECPP contribution in reaching the goals set up in the Strategy (the Information note was kindly provided by the RA Ministry of Health and is presented in the Annex 2).

Impressive results are reached thanks to the coordinated work of the AECPP comprehensive program "Bringing Sight to Armenian Eyes", the USAID/AECPP "Primary and Ophthalmologic Health Care Alliance" as well as its numerous partners and donors.

The beauty of the statistics presented to you is also in its uniqueness for Armenia. For many years any comprehensive information on the eye care and eye diseases has been very limited. The brochure has introduced the Index of Eye Health Vulnerability for the population of 50+, cataract surgery coverage rate among the population, the prevalence of the main widespread diseases causing blindness and blindness as well as blindness and visual impairment estimates.

All mentioned estimates were calculated at the country and marz level for the first time. We hope that this analytical report will be useful for healthcare decision makers, scientists and practitioners dealing with eye care services planning and implementation at the country and regional level. The authors would like to thank the partners, the AECP staff and medical teams involved in the preparation of this work, for their support and assistance.

1. THE ARMENIAN EYECARE PROJECT: OBJECTIVE AND PRESENT ACHIEVEMENTS

1.1 THE OBJECTIVE OF THE PROJECT, ITS ESSENCE AND PARTNERS

The Armenian EyeCare Project (hereafter AECP) is a US-based charity organization founded in 1992 by Armenian-American ophthalmologist Dr. Roger Ohanesian. Its mission is to eliminate preventable blindness and make eye care accessible to all people in Armenia. To this end, many highly qualified American academic ophthalmologists have been invited to visit Armenia to treat patients and share the knowledge with their Armenian colleagues. As well, large quantities of medication and equipment have been brought during this time to Armenia.

The AECP carries out its activities in the Republic of Armenia in close cooperation with its partners in Armenia and outside. The main partners of the AECP are as follows:

- Ministry of Health
- Ministry of Labor and Social Issues
- Governors offices in all the marzes of Armenia, Yerevan municipality, community councils,,
- S. Malayan Ophthalmologic Center
- Kanaker Zeitun Medical Center
- Yerevan State Medical University #1 eye clinic,
- Regional medical centers, health centers and FAPs (village health points),
- United States Agency for International Development and relevant medical and educational programs
- Numerous organizations and individuals in the Diaspora
- Embassies of a number of countries in Armenia
- Numerous non-governmental and international organizations



1.2. MAIN ACHIEVEMENTS OF THE PROGRAM

During the entire course of its operations in Armenia starting 1992, the AECP has carried out large- scale activities, resulting in impressive achievements. Some of such achievements are listed below.

- Organized and carried out 36 U.S. medical missions to Armenia, with the participation of 55 U.S. academic ophthalmologists. The latter have traveled to Armenia, at their own expense, to teach and treat patients.
- Initiated \$18,5 million worth donations of medical equipment and supplies to Armenian hospitals and clinics by American pharmaceutical and medical manufacturing companies and private individuals Initiated.
- Developed ophthalmology residency literature to improve teaching methods in compliance with Western standards, as well as authored and published two books “Eye Diseases” (2005) and “Essentials of Ophthalmology” (2007) for primary health care providers and ophthalmologists respectively.
- Developed legislation for an Eye Bank that was approved by the Government in February 1998.
- Sponsored 8 ophthalmology fellowships in the United States for Armenian physicians and 3 observerships.
- Sponsored and organized 11 International Ophthalmology Teaching Conferences in Yerevan.
- Sponsored 15 patients requiring specialized surgical care in the U.S. and provided services at no charge.
- Established and equipped five specialty clinics in the Malayan Ophthalmologic Center:
 - Vitreo-Retinal Disorders Clinic & Operating Room, 1998
 - Glaucoma Clinic & Operating Room, 2000
 - Corneal & Uveitis Disorders Clinic, 2001
 - Neuro-ophthalmology and Orbital Surgery, 2004
 - Eye Bank, 2005
- The Mobile Eye Hospital was designed and built with American donations and delivered to Armenia in 2002 to travel throughout regions of the country. Up to date, it has accomplished three medical tours in the marzes of Armenia. The fourth tour started in October of 2009.
- Launched country-wide comprehensive program “Bringing Sight to Armenian Eyes” in June 2003
- Launched country-wide public education and awareness campaign in 2005. Published 12 handouts (total of 600.000 copies) on eye care, safety and eye diseases of children and adults.
- Established and equipped USAID/AECP Education & Diagnostic Center in partnership with the Malayan Ophthalmology Center in May 2006.

- Established and equipped USAID/AECP Low Vision Center in the Kanaker Zeitun Medical Center.
- Established and equipped a Wet Lab thanks to the generous donation of the Pfizer company, with the purpose to provide doctors and students with opportunities for surgical practice, 2007.
- Launched a Screening and Treatment Program on Retinopathy of Prematurity (ROP) in Armenia, 2010.

On the whole, the AECP activities have greatly contributed to the implementation of the “Armenian National Strategy of Blindness Prevention program” which was put into effect in 2006 (see appendix 2, which presents a document prepared by the Ministry of Health on the implementation of the National Strategy Blindness Prevention program , approved by the 02.11.2006 #43-N decree of the Government of the Republic of Armenia).

2. THE AECP INITIATIVE “BRINGING SIGHT TO ARMENIAN EYES”, ITS COMPONENTS AND RESULTS

2.1. THE ESSENCE AND MAIN RESULTS OF THE INITIATIVE

Having established as “The Armenian EyeCare Project” Charitable Foundation in Armenia, the AECP launched a comprehensive program “Bringing Sight to Armenian Eyes” in 2003. It is aimed at strengthening the eye care delivery system and reducing preventable blindness in Armenia. Since October 2004 the USAID and the AECP has started cooperation within “Primary and Ophthalmologic Health Care Alliance” in the framework of the Global Development Alliance. The main objective of the Initiative is realized in five inter-linked directions, which make up the main components of the AECP work.

- Screening of the population and direct patient care,
- Data analysis and scientific-practical research,
- Medical education and training,
- Public education and awareness,
- Capacity building.

The donations received from various individuals and companies, as well as the USAID Global development Alliance resources, has enabled the AECP, with its Mobile Eye Hospital and medical screening groups, to carry out regular visits to all Marzes (regions) of Armenia, including Yerevan. The AECP field missions provide



people with full-scale services – general screening, referral, surgery and laser treatment in MEH, prescription and provision of eye-glasses. In 2006, 2007, 2008 and 2010 as a separate project, the AECP visited Nagorno-Karabakh to provide high quality eye services there too.

The main results achieved through all the components of the Initiative “Bringing Sight to Armenian Eyes” since June 2003 to September 2010 are as follows:

- 264,568 people (including 128,933 children) were screened by the AECP medical groups in their villages or in adjacent settlements
- 27,091 people underwent thorough examination on the MEH
- 11,303 patients were operated on and treated on the MEH
- 29,546 eyeglasses were provided
- The created database incorporates data on the people screened by the AECP medical groups. Scientific-practical analyses of the data have allowed drawing estimates on the prevalence of eye diseases and visual impairment among the RA population.
- 1,684 health care providers, including 61 regional ophthalmologists and 37 ophthalmic nurses, were trained in eye diseases
- 501,156 public education handouts were distributed
- 360 public education classes for 9000 children and 900 parents and health activists were delivered.

2.2. GENERAL DESCRIPTION OF THE INITIATIVE COMPONENTS

Screening of the population and direct patient care

The main objective of the Initiative “Bringing Sight to Armenian Eyes” is to make the quality eye care accessible to population in all the regions of Armenia which will help to prevent avoidable blindness in the country. Within the scope of the project the AECP Medical teams and the state-of-the-art Mobile Eye Hospital (MEH) travel to rural and urban communities throughout Armenia to render the following services:

- General screening of children and adults
- Refraction for all and provision of eyeglasses to the socially vulnerable population
- On the Mobile Eye Hospital - detailed eye examination and laser treatment for all as well as surgery for vulnerable population

For timely prevention and treatment of eye diseases, special emphasis is placed on detection of diseases leading to blindness such as the cataract, glaucoma, diabetic retinopathy, macular degeneration etc.

After general screening the patients get referrals to the MEH for detailed examination, laser treatment or surgery as needed. To secure more accessibility, the MEH is stationed in all central cities and towns of Armenia.

Since June 2003 up to September 2009 the AECP completed three tours throughout Armenia. The fourth tour of the AECP field mission started in October of 2009 and is expected to be completed in September of 2011.

Data Analysis and Research

Data analysis and scientific-practical research is a cornerstone of the AECP activities. As a result of the AECP outreach activities carried out since 2003, a database was created incorporating data on around 160,000 screened patients. The data processed in concordance with internationally accepted methodologies has allowed coming up with important indicators on the prevalence of eye diseases as well as drawing comparative analyses of the general ophthalmic health situation in the regions of Armenia.

The collected data allows detecting the main causes of eye disorders and evaluating prevalence rate of diseases among the population such as the cataract, glaucoma, retina and eye fundus diseases. Based on the prevalence of the main eye diseases, the eye health vulnerability index for the AECP beneficiaries above 50 years was calculated. The latter, in fact, describes the risk factor of blindness in Armenia. The AECP has conducted two other surveys to evaluate patient satisfaction level with the AECP services. According to the research results, 94% of the patients who used the AECP services rated those as either good or excellent.

To assess productivity of the eye surgeries performed on the Mobile Eye Hospital, the AECP conducted a follow-up survey in 2007 among the beneficiaries in the Armavir marz who were operated in the period of 2003-2006. The survey revealed that particularly the results of the 2006 are in conformity with international standards: for 91.5% of cataract surgeries good or borderline result was recorded.

In addition, jointly with the Malayan Ophthalmic Center, the AECP has introduced a pilot monitoring system for cataract surgery outcomes based on the methodology and recommendations of the WHO. It is expected that the system will be incorporated in other health care institutions all over Armenia as well.



Medical Education and Training

Medical training provides physicians at the primary, secondary and tertiary levels with up-to-date knowledge and skills to secure quality services to the population country-wide. The AECP has organized and conducted many training courses for regional ophthalmologists and family medicine doctors. Our partners in this sphere are the USAID contractors “Primary Health Care Reform” and “Academy for Educational Development” (AED). As of today, more than 1,600 primary health-care providers in Yerevan and the regions were trained.

Two books —the “Eye Diseases” and the “Essentials of Ophthalmology” authored by AECP, are the first textbooks on ophthalmology in the Armenian language, are in the core of the training. These books serve as a reference for the professional upgrade of the primary healthcare specialists and ophthalmologists.

In addition, the regional primary health care workers and ophthalmologists have an opportunity to enrich their experiences by participating in the AECP screenings in the hometowns as well as to familiarize themselves with modern ophthalmic equipment by undertaking observership on the MEH during its visits to the regions.

With the financial support of the USAID and assistance from the Ophthalmologic Center after S. Malayan, the Armenian EyeCare Project opened the Education and Diagnostic Center furnished with state-of-the-art equipment in 2006. Thanks to this Center, the Armenian physicians and students can familiarize themselves with the latest ophthalmologic achievements and developments in electronic and print formats. The Center incorporates Haik Babikian memorial library thus providing access to one of the richest collection of the specialized ophthalmologic literature in Armenia.

Thanks to the generous donation of the US-based company Pfizer, the AECP brought Wet Lab to Armenia where the Armenian ophthalmologists improve their surgical skills.

Public Education

The main goal of the Public Education program is educating the population about the measures for the prevention of eye diseases as well as highlighting the importance of using eye care services. By raising awareness through Public Education program, the AECP aims at integrating healthy eye care and safety practices into everyday life of the general public and particularly the children. In order to disseminate information about common eye diseases, eye care and

safety practices to a wider audience, the AECP published six hundred thousand copies of 12 educational brochures targeting different groups of population. The brochures are disseminated in the regions and communities where the AECP works.

To raise public awareness, the AECP works with different target groups. Thematic talks on eye care and safety are conducted for schoolchildren, parents, teachers and medical personnel of the schools. During the talks they receive information about childhood and adult eye diseases, symptoms as well as safety measures and injury prevention. Thematic performances such as puppet shows and pantomime performances were organized for schoolchildren.

In cooperation with local and international organizations, the AECP conducts training of trainers sessions with active community groups and healthcare providers, who disseminate the eye care related information in their respective communities, thus making the basic knowledge available for a larger number of people.

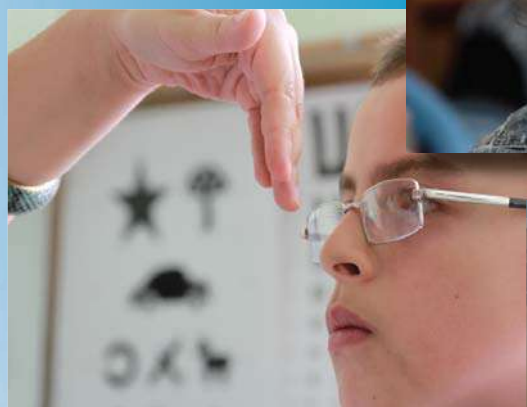
Capacity Building

The AECP and its partners aim at turning Armenia into a Center of Excellence in Ophthalmology in the Caucasus region. Building blocks of the “Capacity building” are the transfer of knowledge and institutionalization of services. Since 1992, American physicians have been visiting Armenia on a semi-annual basis to transfer the know-how and skills in ophthalmology to their Armenian colleagues. In addition, 11 international training conferences were organized.

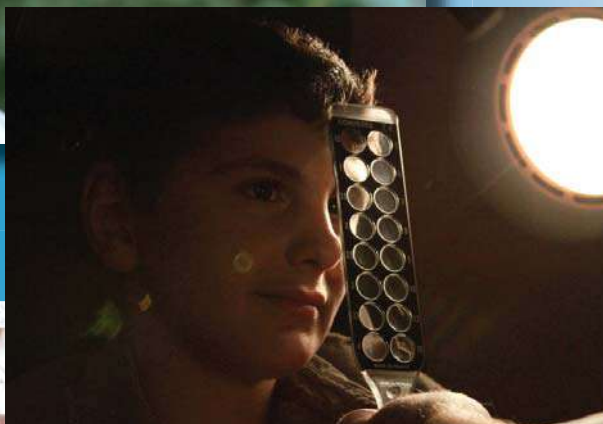
By the initiative of the AECP, six specialty clinics were established and equipped/revamped in the major ophthalmic centers of Armenia - S. Malayan Ophthalmologic Center and Kanaker – Zeitun Medical Center. These specialty clinics are -Retina, Glaucoma, Cornea and Uveitis, Neuro-orbital, Eye bank, and Low vision. These clinics are led by the Armenian ophthalmologists who had their fellowship in the finest eye care institutions of the US thanks to the AECP sponsorship. The AECP fellows now transfer their knowledge to their colleagues and students.

As a separate direction, the AECP continues its program of the “Prevention and Treatment of the Prematurity of Retinopathy in Armenia”. It was launched in June of 2010 with the AECP medical mission and International Conference devoted on the prevention of the Retinopathy of Prematurity (ROP). In accordance with the respective instruction of the RoA Ministry of Health, the AECP-trained physicians regularly screen all premature infants in the Neonatal Intensive Care Units. Those in need of treatment undergo laser procedure. Annually, the program is expected to save about 100 premature infants in the risk group from lifelong blindness.











3. BRIEF DESCRIPTION OF THE EYECARE SERVICES PROVIDED BY THE AECP TO THE ARMENIAN POPULATION IN THE PERIOD OF 2003-2009

The AECP impressive results are reached thanks to the coordinated work of all components and partners, nonetheless, prior to presenting the results of the AECP data analysis and scientific research, we would like to single out the component of medical outreach. The latter can be considered as the “base” of the Project due to its widespread nature, direct target to the population and immediate results. Analysis of the information gathered through this component allows coming up with important indicators characterizing the eye health of the country.

The ultimate goal of the AECP is the elimination of avoidable blindness and securing increased access to modern eye care for every citizen of Armenia. The AECP Initiative “Bringing Sight to Armenian Eyes”, launched in 2003 is meant to reach this goal. General screenings among the population of rural and urban communities in Armenia, thorough examination, surgery and laser procedures performed on the Mobile Eye Hospital bring the high quality eye care services to the population at large.

The AECP completed three medical tours all over Armenia within the Initiative “Bringing Sight to Armenian Eyes” in the period from 2003-2009 and we will present a brief summary of their logistic, organizational and medical aspects with an emphasis on the third tour in 2007-2009.

3.1. BRIEF DESCRIPTION OF THE AECP EYECARE SERVICES RENDERED DURING THREE MEDICAL TOURS IN THE PERIOD OF 2003-2009

Since 2003 through 2009, the AECP medical groups and the Mobile Eye Hospital (MEH) engaged the overwhelming majority of urban and rural communities in the general screening. Despite certain variations, the logistical protocols, medical approaches and orientations are quite similar in all three medical tours.

During the mentioned time period, the AECP medical groups, on the whole, have visited 841 rural and urban communities of the country (nearly 90% of the RA communities)¹.

Well in advance, the AECP screening and MEH activities were widely advertised in the local media (television and radio announcements). Announcements were placed in all public places (polyclinics, mayor’s offices, post offices, banks, etc). In

¹ In this section, the analysis of the data received due to screening in nine marzes (excluding the marz of Gegharkunik and Yerevan) during 2003-2009 is presented.

addition, local health professionals and social workers encouraged visits of the patients with specific problems as well as the population at large. Screenings were mainly carried out in local polyclinics, ambulatories and health posts. All services rendered by the AECP are free of charge - screening, eye glasses prescription and laser treatment were available to everyone. Surgeries were performed only for the most needy (eligibility verified against the vulnerability lists of the Ministry of Labor and Social Issues) while other patients identified with problems were referred to tertiary care facilities. This approach stimulated significant interest among the population at large.

Eye screening and examination were conducted by a trained team of ophthalmologists and clinical residents from Yerevan's tertiary care clinics. A standard protocol and eye examination record was used. Examination included testing of visual acuity using Landolt charts and Sivtsev-Golovin charts. Pinhole vision was taken for those individuals with a vision of $<6/18$ (either eye). Assessment of cause of vision loss was undertaken using a standard protocol with a direct ophthalmoscope. Causes of vision loss in cases that needed further examination or treatment (surgery or laser treatment) were referred to the MEH. Eye pressure was measured by a tonopen or Maklakov .

For more complicated cases, when a patient needed a thorough diagnosis or future treatment (surgery or laser procedure), s/he was referred to the MEH for a more detailed examination and/or treatment. In such cases, children were referred to the Yerevan eyecare institutions. Patients needing continuous treatment or care, were referred to the local ophthalmologist.

Due to the mentioned large-scale activities in the period from 2003-2009, the AECP had screened and rendered eye services to 156,688 people (around 5% of country's population). The overwhelming majority of them were adults (61%), while children constituted 39% (up to 16 year olds), the women exceeded in numbers and made up 57% of those screened.

Early detection and timely prevention of eye diseases among children greatly contributes to the prevention of blindness and low vision among the population. For that reason, the AECP, during its second tour, had attempted to pay more attention to school screenings. In the second medical tour, more than half of the population screened by the AECP – 55%, where children from 320 schools in 245 rural communities. This fact explains the high representation of children – 39% in the structure of the AECP screened population, in comparison with the demographic structure of the population of the country (24%). Taking into consideration the poor access of primary and secondary eye care services for the rural



communities, the AECP screenings were geared towards the rural population, constituting 58% of the screened population.

The AECP had prescribed and prepared 29,549 eyeglasses for those in need from the socially vulnerable layers of the population.

Table 1. The structure of the population screened by AECP during three tours in 2003-2009

	AECP first tour 2003-2005	AECP second tour 2005-2007	AECP third tour 2007-2009	Total	
				Absolute numbers	% in total
AECP screened population	47,835	82,142	26,711	156,688	100.0
Out of which					
Adults, including working age and older (16+ years old)	33,088	37,003	25,516	95,607	61.0
Children (up to 16 year old)	14,747	45,139	1,195	61,081	39.0
Male	19,957	37,785	9,874	67,616	43.2
Female	27,878	44,357	16,837	89,072	56.8
Rural population	20,177	52,073	18,001	90,251	57.6
Urban population	27,658	30,069	8,710	66,437	42.4

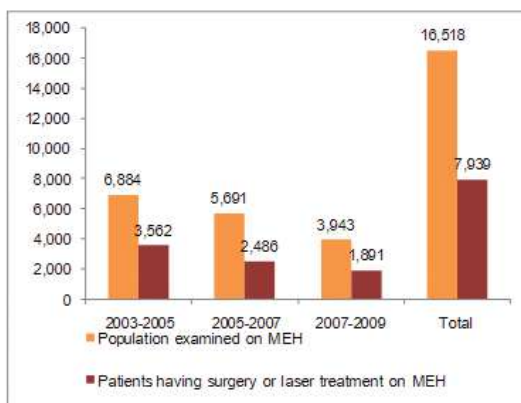
The regional distribution of the screened population shows that the residents of the marzes of Ararat, Armavir, Kotayk and Lori were more represented in the total numbers.

Table 2. The Marz structure of the population screened by AECP during three tours in 2003-2009

	AECP first tour in 2003-2005	AECP second tour in 2005-2007	AECP third tour in 2007-2009	Total	
				Absolute number	Percent in the total
Aragatsotn	6,962	6,311	2,892	16,165	10.3
Ararat	7,096	14,206	2,628	23,930	15.3
Armavir	5,062	15,608	4,136	24,806	15.8
Kotayk	5,423	10,409	3,117	18,949	12.1
Lori	3,951	10,158	4,459	18,568	11.9
Shirak	7,158	6,696	3,230	17,084	10.9
Syunik	2,859	7,867	2,202	12,928	8.3
Tavoush	4,166	7,352	2,692	14,210	9.1
Vayots Dzor	5,158	3,535	1,355	10,048	6.4
Total - the AECP screened population	47,835	82,142	26,711	156,688	100.0

In the period of 2003-2009, the AECP Mobile Eye Hospital (MEH) had rendered detailed examination to 16,518 persons in need of help (17.3% of the total screened), out of whom, 7,939 patents (8.3% of the screened adults) underwent a surgery or a laser procedure.

Graph 1. RA population who underwent detailed examination and treatment on the AECP MEH in 2003-2009



*some patients underwent both surgery and laser.

On the whole, in the period from 2003-2009, 8,394 surgeries and laser procedures were performed on the MEH. Most of them (70%) were cataract-related various surgeries.

Table 3. Types of the treatment carried out on the AECP Mobile Eye Hospital in 2003-2009

Treatment	Amount	Percent
Extracapsular Cataract Extraction with Intraocular Lens Implantation	4,956	59.0
Extracapsular Cataract Extraction	654	7.8
Laser peripheral iridotomy	412	4.9
Laser capsulotomy	665	7.9
Pterygium surgical excision	713	8.5
Intracapsular Cataract Extraction with anterior vitrectomy	112	1.3
Trabeculectomy in Glaucoma	149	1.8
Panretinal photocoagulation	373	4.4
Macular Grid photocoagulation	12	0.1
Argon Laser Trabeculoplasty	30	0.4
Extracapsular Cataract Extraction with Trabeculectomy	76	0.9
Intracapsular Cataract Extraction with anterior vitrectomy and Intraocular Lens Implantation	240	2.9
Glaucoma drainage- Ahmed valve implantation	2	0.0
TOTAL	8,394	100.0



3.2 BRIEF DESCRIPTION OF THE AECP ACTIVITIES DURING THE THIRD MEDICAL TOUR IN THE PERIOD OF 2007-2009

During the third medical tour in 2007-2009, the AECP screening groups and the Mobile Eye Hospital have visited nine marzes of Armenia (with the exception of Yerevan, where the AECP services targeted special groups of the population and schools) and the marz of Gegharkunik¹.

During the third tour, the AECP medical groups have carried out screening activities in 490 communities of the country, or in other words, in 54% of Armenia's communities.

The AECP has screened the people from 615 different communities, mainly from rural areas. On the whole, the majority of the screened - 68% were from the rural communities, where health and eye care services are especially inaccessible.

The AECP has screened 26,711 people (or around 0.9% of country's population), out of which 16,837, or 63% were women, while 1,195 were children (up to 16 years old): More than half (52%) of those screened by the AECP were from poor, vulnerable or special layers of the population.

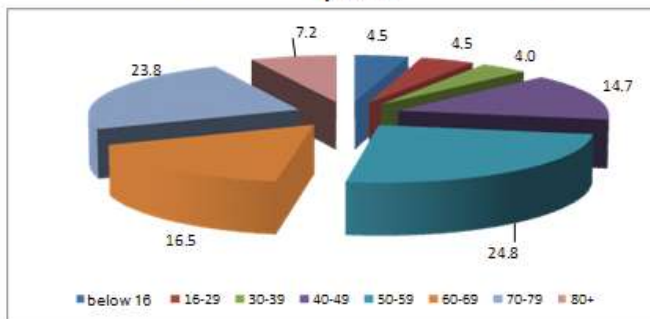
Table 4. The structure of the screened population at the AECP third tour in 2007-2009

	Total		Out of which are from vulnerable groups	
	Person	% in the number of total screened	Person	% in the number of total screened
The population screened by AECP	26,711	100.0	13,887	52.0
Out of which				
Adults – of working age and above (16 +years old)	25,516	95.5	13,717	51.4
Children (up to 16 years old)	1,195	4.5	170	0.6
Male	9,874	37.0	5,240	19.6
Female	16,837	63.0	8,647	32.4
Rural residents	18,001	67.4	8,892	33.3
Urban residents	8,710	32.6	4,995	18.7

The overwhelming majority of the screened population by the AECP were above the reproductive age, i.e. those above 49 made up 72.3% of the screened, while people of 70 years of age and above made up one third of the screened – 31%. The age distribution of the screened population is presented below in Graph 2.

¹ The AECP has restricted its activities in the marz of Gegharkunik since there is a modern eye clinic renovated and equipped with sponsorship of Garo Meghriyan Eye Institute for Preventive Ophthalmology within the American University of Armenia and the Lions Club International.

Graph 2. The age structure of the screened population at the AECP third tour in 2007-2009, in percent



The MEH, while stationed in the Armenian cities and towns, has received and examined 3,943 previously screened people in need of thorough diagnosis (15.5% of the screened adults). Thus, the access to high quality care was made closer not only to the residents of those towns but also for the people of the adjacent settlements. Nearly half of those people – 1893 (or 7.4% of the screened adults) underwent surgery or laser procedure on the Mobile Eye Hospital. The AECP has prescribed, prepared and provided with eyeglasses to 9,793 people belonging to vulnerable and special groups.

4. SUMMARY OF THE AECP DATABASE ANALYSES RESULTS

Since 2003, the AECP has combined general screenings of the population with information collection and analysis. The data of the around 160,000 screened people were assembled in the AECP database, while the results of scientific analyses has made it possible to receive data on the eye health and prevalence of eye disease among the Armenian population in accordance with internationally accepted methodology and indicators. The received data also allow comparisons at the regional level.

Hereafter, we will present scientific estimates of the eye health and eye disease prevalence among the population of the Republic of Armenia, which will enable the decision makers to evaluate eye care situation among the population as well as determine the demand for eye care services in the country. The mentioned estimates are based on the AECP screening and MEH activities carried out in nine marzes during the third medical mission, in the period from 2007-2009, since it contains the freshest data with extensive and detailed information on the screened people¹. In addition, we will present dynamic time series on the main diseases from all three tours.

¹ With the exception of Yerevan, where the AECP had confined its activities only to schools and social institutions (children's homes, nursing homes, soup kitchens, detention places, etc.) and the marz of Gegharkunik, which has more access to modern eye care.



4.1. METHODOLOGY OF COLLECTION AND PROCESSING OF THE EYE HEALTH DATA AMONG THE POPULATION SCREENED BY THE AECP

Parallel to general screening, the Armenian Eye Project has gathered certain information on those screened. Each person referred to the AECP for screening had filled in a questionnaire which included sets of questions related to the general health status (with an emphasis on common medical problems that affect vision: diabetes, hypertension, and infectious diseases); healthcare, frequency of visits to eye doctors, as well as perceptions of the population regarding healthy lifestyles and attitudes. On the last (fourth) page, the AECP medical team inserted results of eye examination, diagnostics, as well as necessary or proposed medical intervention. The data of the filled-in questionnaire was entered in a special software, which made up the AECP database. Please, see the Annex 1 for the modified questionnaire, used in the tours of 2007-2009, and 2010.

Monitoring and evaluation, as well as regular feedback in the logistical, organizational and conceptual aspects have allowed the AECP to work towards improvement during the entire process of the work. A large number of protocols, guidelines, standards were prepared to facilitate the work of the screening groups in the field, as well as standardize the reporting process. The AECP questionnaire has been modified, which allowed having a more detailed breakdown of diseases and keeping comparability with the previous data at the same time. For this reason, the analysis of the available data presented in this brochure is more geared towards the third round.

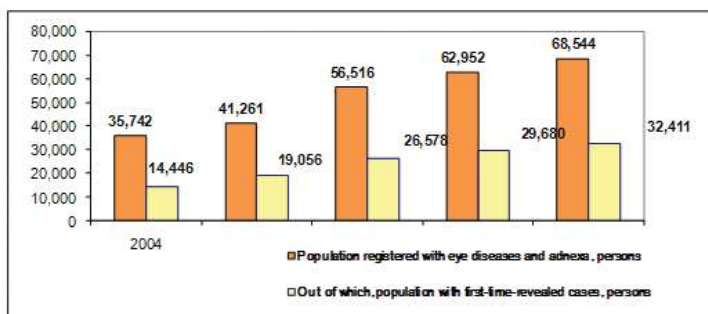
It is worth mentioning that the AECP database is not a result of sample survey, since the participation of the population in the AECP screening has been of a voluntary nature. The screening groups have rendered services to all those who elected to come to the AECP screening. For that reason, the age-gender as well as geographic (rural-urban and marzes) proportion of the screened population had not corresponded to the demographic and geographic characteristics of the country. Therefore, to receive reliable estimates on the prevalence of eye diseases, the received data have been weighed. Thus, the mentioned proportions were rectified to comply with the country's overall demographic characteristics.

In this survey, estimations and indicators have been calculated mainly for the adult population (16 years old and above) and particularly, 50+, due to the fact that the latter are the main age group in risk. In addition, the database contains dynamic time series which correspond to the two-year-long three tours that the AECP has accomplished in nine marzes of Armenia in 2003-2005, 2005-2007 and 2007-2009. Therefore, the comparison of results in dynamics has certain specifics, which the reader should approach with caution.

4.2. EYE DISEASES DIAGNOSED AMONG THE RA POPULATION DURING THE AECP THREE MEDICAL TOURS IN THE PERIOD OF 2003-2009

The RA Ministry of Health, in its statistical yearbooks, officially publishes two main indicators characterizing the eye health of the country's population: the number of first time revealed diseases of eye and adnexa as well as general morbidity of the population related to eye diseases and adnexa, with a specification of glaucoma cases. The cases of population's morbidity are registered when people refer for eye care or during mandatory preventive examinations¹. The dynamics of these indicators show that the number of population registered with diseases of eye and adnexa in our country has increased almost twofold in the period of 2004-2008, summing up to 2,610 persons per 100,000 persons in 2008 (total of 68,544 persons). Starting 2005, almost 47% of the patients who have mentioned diseases, were diagnosed for the first time.

Graph 3. The number of registered and first-time-revealed diseases of eye and adnexa among the population of Armenia in the period of 2004-2008



Source: "Statistical yearbook of 2008", Republican information-analytical center of the RA Ministry of Health, National Institute of Health.

The official statistics, however, specifies only on the glaucoma cases among all the eye diseases and adnexa. According to the RA Ministry of Health, as of 2008, 5,320 people were diagnosed with glaucoma, out of whom 1,274 were diagnosed for the first time this year. The official statistics on other diseases of the eye and adnexa is non-existent.

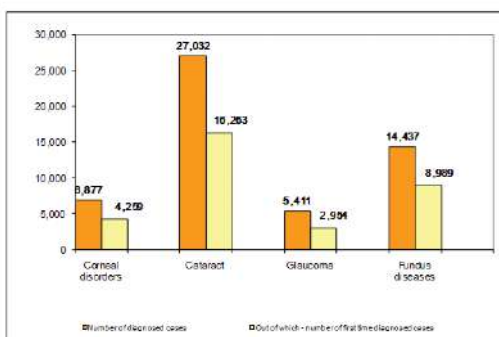
Graph 4 demonstrates the number of diseases of eye and adnexa (assorted in certain groups) diagnosed among the adults (16 years and above) by the AECP medical teams during the three medical tours in 2003-2009. The graph evidences that on the whole, during all that period, the AECP has diagnosed 27,032 cases

¹ See: "Statistical yearbook of 2008", Republican information-analytical center of the RA Ministry of Health, National Institute of Health, 2008



of cataract, while its majority - 60%, were revealed for the first time. In the same period, the AECP medical groups have revealed 14, 437 various cases of fundus diseases, out of which 62% were revealed for the first time; 6, 877 various cases of cornea diseases, out of which 62% - for the first time; 5,411 cases of glaucoma, out of which 54.5% were revealed for the first time. On the whole, during six years of work in the regions, the AECP has diagnosed 53,757 cases of the mentioned diseases (one person can have various diseases) out of which 32, 456 or 60.4% were revealed for the first time in life. Early detection of diseases causing blindness, or first time diagnoses can enable the patients to timely refer to the second and third level ophthalmologic services and prevent blindness through receiving eye care there. Hence, the AECP activities in terms of revealing potentially blinding diseases greatly contribute to the prevention of blindness in the country.

Graph 4. The numbers of diagnosed and first-time-revealed cases of eye and adnexa by the AECP medical groups among the adults (16+) during the three tours in 2003-2009.



Source: AECP database

The distribution of the above mentioned diseases registered by the AECP in 2003-2009 on the regional level is presented below:

Map 1. The number of diagnosed cases of glaucoma in 2003-2009.



Map 2. The number of diagnosed cases of cataract in 2003-2009



Source: AECP database

Map 3. The number of diagnosed cases of fund in 2003-2009



Map 4. The number of diagnosed cases of cornea in 2003-2009



Source: AECF database

Out of the 95,607 adult population (16+) screened in the period of 2003-2009, the AECF medical teams have diagnosed some 40,000 persons with at least one disease of the eye and adnexa. It makes up 42% of those screened. However, taking into consideration the specifics of the screened population's demographics, this indicator cannot be considered an indicator of eye disease prevalence. The prevalence of different eye diseases were estimated after having weighed the AECF database results and are presented in the next paragraph. The regional distribution of the population screened by the AECF who have at least one disease is presented in the map below.

Map 5. Number of the AECF screened adult population (16+) who have at least one disease in the marzes of Armenia



Source: AECF database



Since 2003 through 2009, on the whole, the AECP s diagnosed 16, 520 persons with visual impairment, out of whom 3,173 were blind, while 13, 347 had low vision².

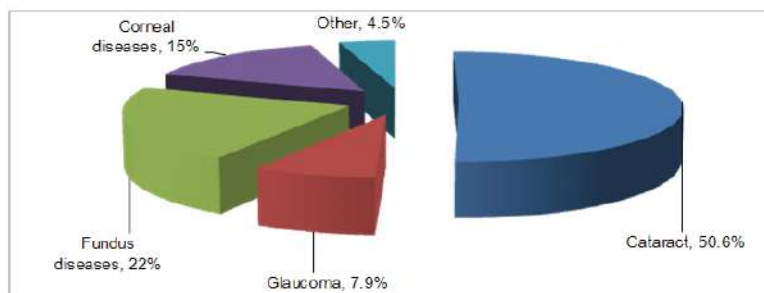
Table 5. Results of the visual acuity tests carried out by the AECP screenings among the adult population (16+) in the period of 2003-2009

Visual acuity in the better seeing eye with best possible correction	Absolute number of the screened who have the mentioned visual acuity			
	AECP first tour 2003-2005	AECP second tour 2005-2007	AECP third tour 2007-2009	Total in 2003-2009
Up to 0.05 (3/60) ² blindness	1,984	764	425	3,173
0.05-0.33 (3/60-6/18) - low vision	5,825	4,800	2,722	13,347
Total: up to 0.33 (6/18) - visual impairment	7,809	5,564	3,147	16,520
More than 0.33 (6/18)	25,279	31,439	22,369	79,087
TOTAL: screened population (16+)	33,088	37,003	25,516	95,607

Source: AECP database

The visual impairment cases are mainly caused by cataract. More than half (50%) of the adults who underwent the AECP screening and were diagnosed with visual impairment, had cataract; 8% had glaucoma; 22% had fundus problems, and 15% had corneal diseases.

Graph 5. Reasons for visual impairment among the population screened by the AECP in the period of 2003-2009



Source: AECP database

² According to the definition of the World Health Organization, blind is considered a person whose visual acuity in the better seeing eye with best possible correction is 3/60 (less than 0.05). A person whose visual acuity in the better seeing eye, with best possible correction, is in the interval of 3/60-6/18 (0.05-0.33) has low vision, while people with visual impairment are those who belong to either of the described groups (visual acuity is 0.0- 0.33).

As already stated, blindness caused by cataract can be prevented by timely surgery.

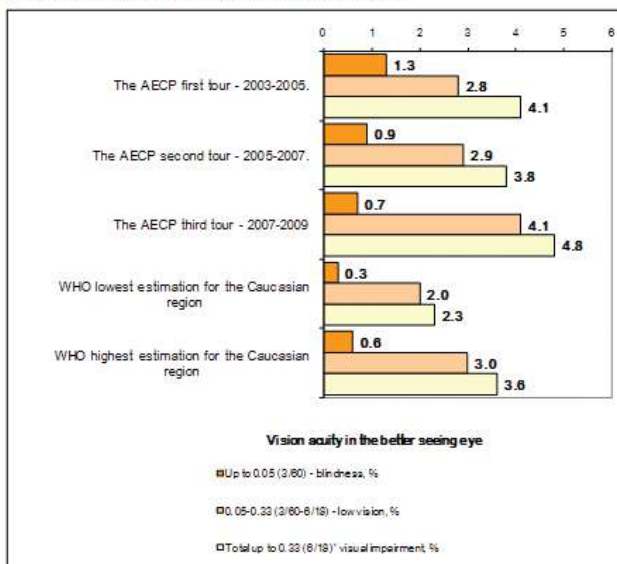
According to the results of the AECP third tour, 2.3% of the RoA adult population (16+), have had cataract surgery in one eye and another 0.7% in both eyes. While the cataract surgical coverage (the proportion of people with bilateral cataract who have received cataract surgery at least in one eye in the total number of people with bilateral cataract) makes up only 23.8%³.

This means that only 24% of those who have cataract in two eyes have had cataract surgery at least in one eye.

4.3. ESTIMATES OF THE EYE DISEASE PREVALENCE AMONG THE RA POPULATION ACCORDING TO THE AECP DATA

After having weighed the AECP data against the sex, age and geographical characteristics of the country, which allowed adjusting and spreading the available data, we developed median estimates for blindness, including low vision, for the two-year-long periods of 2003-2005, 2005-2007 and 2007-2009.

Graph 6. Blindness, low vision and visual impairment prevalence estimates for the RA population for in the time periods of 2003-2005, 2005-2007 and 2007-2009



Source: AECP database and the World Health Organization

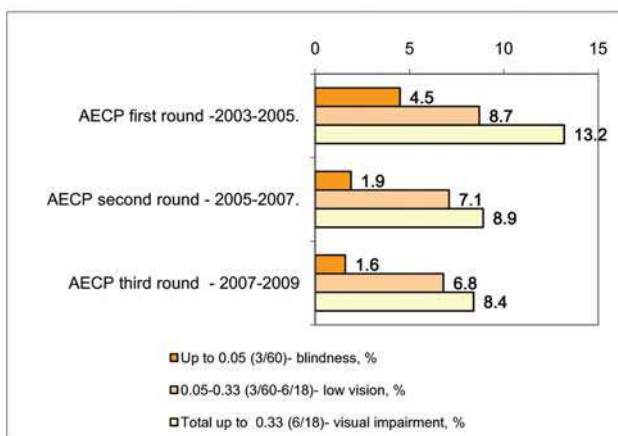
³ For comparison, it is worth mentioning that even developing countries have higher indicators of cataract surgery coverage. It is 63% for India and 44% for Pakistan.



In the Republic of Armenia, as of 2007-2009, blind were on average 0.7% of the population, 4.1% had low vision, according to the presented estimates. On the whole, 4.8% of country's population had visual impairment. Over time, the blindness prevalence estimates have altered - decreasing from 1.3% to 0.7%, while the estimates of low vision have increased. The latter solely has contributed to the increase in the visual impairment indicators in the country. Nonetheless, for 2007-2009, the blindness prevalence estimates for Armenia are in between the lower and upper thresholds set by the World Health Organization for the Caucasus, while the low vision estimates exceed the upper threshold by 1.2%.

Visual impairment is more prevalent among the population of 50 years old and above. A significant portion of people with visual impairment are 50 years old or more. Prevalence of blindness among this age group is essentially higher. According to the AECP data, in 2007-2009, the prevalence of blindness in this age group had been higher than that of the average country by 2.7% and the low vision by 1.6% (see graph 7).

Graph 7. Prevalence estimates of blindness, low vision and visual impairment for Armenia's population of 50+ for the periods of 2003-2005, 2005-2007 and 2007-2009



Source: AECP database

Weighing of the data collected by the AECP (adjustment to the age-sex structure of the population of the Republic of Armenia) and spreading have allowed receiving estimates for the prevalence of eye diseases in the country (see table 6). The latter, however, has been calculated based on the data of the AECP third tour, taking into consideration two reasons: 1) regular upgrades of the AECP questionnaires secured a more detailed breakdown of eye diseases, 2) these data are fresher.

According to these estimates, most widespread eye diseases among the RA population are cataract (8.4%) and fundus diseases (7.9%).

Table 6. Prevalence of eye diseases in the Republic of Armenia according to the AECP third tour (2007-2009) results, in %

Eye Diseases	Estimates of the eye disease prevalence, % in the RoA population
Corneal disorders	1.7
Cataract	8.4
Non –glaucomatic disorders of the optic nerve disorders	1.2
Glaucoma	1.3
Fundus diseases, including	7.9
Diabetic retinopathy	1.5
Hypertensive retinopathy	2.1
Macular degeneration	2.3
Other	2.0
At least on eye disease causing blindness	13.3

Source: AECP database – 2007-2009 time period

Prevalence estimates are especially important for eye diseases causing blindness (glaucoma, cataract, corneal diseases, diabetic retinopathy and macular degeneration). Table 6 evidences that the portion of the population who have at least one eye disease causing blindness in country's population makes up 13.3% and cataract is the most widespread one (8.4%).

The regional picture of the prevalence of eye diseases causing blindness is presented in Map 6. It shows that the portion of the population which has at least one eye disease causing blindness is the highest in the marzes of Tavoush, Ararat and Armavir (16.3, 16 and 15.5 respectively) and the lowest are in Syunik and Vayots Dzor.

Table 7. Estimates of the prevalence of diseases causing blindness in the RA marzes according to the results of the AECP third tour in 2007-2009, % in the marz population

	Shirak	Lori	Aragatsotn	Ararat	Armavir	Kotayk	Vayots Dzor	Tavoush	Syunik
Corneal diseases and disorders	2.2	2.0	0.7	1.3	1.8	2.8	1.5	2.2	0.8
Cataract	7.9	6.9	9.1	11.3	9.7	9.3	6.4	9.1	6.8
Glaucoma	1.9	1.2	1.3	1.6	1.4	1.3	1.5	1.2	1.1
Diabetic retinopathy	2.9	1.1	0.8	1.2	2.1	1.9	1.3	2.9	0.9
Macular degeneration	2.2	1.9	0.5	3.1	2.9	1.8	2.2	5.3	1.4
At least one eye disease causing blindness	14.6	11.7	11.3	16.0	15.5	15.0	11.3	16.3	9.5

Source: AECP database



As already noted, eye diseases are more prevalent among the population of 50+. Table 8 demonstrates that the prevalence of eye diseases causing blindness among the population of the Republic of Armenia of 50+ is significantly higher than among the population on the whole and makes up 37% as opposed to 13.3% for the general population.

Table 8. Prevalence of eye diseases causing blindness among the RA population of 50+ (Eye health vulnerability index), according to the results of the AECP third tour in 2007-2009

Eye Disease	Estimates of the eye disease prevalence among the population of 50+, % in the RA population of 50+	General estimate for eye disease prevalence, % in the RA population
Corneal disorders	2.1	1.7
Cataract	27.0	8.4
Glaucoma	3.4	1.3
Diabetic degeneration	4.4	1.5
Macular degeneration	6.5	2.3
At least one eye disease causing blindness	37.0	13.3

Source: AECP database

The AECP has developed and calculated the Index of Eye Health Vulnerability (EHV) among the RA population of 50 years old and above. Those persons of 50+ who were screened by the AECP and were diagnosed with at least one eye disease (glaucoma, cataract, cornea diseases, diabetic retinopathy and macular degeneration) were considered vulnerable from the eye health point of view. The EHV is the percentage of people having at least one of the mentioned diseases and disorders in the total number of population above the age of 50.

The AECP data evidence, that 37% of the 50+ population has vulnerable eye health. This means that each fourth citizen of the Republic of Armenia has at least one disease causing blindness. Moreover, on the marz level, the highest EHV indicators were identified in the Ararat, Armavir and Aragatsotn marzes (see Map 7).

Map 7. Index of Eye Vulnerability in the marzes of Armenia for the RA population of 50+, according to the results of the AECP third tour in 2007-2009.



Source: AECP database

5. THE 2003-2009 AECp SCREENING AND TREATMENT SERVICES RENDERED TO THE POPULATION OF ARMENIA THROUGH THREE MEDICAL TOURS AT A MARZ LEVEL

This section presents the activities of the Armenian Eye Care Project within the Initiative "Bringing Sight to Armenian Eyes" in the period of 2003-2009. It summarizes the AECp screening and treatment work carried out through three medical tours at a marz level.

5.1. THE ARAGATSOTN MARZ

To carry out screening and treatment, the AECp medical teams and the Mobile Eye Hospital have accomplished three tours in the urban and rural communities of the Aragatsotn marz in 2003, 2005 and 2007. During that time, the AECp on the whole screened 20,750 persons, out of which 52.8 % was the adult population, while 47.2 % were children. In this marz, the screening has been significantly geared towards children.

The AECp services target the rural population who are more deprived of eye care services. The rural population constitutes 68.2 % of the screened.

Table 9. The structure of the screened population in the three tours of the AECp mission in the Aragatsotn marz in the period of 2003-2007.

	AECp first tour in 2003	AECp second tour in 2005	AECp third tour in 2007	Total	
				Absolute number	% in total
AECp screened population	6,962	6,311	7,477	20,750	100.0
out of which					
Adults of working age and above (16 years old and above)	5,803	2,365	2,781	10,949	52.8
Children (up to 16 years old)	1,159	3,946	4,696	9,801	47.2
Male	2,794	2,981	3,486	9,261	44.6
Female	4,168	3,330	3,991	11,489	55.4
Urban population	2,639	1,809	2,148	6,596	31.8
Rural population	4,323	4,502	5,329	14,154	68.2

In the period of 2003-2007, 1,319 persons underwent thorough examination on the AECp Mobile Eye Hospital. Out of them, 552 patients received treatment and laser procedure.



Table 10. The Aragatsotn marz population who underwent thorough examination and treatment on the AECPP MEH in the period of 2003-2007

	AECPP first tour in 2003	AECPP second tour in 2005	AECPP third tour in 2007	TOTAL
Population who underwent thorough examination on the MEH	663	276	380	1,319
Population who underwent treatment on the MEH	300	102	150	552
Out of which**				
Surgery	225	115	120	460
Laser procedure	94	65	38	197

** some patients underwent both surgery and laser procedure

The AECPP has provided 1,924 eyeglasses to the representatives of the vulnerable population and special groups in the Aragatsotn marz.

5.2. THE ARARAT MARZ

To carry out screening and treatment, the AECPP medical teams and the Mobile Eye Hospital have accomplished three tours in the urban and rural communities of the Ararat marz in 2004, 2006 and 2008. During that time, the AECPP on the whole has screened 23,870 persons, out of which 51 % was the adult population, while 49 % were children.

Table 11. The structure of the screened population in the three tours of the AECPP mission in the Ararat marz in the period of 2004-2008.

	AECPP first tour in 2003	AECPP second tour in 2006	AECPP third tour in 2008	Total	
				Absolute number	% in total
AECPP screened population	7,096	14,146	2,628	23,870	100.0
out of which					
Adults of working age and above (16 years old and above)	3,790	5,958	2,506	12,254	51.3
Children (up to 16 years old)	3,306	8,188	122	11,616	48.7
Male	3,176	6,508	978	10,662	44.7
Female	3,920	7,638	1,650	13,208	55.3
Urban population	3,915	3,891	417	8,223	34.4
Rural population	3,181	10,255	2,221	15,657	65.6

In the period of 2003-2008, 2,504 persons underwent thorough examination on the AECPP Mobile Eye Hospital. Out of them, 865 patients received treatment and laser procedure.

Table 12. The Ararat marz population who underwent thorough examination and treatment on the AECF MEH in the period of 2004-2008.

	AECF first tour in 2003	AECF second tour in 2006	AECF third tour in 2008	TOTAL
Population who underwent thorough examination on the MEH	1,200	971	333	2,504
Population who underwent treatment on the MEH	364	364	137	865
Out of which**				
Surgery	315	307	113	735
Laser procedure	61	68	29	158

** some patients underwent both surgery and laser procedure.

The AECF has provided 2,732 eyeglasses to the representatives of the vulnerable population and special groups in the Ararat marz.

5.3. THE ARMAVIR MARZ

To carry out screening and treatment, the AECF medical teams and the Mobile Eye Hospital have accomplished three tours in the urban and rural communities of the Kotayk marz in 2003, 2006 and 2008. During that time, the AECF on the whole has screened 25,115 persons, out of which 53 % was the adult population, while 47% were children.

Table 13. The structure of the screened population in the three tours of the AECF mission in the Armarz marz in the period of 2003-2008.

	AECF first tour in 2003	AECF second tour in 2006	AECF third tour in 2008	Total	
				Absolute number	% in total
AECF screened population	5,062	15,917	4,136	25,115	100.0
out of which					
Adults of working age and above (16 years old and above)	3,995	5,181	4,009	13,185	52.5
Children (up to 16 years old)	1,067	10,736	127	11,930	47.5
Male	2,251	7,334	1,491	11,076	44.1
Female	2,811	8,583	2,645	14,039	55.9
Urban population	3,040	4,524	607	8,171	32.5
Rural population	2,022	11,393	3,529	16,944	67.5

In the period of 2003-2008, 2,405 persons underwent thorough examination on the AECF Mobile Eye Hospital. Out of them, 1,084 patients received treatment and laser procedure.



Table 14. The Armavir marz population who underwent thorough examination and treatment on the AECp MEH in the period of 2003-2008.

	AECp first tour in 2003	AECp second tour in 2006	AECp third tour in 2008	TOTAL
Population who underwent thorough examination on the MEH	1,063	767	575	2,405
Population who underwent treatment on the MEH	574	246	264	1,084
Out of which**				
Surgery	250	189	189	628
Laser procedure	185	79	75	339

** some patients underwent both surgery and laser procedure.

The AECp has provided 1,518 eyeglasses to the representatives of the vulnerable population and special groups in the Armavir marz.

5.4. THE KOTAYK MARZ

To carry out screening and treatment, the AECp medical teams and the Mobile Eye Hospital have accomplished three tours in the urban and rural communities of the Kotayk marz in 2005, 2007 and 2009. During that time, the AECp on the whole has screened 18,949 persons, out of which 50 % was the adult population.

Table 15. The structure of the screened population in the three tours of the AECp mission in the Kotayk marz in the period of 2005-2009.

	AECp first tour in 2005	AECp second tour in 2007	AECp third tour in 2009	Total	
				Absolute number	% in total
AECp screened population	5,423	10,409	3,117	18,949	100.0
out of which					
Adults of working age and above (16 years old and above)	3,016	3,391	2,976	9,383	49.5
Children (up to 16 years old)	2,407	7,018	141	9,566	50.5
Male	2,263	4,956	1,159	8,378	44.2
Female	3,160	5,453	1,958	10,571	55.8
Urban population	3,664	4,551	1,348	9,563	50.5
Rural population	1,759	5,858	1,769	9,386	49.5

In the period of 2005-2009, 2,051 persons underwent thorough examination on the AECp Mobile Eye Hospital. Out of them, 893 patients received treatment and laser procedure.

	AACP first tour in 2005	AACP second tour in 2007	AACP third tour in 2009	TOTAL
Population who underwent thorough examination on the MEH	720	635	696	2,051
Population who underwent treatment on the MEH	353	255	285	893
Out of which**				
Surgery	255	201	235	691
Laser procedure	83	70	70	223

** some patients underwent both surgery and laser procedure.

The AACP has provided 2,270 eyeglasses to the representatives of the vulnerable population and special groups in the Kotayk marz.

5.5. THE LORI MARZ

To carry out screening and treatment, the AACP medical teams and the Mobile Eye Hospital have accomplished three tours in the urban and rural communities of the Lori marz in 2005, 2007 and 2009. During that time, the AACP on the whole has screened 18,569 persons, out of which 68 % was the adult population, while 32 % were children.

Table 17. The structure of the screened population in the three tours of the AACP mission in the Lori marz in the period of 2005-2009.

	AACP first tour in 2005	AACP second tour in 2007	AACP third tour in 2009	Total	
				Absolute number	% in total
AACP screened population	3,951	10,159	4,459	18,569	100.0
out of which					
Adults of working age and above (16 years old and above)	2,803	5,641	4,250	12,694	68.4
Children (up to 16 years old)	1,148	4,518	209	5,875	31.6
Male	1,654	4,061	1,574	7,289	39.3
Female	2,297	6,098	2,885	11,280	60.7
Urban population	1,644	5,883	2,479	10,006	53.9
Rural population	2,307	4,276	1,980	8,563	46.1

In the period of 2005-2009, 2,815 persons underwent thorough examination on the AACP Mobile Eye Hospital. Out of them, 1,165 patients received treatment and laser procedure.



Table 18. The Lori marz population who underwent thorough examination and treatment on the AACP MEH in the period of 2005-2009

	AACP first tour in 2005	AACP second tour in 2007	AACP third tour in 2009	TOTAL
Population who underwent thorough examination on the MEH	1,263	520	1,032	2,815
Population who underwent treatment on the MEH	357	415	393	1,165
Out of which**				
Surgery	334	380	309	1,023
Laser procedure	35	69	103	207

** some patients underwent both surgery and laser procedure.

During the second and third tours, the AACP has provided 4,653 eyeglasses to the representatives of the vulnerable population and special groups in the Lori marz.

5.6. THE SHIRAK MARZ

To carry out screening and treatment the AACP medical teams and the Mobile Eye Hospital have accomplished three tours in the urban and rural communities of the Shirak marz in 2005, 2007 and 2009. During that time, the AACP on the whole has screened 16,834 persons, out of which 86 % was the adult population, while 14 % were children.

Though the population of the marz is main urban, the AACP activities and rendered services have been significantly targeted towards the rural residents, who are more deprived of eye care services. Given that Gyumri – the capital of the Shirak marz, has primary, secondary and tertiary level eye care services, Gyumri was not included in the AACP schedule during the third tour. Hence, the coverage of the marz's urban and rural population do not deviate from the usual proportion, making up 53 and 47% (while the urban population of the marz constitutes around 63 %, according to the National Statistical Service of the Republic of Armenia).

Table 19. The structure of the screened population in the three tours of the AACP mission in the Shirak marz in the period of 2005-2009.

	AACP first tour in 2005	AACP second tour in 2007	AACP third tour in 2009	Total	
				Absolute number	% in total
AACP screened population	7,158	6,446	3,230	16,834	100.0
out of which					
Adults of working age and above (16 years old and above)	5,533	5,936	3,032	14,501	86.1
Children (up to 16 years old)	1,625	510	198	2,333	13.9
Male	4,351	4,156	1,186	9,693	57.6
Female	2,807	2,290	2,044	7,141	42.4
Urban population	4,227	3,588	1,089	8,904	52.9
Rural population	2,931	2,858	2,141	7,930	47.1

In the period of 2005-2009, 2,724 persons underwent thorough examination on the AECP Mobile Eye Hospital. Out of them, 1,153 patients received treatment and laser procedure.

Table 20. The Shirak marz population who underwent thorough examination and treatment on the AECP MEH in the period of 2005-2009

	AECP first tour in 2005	AECP second tour in 2007	AECP third tour in 2009	TOTAL
Population who underwent thorough examination on the MEH	1,263	1,029	432	2,724
Population who underwent treatment on the MEH	357	555	241	1,153
Out of which**				
Surgery	334	431	185	950
Laser procedure	35	151	75	261

** some patients underwent both surgery and laser procedure.

During the second and third tours, the AECP has provided 3,948 eyeglasses to the representatives of the vulnerable population and special groups in the Shirak marz.

5.7. THE SYUNIK MARZ

To carry out screening and treatment the AECP medical teams and the Mobile Eye Hospital have accomplished three tours in the urban and rural communities of the Syunik marz in 2004, 2006 and 2008. During that time, the AECP on the whole has screened 12,928 persons, out of which 56 % was the adult population, while 44 % were children.

Table 21. The structure of the screened population in the three tours of the AECP mission in the Syunik marz in the period of 2004-2008

	AECP first tour in 2004	AECP second tour in 2006	AECP third tour in 2008	Total	
				Absolute number	% in total
AECP screened population	2,859	7,867	2,202	12,928	100.0
out of which					
Adults of working age and above (16 years old and above)	2,219	2,940	2,017	7,176	55.5
Children (up to 16 years old)	640	4,927	185	5,752	44.5
Male	1,110	3,434	832	5,376	41.6
Female	1,749	4,433	1,370	7,552	58.4
Urban population	1,883	4,215	1,091	7,189	55.6
Rural population	976	3,562	1,110	5,648	43.7

In the period of 2004-2008, 1,264 persons underwent thorough examination on the AECP Mobile Eye Hospital. Out of them, 502 patients received treatment and laser procedure.



Table 22. The population who underwent thorough examination and treatment on the AECF MEH

	AECF first tour in 2004	AECF second tour in 2006	AECF third tour in 2008	TOTAL
Population who underwent thorough examination on the MEH	425	495	344	1,264
Population who underwent treatment on the MEH	210	152	140	502
Out of which**				
Surgery	154	144	124	422
Laser procedure	43	18	32	93

** some patients underwent both surgery and laser procedure.

The AECF has provided 1.739 eyeglasses to the representatives of the vulnerable population and special groups in the Syunik marz.

5.8. THE TAVOUSH MARZ

To carry out screening and treatment the AECF medical teams and the Mobile Eye Hospital have accomplished three tours in the urban and rural communities of the Tavoush marz in 2004, 2007 and 2009. During that time, the AECF on the whole has screened 14,210 persons, out of which 65% was the adult population, while 35% were children.

Table 23. The structure of the screened population in the three tours of the AECF mission in the Tavoush marz in the period of 2004-2009

	AECF first tour in 2003	AECF second tour in 2006	AECF third tour in 2008	Total	
				Absolute number	% in total
AECF screened population	4,166	7,352	2,692	14,210	100.0
out of which					
Adults of working age and above (16 years old and above)	2,508	4,022	2,648	9,178	64.6
Children (up to 16 years old)	1,658	3,330	44	5,032	35.4
Male	1,697	3,008	1,012	5,717	40.2
Female	2,469	4,344	1,680	8,493	59.8
Urban population	2,504	2,041	700	5,245	36.9
Rural population	1,662	5,341	1,992	8,995	63.3

In the period of 2003-2008, 1,497 persons underwent thorough examination on the AECF Mobile Eye Hospital. Out of them, 606 patients received treatment and laser procedure.

Table 24. The population who underwent thorough examination and treatment on the AECF MEH

	AECF first tour in 2003	AECF second tour in 2006	AECF third tour in 2008	TOTAL
Population who underwent thorough examination on the MEH	433	640	424	1,497
Population who underwent treatment on the MEH	194	200	212	606
Out of which**				
Surgery	153	151	167	471
Laser procedure	41	57	57	155

** some patients underwent both surgery and laser procedure

The AECF has provided 3,171 eyeglasses to the representatives of the vulnerable population and special groups in the Tavoush marz.

5.9 THE VAYOTS DZOR MARZ

To carry out screening and treatment the AECF medical teams and the Mobile Eye Hospital have accomplished three tours in the urban and rural communities of the Vayots Dzor marz in 2003, 2006 and 2008. During that time, the AECF on the whole has screened 10,047 persons, out of which 62% was the adult population, while 38% were children.

Table 25. The structure of the screened population in the three tours of the AECF mission in the Vayots Dzor in the period of 2003-2008

	AECF first tour in 2003	AECF second tour in 2006	AECF third tour in 2008	Total	
				Absolute number	% in total
AECF screened population	5,158	3,535	1,354	10,047	100.0
out of which					
Adults of working age and above (16 years old and above)	3,424	1,477	1,284	6,185	61.6
Children (up to 16 years old)	1,734	2,058	70	3,862	38.4
Male	2,199	1,564	550	4,313	42.9
Female	2,954	1,971	804	5,729	57.0
Urban population	3,479	1,541	506	5,526	55.0
Rural population	1,679	1,994	848	4,521	45.0

In the period of 2003-2008, 1,071 persons underwent thorough examination on the AECF Mobile Eye Hospital. Out of them 452 patients received treatment and laser procedure.



Table 26. The population who underwent thorough examination and treatment on the AECP MEH

	AECP first tour in 2003	AECP second tour in 2006	AECP third tour in 2008	TOTAL
Population who underwent thorough examination on the MEH	705	192	174	1071
Population who underwent treatment on the MEH	305	72	75	452
Out of which**				
Surgery	252	61	59	372
Laser procedure	79	21	20	120

** some patients underwent both surgery and laser procedure

The AECP has provided 549 eyeglasses to the representatives of the vulnerable population and special groups in the Vayots Dzor marz.



APPENDICES

APPENDIX 1



AACP

Armenian EyeCare Project

Eye Screening Questionnaire

Questionnaire number

Date _____

--	--

day

--	--

month

--	--	--	--

year

Location:

1. Region _____ **(name)**

2. Community_____ (name)

3. Community type ☐ City ☐ Village

Patient's characteristics:

Name _____

Father's Name

Surname

Gender: ☐ male ☐ female

Year of birth:

--	--	--	--

Passport serial number:

--	--

--	--	--	--	--	--	--

Residency:

1. Region _____ 2. Community _____ 3. Address _____
name name street, house, apartment

Tel. number _____

Registered in the Family Allowance System? (mark the answer “Yes”)

Belongs to the list of officially supported vulnerable groups? (mark the answer “Yes”)

Visited AECP doctors during the previous screenings?

1

1. Yes
2. No

If yes, what kinds of services were provided to the patient by AECP? (mark the answers “Yes”)

1. Eye Screening ☐

4. Examination on MEH

2. Eyeglasses Prescription ☐

5. LASER on MEH

3. Eyeglasses ☐

6. Surgery on MEH



Section A. Personal Health and Health Care

A_1. During the last 12 months did you visit a doctor or consult a health professional? ☐

1. Yes → A_3
2. No

A_2. If no, then when did you visit a doctor or consult a health professional the last time? ☐

1. 1-1,5 years ago
2. 2-2,5 years ago
3. 3-4 years ago
4. 5 and more years ago
5. Never

A_3. Have you ever been diagnosed having the following types of diseases/disorders? (mark the answers "Yes")

- | | |
|--|---|
| 1. Cardiovascular <input type="checkbox"/> | 5 Kidney <input type="checkbox"/> |
| 2. Blood <input type="checkbox"/> | 6. Lungs/respiratory tract <input type="checkbox"/> |
| 3. Thyroid gland <input type="checkbox"/> | 7. Arthritis <input type="checkbox"/> |
| 4. Gastrointestinal <input type="checkbox"/> | 8. Other _____ (specify) <input type="checkbox"/> |

A_4. Do you have hypertension/high blood pressure? ☐

1. Yes
2. No → A_9

A_5. If you have it, then for how many years? ☐

A_6. Have your hypertension been diagnosed by doctor? ☐

1. Yes
2. No → A_9

A_7. If yes, did the doctor refer you to the ophthalmologist? ☐

1. Yes
2. No → A_9

A_8. If yes, did you apply to the ophthalmologist according to the referral? ☐

1. Yes
2. No

A_9. Have you ever been diagnosed having diabetes? ☐

1. Yes
2. No → A_13

A_10. If yes, how many years ago? (number of years) ☐

A_11. If yes, did the doctor refer you to the ophthalmologist? ☐

1. Yes
2. No → A_13

A_12. If yes, did you apply to the ophthalmologist according to the referral? ☐

1. Yes
2. No

A_13. Do you observe the following symptoms? (mark the answers "Yes")

- | | |
|---|--|
| 1. Excessive thirst <input type="checkbox"/> | 4. Tingling or numbness of extremities <input type="checkbox"/> |
| 2. Excessive urination <input type="checkbox"/> | 5. Persistent tiredness <input type="checkbox"/> |
| 3. Weight gain or loss <input type="checkbox"/> | 6. No, didn't observe any of above mentioned symptoms <input type="checkbox"/> |

A_14. Do you have blood relatives diagnosed with the following diseases? (mark the answers "Yes")

	General Diseases		Eye Diseases	
	Diabetes	Glaucoma	Cataract	
1 No, I haven't a relative having this disease				
2 Yes, my parents/parent				
3 Yes, my brother/sister				
4 Yes, my grandparents/grandparent				
5 Yes, other close blood relative				

A_15. Please describe your general health condition. ☐

1. Very bad
2. Bad
3. Satisfactory
4. Good
5. Very good

A_16. Do you smoke? ☐

1. Yes
2. No

A_17. Do you drink alcohol systematically? (4-5 times per week). _____ ☐ 1. Yes
2. No

Section B. Eye Health and Eye Care

B_1. During the last 12 months have you had any problems or complaints related to your eyes or vision? _____ ☐ 1. Yes
2. No → B_4

B_2. If yes, did you applied to an ophthalmologist? _____ ☐ 1. Yes → B_5
2. No

B_3. If you had any ophthalmic complaints and didn't apply to an ophthalmologist, then why? ☐
1. The nearest ophthalmologist is too far
2. No time
3. No money
4. Don't trust in local ophthalmologist
5. Other _____/specify/

B_4. When did you visit an ophthalmologist last time? _____ ☐
1. During the last 12 months
2. 1-1.5 years ago
3. 2-2.5 years ago
4. 3-4 years ago
5. 5 and more years ago
6. Never → B_6

B_5. For what purposes did you visit an ophthalmologist last time? _____ ☐
1. Preventive checking
2. Treatment/consulting
3. Surgery
4. Eyeglasses prescription
5. Other _____(specify)

B_6. Have you ever been diagnosed having an eye disease or disorder? _____ ☐ 1. Yes
2. No → B_8

B_7. If yes, what disease or disorder? (mark the answers "Yes")

1. Glaucoma <input type="checkbox"/>	4. Pterygium <input type="checkbox"/>	6. Low vision <input type="checkbox"/>	9. Strabismus <input type="checkbox"/>
2. Cataract <input type="checkbox"/>	5. Fundus <input type="checkbox"/>	7. Nearsightedness <input type="checkbox"/>	10. Other _____/specify/ <input type="checkbox"/>
3. Inflammation <input type="checkbox"/>		8. Farsightedness <input type="checkbox"/>	

B_8. Have you ever had an eye surgery? _____ ☐ 1. Yes
2. No

B_9. Have you ever told by a doctor, that you have to wear glasses? _____ ☐ 1. Yes, for far vision
2. Yes, for near vision
3. Yes, both
4. No

B_10. Do you wear glasses? _____ ☐ 1. Yes
2. No

B_11. If you have an eyeglasses prescription and don't wear them, then why? _____ ☐ 1. Don't help
2. Discomfort
3. Feel shy
4. No money to buy
5. Other

B_12. Why did you come to the screening today? _____ ☐
1. No complaints, just want to be checked preventively → finish
2. Have complaints related to my eyes/vision

B_13. If you have complaints, then what type of complaints exactly? (mark the answers "Yes")

1. Difficulties in reading <input type="checkbox"/>	6. Eye pain <input type="checkbox"/>
2. Worsening of vision <input type="checkbox"/>	7. Eye watering <input type="checkbox"/>
3. Inflammation <input type="checkbox"/>	8. Need eyeglasses prescription/eyeglasses <input type="checkbox"/>
4. Eye itch <input type="checkbox"/>	9. Filling of foreign body in eye(s) <input type="checkbox"/>
5. Discharge from the eyes <input type="checkbox"/>	10. Filling of discomfort in eye(s) <input type="checkbox"/>
	11. Other _____/specify/ <input type="checkbox"/>



AECP Medical Records

Station 1: Visual acuity (VA)	OD	OS
No Globe		

	OD	OS		OD	OS		OD	OS
VA without glasses			VA with pinhole			VA with glasses		

	OD	OS		OD	OS
Refractive error	No R		R		

Station 2: IOP	OD	OS		OD	OS
Palpation is higher than normal	PN		Tonophen measurement	IOP	
Glaucoma suspect	G ¹				

Station 3: Globe, eyelids, cornea and cataract	OD	OS
Disorders of Eyelids	E	
Strabismus	S	
Disorders of the Globe	GI	
Conjunctivitis	Con	
Pterygium	P	
Corneal disorders	K	
Cataract, of which:	C	
Total or mature cataract	CC	

Station 4: Previous eye surgeries	OD	OS
Previous eye surgery, of which:	S _p	
Operated Cataract, of which:	C _p	
Aphakia	A	
Pseudoaphakia	PA	
Fibrosis	Fib	
Operated Glaucoma	G _p	
Operated Cornea	K _p	

Station 4: Glaucoma, Optic Nerve and Fundus	OD	OS
Glaucoma	G	
Non-glaucomatic disorders of optic nerve	N	
Fundus disorders, of which:	F	
Diabetic retinopathy	DR	
Hypertonic retinopathy	HR	
High myopia	M	
Macular degeneration	MD	
Other	Specify	

AECP will prepare Glasses		
Right eye		
Sph.	Cyl.	Ax.
<input type="text"/>	<input type="text"/>	<input type="text"/>
Left Eye		
Sph.	Cyl.	Ax.
<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/> mm		

Treatment:

☐ The treatment was suggested to the patient _____

Refraction and Glasses:

☐ Refracted ☐ AECP will prepare and provide glasses ☐ AECP provided glasses

Referrals to:

☐ MEH for further examination ☐ Local ophthalmologist ☐ Local neurologist
☐ Yerevan, ophthalmologic clinics ☐ Local endocrinologist ☐ Local therapist

Screening team

doctor

Clinical ordin.

Nurse

APPENDIX 2

The “Vision2020” initiated by the World Health Organization and the International Agency for Blindness Prevention, is aimed at significantly reducing avoidable blindness worldwide by 2020. It urges the governments of countries worldwide to elaborate and put into implementation national blindness prevention strategies.

In response to the “Vision2020” call, the RA Ministry of Health, in collaboration with the American University of Armenia and Garo Meghrikian Eye Institute of Preventive Ophthalmology, started the development of the National Blindness Prevention Program (NBPP) for Armenia. To facilitate this process, the Blindness Prevention National Committee was created in 2004.

The Armenian national blindness prevention program reiterates the priorities and goals set in Vision2020 with the consideration of the Armenian reality. It is aimed at coordinating the activities of the governmental and non-governmental bodies and institutions active in eye care delivery, which would allow development of eye care services and effective reduction of blindness in the country. The Program was approved by the Armenian Government in 2006 (02/11/2006, decision # 43-N) and covers the period from 2006-2010.

The Armenian EyeCare Program is among the organizations that have contributed to the implementation of the NBPP in Armenia. The activities of the AECPP comprehensive program refer to each and all of the goals set by the Program. This is documented in the Information Note marking the completion of the NBPP implementation period prepared by the RA Ministry of Health.

INFORMATION NOTE ON THE IMPLEMENTATION OF THE 02.11.2006 #43-N DECREE OF THE GOVERNMENT OF ARMENIA PREPARED BY THE RA MINISTRY OF HEALTH

OVERVIEW

In 2007-2010, in cooperation with the Ministry of Health, the Armenian EyeCare Project, in the framework of the USAID/ACE “Primary and Healthcare Alliance”, has carried out large scale activities, in the regions of the RA marzes, as well as the Republic of Nagorno Karabagh. The results are as follows:



- 131,790 people (including 72,147 children) were screened,
- Out of the screened population, 11,026 persons were referred to the Mobile Eye Hospital
- 4961 surgeries (including 1434 laser procedures) were performed on the Mobile Eye Hospital
- 24106 eyeglasses were provided to the vulnerable population
- 773 family nurses, village and school nurses were re-trained in basics of ophthalmology
- 57 family medicine doctors were retrained in basics of ophthalmology
- 61 regional ophthalmologists underwent intensive professional re-training
- 37 regional ophthalmologist underwent intensive professional re-training
- 349 public education sessions were carried out
- 8814 schoolchildren participated in the public education sessions on eyecare
- 841 communities were visited by the AECP medical teams
- AECP medical mission has been in the marzes for 903 days on the whole.
- The Initiative has developed "National program of the Prematurity of Retinopathy". To start the nationwide program, the AECP is planning international conference "Prevention and Treatment of the Prematurity of Retinopathy in Armenia" on June 28-29, 2010, in cooperation with the RA Ministry of Health, and the United States Agency for International Development (USAID). This international conference will mark the start of the nationwide ROP prevention and treatment program. The AECP has already imported the necessary equipment. During the international conference, the selected Armenian specialists will undergo special training. The renowned ROP specialists will train the Armenian specialists through telemedicine. Thanks to the program, around 100 premature infants will be saved of blindness.
- A "Low vision center", was established in the Kanaker - Zeitun Medical Center (teaching base of the National Institute of Health). The center complies with international standards and allows rendering various services to the RA citizens with visual impairment problems.
- A "Wet Lab" was established and equipped to provide doctors and students with opportunities for surgical practice.
- Developed ophthalmology residency programs and books, as well as improved teaching methods to meet Western standards, as well as authored and published two books "Eye Diseases" (2005) and "Essentials of Ophthalmology" (2007) for primary health care providers and ophthalmologists respectively.
- Prepared guidelines for ophthalmologists, family medicine doctors and village nurses.
- Carried out a cataract surgery monitoring survey in the Mobile Eye Hospital.

A pilot system of cataract monitoring system was introduced in the Malayan Ophthalmological Center.

The works accomplished in line with the objectives defined by the RA government decree are:

Goal 1. Decrease the prevalence of bilateral blindness in population 50 years old and over from 0.5 to 0.2 %

- CATARACT: Increase cataract surgical rate in Armenia from 1,000 surgeries per million population to 3,000 surgeries per million population
- Increase the total number of ECCE+IOL surgeries in the ROUs from 0.03% to 80%
- Decrease % of poor outcomes from 23% to 5 % as per WHO PBL standards
- GLAUCOMA: Double the proportion of glaucoma patients diagnosed at early stages of the disease.
- Increase yearly number of glaucoma surgeries by 30%
- DIABETIC RETINOPATHY: Increase yearly number of diabetic retinopathy patients receiving laser treatment from 120/year to 500/year
- Achieve full coverage of registered diabetic patients with free ophthalmic screening for early diagnostics of life threatening retinopathy.

1.The AECP/USAID Alliance has committed itself to supporting the regional ophthalmological centers and continues its work up to date.

2. To secure effective approaches in the treatment and follow-up of cataract, surgery is performed in the ophthalmologic clinics or the eyecare departments of multi-profile hospitals which have respective license. That secures the professional quality of surgery and follow-up.

In the mentioned institutions the cataract surgery is performed free of charge for the representatives of various vulnerable and special groups. Members of the families that have vulnerability points of 30 and above (family benefit system scoring), persons eligible for free of charge healthcare since they belong to special groups, as well as those solicited by the regional authorities as extremely poor (even though they may not be registered in any of the social systems) are treated on the AECP Mobile Eye Hospital in the regions. The Malayan Ophthalmological Center also renders free services to them as part of charity actions. In special cases, as exception, free of charge surgery for the persons not enlisted in the social groups is carried out at the permission of the RA Minister of Health, with the referral of the RA Ministry of Health.



3. The RA Ministry of Health issued order of #1565- A, dated 29.12.2006, to organize mandatory visits of the specialists from regional/marz centers to villages and settlements (minimum once per month) and “open door days”(minimum twice per year). The schedule of mandatory visits to the villages has been put into effect. In addition, primary health care became free for all groups of the population in all the polyclinics all over Armenia starting 2006.

4. In the period from 2007-2010, the AECp/USAID Alliance has visited total of 850 rural communities, where the AECp medical groups screened total of 41.000 rural residents.

During the visits in the marzes, 3,612 cataract surgeries and/or laser procedures were performed on the AECp Mobile Eye Hospital. At the same time, local specialists participated in the AECp activities in screening and on the MEH, to improve their clinical skills.

5. Extracapsular surgeries with the implantation of the intraocular lens has become mandatory in the regional/marz eyecare centers, if it is not counter-indicated by other diseases. IOLs are provided to the representatives of vulnerable and social groups by the Ministry of Health through various humanitarian sources. The AECp/USAID Alliance provides all services, including the IOLs for free. Extracapsular surgeries with IOL implantation is carried out in all marzes of Armenia. The percent of IOL implants is close to 100%.

6. In accordance with the RA Government # 35 order of 18.09.2009, the “Concept of quality assurance” was developed and submitted for RA Government approval. The Concept would allow overseeing the quality of medical care and all rendered services at all levels (including eyecare).

The AECp has prepared and published a teaching manual “Essentials of Ophthalmology” to improve the knowledge of the specialists.

The requirement of the Government # 1639-N decision is aimed at securing adequate quality, according to which retraining of physicians is mandatory each 5 years.

Therefore, ophthalmologists also undergo continuous education with a revised educational program. Ophthalmologists’ offices in all polyclinics are have equipment to measure intraocular pressure and examine fundus of the eye. The AECp/USAID Alliance carried out cataract surgery monitoring survey on the Mobile Eye Hospital. The pilot program of cataract surgery monitoring system has been introduced in the Malayan Ophthalmologic Center.

7. Glaucoma:

Starting 2008, in accordance with the standards described in the decree of the RA Ministry of Health, (which is a precondition for the state order) it has been defined that screening for early detection of glaucoma should be performed in the framework of mandatory preventive visit.

During the screenings in 2007-2010, the AECP had diagnosed 1,653 cases of glaucoma, 622 out of which were revealed for the first time. All medical ambulatories, offices of family medicine doctors and ophthalmologic offices of polyclinics have an ophthalmoscope, tonometer, the specialists are continuously being retrained and their number makes up total of 1600 specialists.

8 . Diabetic retinopathy

The AECP has performed 400 laser procedures for diabetic retinopathy. In 2008, a seminar “Diabetes and Blindness” was organized with the participation of ophthalmologists and endocrinologists.

Guidelines for the management of diabetes for the primary health care level have been elaborated and are regularly updated. The last modified version has been approved by the RA Ministry of Health.

Goal 2. Reduce childhood blindness and improve children's eye health.

REFRACTIVE ERROR: Achieve full coverage of school age children with free eye screening to detect refractive errors and provide prescribed eyeglasses for those in need ROP :Establish effective ROP control system in Armenia

1. In the marzes of Armenia, due to the lack of pediatric ophthalmologists there, general ophthalmologists deal with children's issues as well.

2. Preventive school screenings are carried out at schools. Parents and teachers of children identified with refraction problems during screenings are alerted of the problem. If the child comes from a vulnerable family, s/he is offered treatment and eyeglasses (received through charity pipelines as well as by the Karageozyan foundation in Yerevan, Syunik, Lori and Shirak marzes).

3. Children's screenings in the marzes that do not have specialized pediatric ophthalmologic services is carried out by the AECP. The AECP medical groups have screened 72,147 children in the RA marzes and Yerevan. .The ophthalmologists and optometrists of «Union Médicale Arménienne de France» (UMAF) have



been working in the remote regions of Armenia and Karabagh providing quality screening and eyeglasses to children.

4. Provision of respective information to the parents whose children have refractive problems - The AEC/USAID Alliance has conducted public education sessions, with the participation of 843 parents, disseminated four types of brochures related to children's eye disorders and diseases, including refraction.

5. It is expected to organize the training of one ophthalmologist per marz related to retinopathy of prematurity by the AEC/USAID Alliance.

6. The AEC/USAID Alliance has acquired two retinal cameras and diode laser for the detection and treatment of the retinopathy of prematurity.

7. Protocols for the screening and treatment of premature and/or low weigh infants have been prepared by the AEC/USAID Alliance and adopted by the RA Ministry of Health. Large scale activities are expected to start in September of 2010.

Goal 3. Strengthen the infrastructure to support blindness prevention efforts throughout the country

PRIMARY EYE CARE: Strengthen primary eye care in the rural areas

Improve primary eye care at the polyclinical level SECONDARY EYE CARE : Up-

grade and equip existing ROUs according to the WHO List*TERTIARY EYE CARE:

Modernize the tertiary eye care in Armenia

1. The program has envisioned establishment of village health points in selected village ambulatories or family medicine offices that would serve as primary ophthalmologic centers (one center per 20,000 inhabitants). For the purpose of saving resources, ophthalmologic offices in the regional polyclinics or medical units, which are furnished with equipment within the World Bank loan program or have received certain support from international organizations (namely the USAID) are viewed as an option of such centers .

2. Starting 2008, in accordance with the standards described in the decree of the RA Ministry of Health, (which is a precondition for the state order) it was defined that screening for early detection of glaucoma should be performed in the framework of mandatory preventive visit. During general screenings in the regional polyclinics, the AEC/USAID Alliance has identified 1730 cases of glaucoma suspect.

3. The upgrade and provision of equipment (including lasers) to the ophthalmic offices in regional polyclinics (RP) is carried out within the framework of the World Bank Health program "Modernization program of regional hospitals".

4. The American University of Armenia, in cooperation with the Lions Club and the Ministry of Health has renovated and equipped an Eye Center in the city of Sevan. It received a MOH license in 2008 and covers the needs of the Gegharkunik population. The renovation of the Vanadzor ophthalmologic center has not taken place.

5. A low vision center was established in the Kanaker-Zeitun Medical Center, which is the teaching base of the National Health Institute. The Low vision Center established by the AECF/USAID Alliance, corresponds to international standards.

Goal 4. Develop human resources to provide appropriate eye care to the population

PRIMARY EYE CARE Reinvigorate primary eye care education in the country;
SECONDARY EYE CARE Strengthen training of ROU ophthalmologists
TERTIARY EYE CARE Upgrade training in ophthalmology to correspond to the standards of International Council of Ophthalmology /International Federation of Ophthalmic Societies (ICO/IFOS) Within the educational component of the AECF/ USAID alliance, family medicine and village ambulatory/FAP nurses) from all the marzes of Armenia took a three-day training course on the basics of ophthalmology; refresher courses were organized for 57 family medicine doctors in the regions; 37 ophthalmic nurses underwent a one week intensive course.

2. The AECF/USAID conducted, in cooperation with the AED, two –week intensive courses for 61 regional ophthalmologists on theory and practical needs, as well as general screening technique for cataract, glaucoma and diabetic retinopathy.

3. The requirement of the NSP to revise curricula of the academic institutions providing education in eye care to correspond to ICO/IFOS standards, is implemented since 2009, in accordance with the decision of the RA Government, whereby all educational programs, including the ophthalmological one, should be in line with international standards.

Goal 5. Increase awareness of blindness as a major public health issue

Conduct a public awareness campaign regarding cataract, glaucoma and diabetic retinopathy for general public. Design and deliver an eye health education campaign for school age children and their parents.



1. The ophthalmology part in the curricula of the family medicine doctors has been enhanced, public awareness materials have been reviewed and revised.
2. The AECP/USAID Alliance has prepared and published total of 600,000 copies of 12 brochures on adults' and children's eye diseases, eyecare and eye safety at home and workplace. The brochures are being distributed during screenings and public education sessions.
3. World Sight Day (second Thursday of October) is being celebrated in Armenia since 2003 thanks to the efforts of the AECP.

Goal 6. Initiate research and development in the field of blindness prevention

Develop tools and guidelines for disease control, health care management, and service delivery Initiate epidemiological and clinical research.

Conduct evaluation of the National Plan and develop policy recommendations for the Government of RA.

1. Data of the patients with diabetes is analyzed as a risk factor for blindness. For this purpose, the RA Ministry of Health has introduced automated registering system "Midas 3", form #02 including diabetes is being filled in.
2. The AECP/USAID Alliance and the RA Ministry of Health have elaborated standards/protocols for village ambulatories and offices of regional ophthalmologists. Such standards are being developed and revised on a yearly basis. They also include organizational aspects of the eye care delivery. The draft of the guideline has been presented by the AECP/USAID Alliance and the RA Ministry of Health.
3. National research on children's blindness and refractive error prevalence among the children of school age is expected to be conducted. The RA MOH has applied to international organizations, including USAID for cooperation in this matter.



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