

# Designing a Screening Program for Prevention of Avoidable Blindness in Iran through a Participatory Action Approach

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## Abstract

**Purpose:** To design a screening program for prevention of blindness at the community level in Iran.

**Methods:** In this qualitative study, the components and properties of the screening program were identified using a participatory action research method with focus group meetings (FGMs) with relevant health care providers and authorities. A content analysis approach was used for data analysis.

**Results:** In total, 18 stakeholders including six ophthalmologists with different sub-specialties participated in the five FGMs. The screening program aims to discover vision-threatening eye conditions in people aged 50 years and over. Primary health care workers deliver the program including vision tests and fundus imaging with the support of an ophthalmic technician. Retina specialists perform decision-making. Referral plans are interacted through an automated digital program. The screening environment, feedback, ethics and medical legal issues are other main components of the program.

**Conclusion:** This study presents the initial concepts and components of a screening program for prevention of blindness in the adult population in Iran. The program has the potential to improve eye health at the community level and may potentially be replicated as a model for similar settings elsewhere.

**Keywords:** Blindness; Prevention and Control; Qualitative Research; Vision Screening

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## INTRODUCTION

Blindness is a major disability and a global health issue as the majority of people with blindness and visual

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impairment (VI) are still suffering from preventable or treatable eye disorders.<sup>[1]</sup> Therefore, efficient strategies should be developed and implemented to eliminate avoidable blindness.<sup>[2]</sup> To achieve this goal, both clinical and non-clinical aspects of care should be taken into account.<sup>[3]</sup>

The prevalence of blindness in Iran among people above the age 50 is considerably higher than that in high income countries.<sup>[4,7]</sup> Although the annual cataract surgery rate has dramatically increased during recent years,<sup>[8,9]</sup> untreated cataract is still the leading cause of impaired vision.<sup>[4,6,7]</sup> Rising numbers of equipped eye hospitals and clinics, qualified professional eye health workforce, and an improved cataract surgery rate are advantages of the current health system,<sup>[9-12]</sup> nevertheless, health seeking behavior among community members and integration of eye care in the primary health care system needs to be strengthened especially for people with lower socioeconomic status.<sup>[10,12-15]</sup> While there are screening programs for children at kindergartens and schools, there is a shortage of comprehensive screening programs at the community level particularly for adults.<sup>[10]</sup> This study was conducted to suggest a community-based screening program for prevention of blindness.

## METHODS

### Setting

We selected a region of 4 districts in the Tehran province named Varamin, Qarchack, Pakdasht, and Pishva with a population of nearly 1 million. We collaborated with local health care providers and authorities in this region to design the screening program considering both scientific and practical solutions in order to improve the probability of future integration of eye health care in the general health system.

### Qualitative Approach

In this participatory action research project, local stakeholders including health authorities and care providers were invited to participate, assuming that a reduction in avoidable blindness would require changes in their practice. Participants were asked to identify important components of a screening program for prevention of blindness, discuss potential perspectives and identify and agree on the preferred properties for each component.<sup>[16,17]</sup>

### Data Generation

The main data were generated through four focus group meetings (FGMs) with a multidisciplinary professional group.

We purposively invited professionals and care providers with the highest variation in professional

background and experience to ensure that research questions would be discussed in depth.

Based on the FGMs with health professionals, an initial draft of the screening program was prepared. To get feedback concerning the screening program from the primary health care workers (PHCWs), we conducted a pilot phase in four health facilities in the studied region. The facilities included two rural and two urban health centers that were randomly selected. In total, the PHCWs performed screening tests and collected information from 240 residents. Subsequently, we conducted the fifth FGM with the PHCWs to discuss experiences of the pilot phase and suggestions for improvement.

### Data Analysis

The moderator made a verbatim transcription of the audio-recordings immediately after each FGM. A sequence of phases was taken to analyze the transcripts. First, a preparation phase that consisted of reading and openly discussing each FGM transcript to obtain a sense of the whole FGM. Then, an organizing phase using a manifest approach starting with an open coding activity.<sup>[18]</sup>

We applied an inductive modality to describe and categorize data. Coding and categorizing were done manually. We followed a content analysis approach for data analysis.<sup>[18]</sup> The final developed materials including modifications after the pilot phase were presented to participants for confirmation.

### Ethical Issues

The study was approved by the Ethics Committee of the Ophthalmic Research Center affiliated to Shahid Beheshti University of Medical Sciences. An informed written consent including permission for the voice recording was obtained from all participants at the beginning of the study.

## RESULTS

In total, 18 stakeholders participated in this study. Participants were six ophthalmologists (with sub-specialties in the retina, glaucoma, the anterior segment and cornea, and strabismus); two optometrists, two ophthalmic researchers with backgrounds in medical education and biostatistics, two health authorities, two community health specialists and four PHCWs.

Various components and strategies in relation to the screening program are summarized in Box 1 and described in more details below.

### Target Group

As shown in Table 1, participants considered various circumstances to identify the appropriate target group for the screening program. Main discussions were around

**Box 1. Summary of inductive thematic categories and scenario building for designing a screening program for improving eye health at the community level in Iran**

Components	Agreed Strategies
Target group	All residents aged 50+, particularly those from disadvantaged regions with limited access to specialty care
Disorders/Outcomes	It is not a disease-specific screening program but six common causes of avoidable blindness in Iran were included: cataract, corneal opacity, uncorrected refractive errors, diabetic retinopathy, glaucoma, and age-related macular degeneration The primary outcome is improving eye care utilization in order to reduce avoidable blindness and severe VI at the community level
Information	The following information is collected for all participants Contact information and demographics Common risk factors, co-morbidities, medication Self-reported vision status Eye care utilization Essential services for avoidable blindness Barriers to eye care utilization
Tests	Test 1: vision test is delivered to all participants Test 2: fundus imaging is performed for all who have acceptable vision
Human resources and tasks	PHCWs recruit eligible residents in the field, obtain medical history, conduct vision test and perform referrals and follow-ups Trained technicians conduct fundus imaging Retina specialists interpret fundus images and make referral plans
Screening environment	Invitation and recruitment to the screening program at the homes of eligible residents Data collection and vision test could be performed either at the homes of participants or at the nearest PHC unit Fundus imaging at the nearest PHC unit Interpretation of fundus imaging by retina specialists at the online reading center
Decision making	All who have unacceptable results of either test at least in one eye will be referred to eye clinics/hospitals for further evaluation Test 1 (vision test) is considered unacceptable if presenting visual acuity is equal or less than 20/40 in either eye Retina specialists in the reading center interpret Test 2 (fundus imaging) and fill Table 4 to make referral plans
Referral plans	Those who have poor quality fundus images are also referred Nearby ophthalmologic clinic(s) or hospital(s) are introduced to those who are referred and need further evaluation People may individually choose their eye clinic Transportation and visit arrangements are provided for the vulnerable Providing further information through a call answering system Referred people are encouraged to have a complete eye exam by an ophthalmologist within 2 months Urgent referral of those who have acute vision threatening signs in their fundus images Follow-up of referrals after two months by PHCWs
Interactions and Feedbacks (method, contributors)	Two-way interpersonal interaction between PHCWs and community members in the field. Two-way interaction between PHCWs and the reading center through mobile applications and the internet One-way interaction between reading centers and community members through SMS
Ethics/Medical legal issues	Voluntary participation and informed consent Data security and confidentiality Supporting vulnerable participants Free of charge screening and minimum cost for further steps Providing PHCWs with training and supervision Monitoring accuracy of screening tests Providing emergency support to manage side effects Timely interaction and feedbacks

PHCWS, primary health care workers

**Table 1. Summary of discussions around possible criteria for selecting target group of the screening program**

Categories	Sub-categories
Demographics	Age Sex Living Area (urban/rural)
Risk factors	Underlying systematic disorders (e.g. diabetes mellitus) Lifestyle (e.g. smoking) Medication history (e.g. corticosteroids) History of eye disorders (e.g. cataract, glaucoma) Recent deterioration of vision Family history (e.g. severe vision loss or glaucoma)
Socio Economic status (SES)	Household SES SES of the living area Education and literacy status Access to insurance
Access to technology	Ownership of mobile phone Access to internet
Available evidence	Evidence published in peer-reviewed journals and recommendations in clinical practice guidelines

whether a specific group defined on single or multiple criteria should be targeted as it may save resources and increase effectiveness, or whether a mass screening program should be rolled out to the general population.

Based on experiences of the local health professionals, the current health system is overloaded with on-going and emerging tasks. Therefore, simplicity of the new screening program in identification and recruitment of the target population was considered important.

The participants also disagreed to limit the target group based on socioeconomic status. However, they argued that priority should be given to the areas with lowest access to eye care services.

In terms of age, the American Academy of Ophthalmology (AAO) recommends that all persons aged >65 with no risk factors should receive eye examination every 1-2 years. Those aged 45-54 and 55-64 years with no risk factors should have eye examinations every 2-4 and 1-3 years, respectively.

Considering the current situation of the health system and available resources and programs for children, participants agreed on the screening of "residents aged 50+" as the target group of this screening program. However, they argued that this issue needs further investigation and could differ based on availability of resources.

### Disorders and Outcomes

Main treatable and preventable causes of VI including cataract, corneal opacity, uncorrected refractive errors, diabetic retinopathy, glaucoma and age-related macular degeneration were considered and discussed.

Nevertheless, it was agreed that this screening program is not a disease-specific program and it is not intended to detect mild cases with insignificant vision threatening signs. The screening program should primarily detect those who are already blind or visually impaired in either eye because they may benefit from timely treatment and/or rehabilitation services or prevention of further progress. The screening program should also detect people who currently have acceptable vision but with signs that may lead to irreversible blindness, because they could benefit from timely preventive strategies. Therefore, rather than a disease specific approach, the primary outcome of the screening program was agreed to be "improving eye care utilization in order to reduce avoidable blindness and severe VI at the community level".

### Information Collection

Participants agreed that in addition to the screening test(s), the program should collect information to inform the following aspects:

- baseline information of vision threatening risk factors and eye health status
- outcomes of eye care utilization and received services for treatment/prevention of common vision threatening eye conditions
- identifying and assessing the barriers for eye care utilization
- support of the decision-making process and individual referral plans.

Considering the strategy of reducing complexity to achieve further popularity and sustainability, the stakeholders tried to include only few important categories as summarized in Table 2 based on medical literature, expert opinions, and the experiences achieved through the pilot phase.

### Tests

To design a screening workflow, the following tests individually and in combination with each other are considered:

1. Interview and verbal risk assessment
2. Visual acuity and refraction
3. External eye examination
4. Slit lamp examination
5. Intra ocular pressure (IOP) measurement using Goldmann Applanation
6. Gonioscopy
7. Automated perimetry
8. Optic disc examination and fundus imaging.

To select the best possible tests in the current study, the following considerations were taken into account:

1. Feasibility of implementing test(s) at the community level



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2. Human resources for performing tests at the community level
3. Availability of equipment and necessary infrastructure for each test
4. Accuracy of tests
5. Outcomes of interest
6. Ethical and legal issues
7. Benefits and harms for community members
8. Health system capacity
9. Minimal cost and burden for community members and the health system
10. Scientific merits and availability of evidence.

The experts decided to include two screening tests in this program that would indicate those who are already visually impaired in either eye and those who are at risk

**Table 2. Summary of information to be collected in the screening program**

Categories	Sub-categories
Contact information and demographics	National ID code – Home address - Phone number – Date of birth Sex - Living Area (urban/rural) - Level of literacy (illiterate/literate, total years of education) – Employment status (employed/unemployed/retired) - Medical insurance (yes/no)
Medical history	Chronic conditions (diabetes mellitus, hypertension) Smoking History of eye disorders (cataract, glaucoma, diabetic retinopathy, retinal disorders, vision loss/blindness) Family history (e.g. severe vision loss or blindness in first-degree relatives)
Self-reported vision status	Use of spectacles for near and/or distance vision Difficulty in near and/or distance vision even when they use their own spectacles (answers: no difficulty-little-moderate-severe-unable to see)
Eye care utilization	Last eye examination by an ophthalmologist Last vision test by an optometrist
Essential services for avoidable blindness	Cataract surgery – refractive services – laser therapy/injection for diabetic retinopathy - laser or eye drops for glaucoma – retinal surgery
Barriers	Financial problems - Lack of information/recommendation about eye care Insufficient insurance - Fear of medical and surgical treatments Time constraints - Co-existence of other health issues - No company- No symptoms - Geographic access/ transportation - Lack of trust/ patient-physician relationship

of severe VI in the near future: visual acuity and fundus imaging [Figure 1].

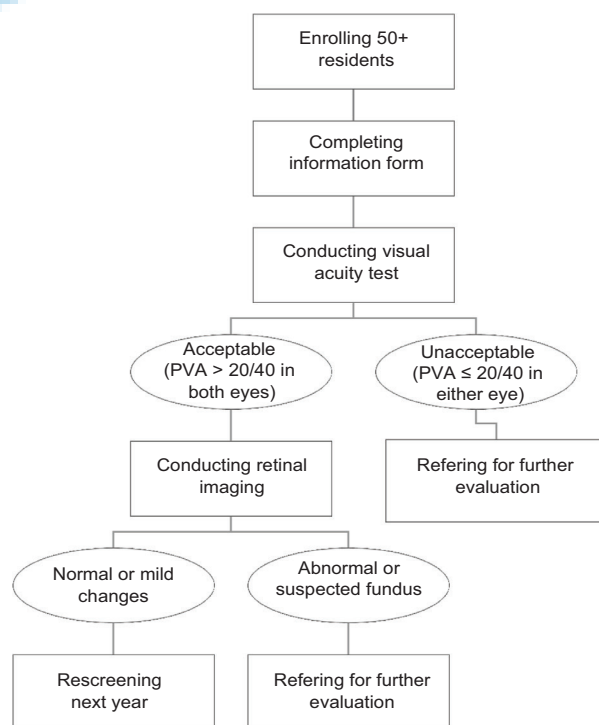
**Human Resources and Tasks**

Based upon the selected screening tests, participants considered different scenarios to identify human resources and tasks. Table 3 shows advantages and limitations of selecting different human resources that may vary in different settings and over time. For the sustainability of the screening program, feasibility, affordability, and validity of the results were important criteria. Stakeholders agreed that “PHCWs” are the best eligible group for delivering the screening program to people. However, there are other tasks in this program that are performed by mid-level (ophthalmic technician) and high-level (retina specialist) eye care professionals.

**Screening Environment**

It was agreed that the process of the screening program may follow different schemes depending on the situation of the PHC unit and method of the screening tests because during the pilot phase some challenges emerged with instillation of mydriatic eye drops and fundus imaging at the homes of residents.

However, it was consistently agreed to acquire information and vision test at the living place of the target population in both urban and rural settings. Consequently, if fundus imaging is necessary, it will be performed at the nearest PHC unit by a trained technician.



**Figure 1.** Workflow of the screening program.

**Table 3. Benefits and restrictions of different scenarios for choosing the best possible screener**

	Benefits	Limitations
Self-administration by participants or their family members	Less expensive Can be used by wide range of people and may increase participation rate Less logistic preparation for data collection	Literacy level of participants may be inadequate Extensive training is needed to follow the instructions It is challenging to achieve standard of screening tests Missing or invalid information will increase
Primary health care workers (PHCWs)	Possibility of close interaction with the local community More awareness of other related health issues Standard and homogenous training for data collection and vision test could be achieved Follow-ups are facilitated Higher probability of strengthening referral pathways and integration into the general health system	Overload of emerging tasks in the PHC system may create resistance in accepting this new screening program Achieving the skill for fundus imaging is a challenge
Local optometrists	Training has been already achieved for vision test Acquiring the skill for fundus imaging is more convenient Standard of tests are assured Refractive services and dispensing could be simultaneously delivered	More expensive Distance to the rural and outreach areas reduces the response rate Communication with the local community is more difficult Integration into the general health system is less probable

## Decision Making

The local PHCWs are trained to perform a visual acuity test and refer those with an unacceptable presenting visual acuity (PVA). An unacceptable PVA was considered as a PVA of  $\leq 20/40$  in either eye of a person. In other words, individuals with bilateral as well as unilateral VI are referred after the first test. This cut off-point was achieved through consensus between the local ophthalmologists to detect all eyes that are already visually impaired (PVA  $<20/40$ ), eyes that are close to VI (PVA= $20/40$ ) and preventing vision loss in the other eye of people who have a unilateral irreversible condition.

There was discussion about whether all individuals with any level of none-optimal vision (PVA  $<20/20$ ) in either eye should be referred. However, this argument was not agreed upon considering the following issues: cost, avoiding overload of referral centers at the beginning of a new program, and prioritizing those who are at higher risk over those who have a mild situation. However, it was argued that further evidence-based information is needed to set the minimum level of acceptable vision for the future of this program.

There were also discussions about patients who present with a history of irreversible VI. There may have been people who were blind for many years and were told that their problem is irreversible. This group of people should also be referred to confirm that their VI is irreversible. They could also benefit from rehabilitation modalities and with emerging methods and treatments, the progress of some causes particularly in the other eye could be managed.

Those who have acceptable PVA in both eyes will receive the second test. In these cases, a retina specialist will review fundus images and collected information to set a referral plan based on whether the person is at risk of blindness or low vision. Table 4 demonstrates the checklist for review of fundus images.

## Referral Plan

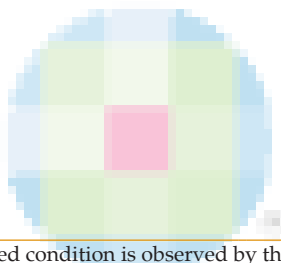
The preferred place for referrals incurred some local considerations. Essential ophthalmology services are covered by medical insurance in Iran; however, patients' costs depend on the type of care provider and the insurance scheme. In addition, indirect costs from transportation and wait times at public referral centers are among challenges for getting specialty care at a reasonable price. Therefore, it is important to refer people to a place where they can afford direct and indirect costs and get quality services.

The site could vary depending on socioeconomic situations and availability of funds, insurance, time, and company. Therefore, it was decided to recommend people to make an appointment with an ophthalmologist where it is most convenient for them and provide extra information and support for those who are not able to get appointments.

The other main category under the referral plan was the time interval between receiving screening results and having an appointment for further evaluation at a referral site. Stakeholders considered medical and legal issues as well as the density of the waiting list in local settings and they agreed on a maximum of a two-month interval between getting results and having an appointment with

**Table 4. Checklist of questions for evaluating the fundus images by a retina specialist**

Part 1. Content of images		Part 2. Quality of images		Part 3. General evaluation			
	OD	OS	OD	OS	OD	OS	
Optic disc			Good (Part 3)		Normal (not refer)		
Macula			Acceptable (Part 3)		Suspect (Part 4)		
Field of view	%	%	Poor (refer)		Abnormal (Part 4)		
Part 4. Detailed fundus evaluation and referral plans							
Main findings			OD	OS	Referral plan		
					None	Non-urgent	Urgent
Media haziness							
Age-related macular degeneration (ARMD)							
Diabetic retinopathy (DR)							
Hypertensive Retinopathy							
Glaucomatous Optic Neuropathy (High cup/disc ratio & peripapillary atrophy)							
Branch retinal vein occlusion (BRVO)							
Central retinal vein occlusion (CRVO)							
Retinal Detachment & Proliferative Vitreoretinopathy (PVR)							
Chorioretinal Scar							
Retinitis Pigmentosa (RP)							
Papilledema							
Optic Atrophy							
Congenital Disc Anomalies (Coloboma/Pit)							
Macular Dystrophy							
Old central serous chorioretinopathy (CSCR)							
Choroidal Coloboma							
High Myopia							
Epiretinal Membrane & Macular Pucker							
Other (comments)							



All empty cells will be filled by check marks if the related condition is observed by the retinal specialist

an ophthalmologist. Those with acute vision threatening signs in their fundus images should be informed to have an urgent referral.

### Interactions and Feedback

Language, culture, cost, ethical and legal issues, availability of technology, and the level of literacy within the target group were important elements to choose the content and method of feedback.

Three different contents were initially planned: feedback to those who are referred based on vision tests, feedback to those who are referred based on fundus evaluation, and feedback to those who have acceptable screening results in both tests. A fourth content emerged during the pilot phase. which was an advice concerning lifestyle and general health care to those who have some clinical finding in their fundus photography, but they do not require further care immediately.

There were also discussions around the length and form of the feedbacks. In general, participants discussed two forms of the same feedback, a short and a long message. The short message is more appropriate to be

sent via SMS or other similar means as a reminder or a short notice. Nevertheless, considering medicolegal issues, patient-centered care, and promotional aspects that need further elaboration, it is also necessary to give comprehensive feedback to people. The long content of each feedback consists of the following items: name, date of the screening program, the aim of the program, the result of tests, referral plan including appointment time and location, the phone number through which further support and information may be sought, and the name of the responsible organization.

In order to get to an efficient method for communicating the result of screening with all those who participated in the program the following methods were considered and discussed:

- Face-to-face
- Text message
- Video message
- Voice message
- Email
- Web-based software (internet)
- Mobile application (mHealth).

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In terms of interaction between different professional roles in this screening program as it is illustrated in Figure 2, PHCWs refer those who have inappropriate vision test and may therefore give their feedback directly after the test. Retina specialists communicate further referral plans through the internet and SMS services. The local PHC centers have the key responsibility of communicating feedback to people and following those who need further evaluation.

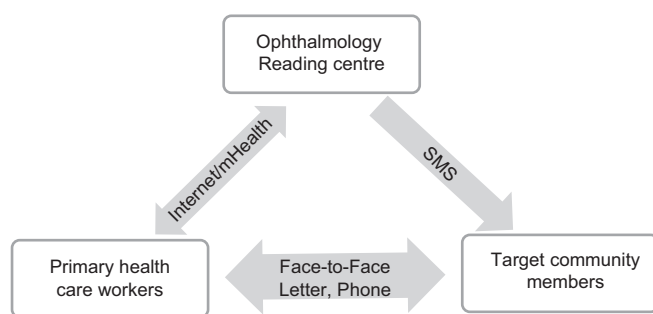
### Ethical and Medicolegal Issues

The ethical and legal issues were clearly important in choosing strategies for different parts of the screening program. Different sub-categories in this theme were:

- Participation in the screening test is voluntary
- Informed consent will be taken from participating community members
- Screening will be delivered free of charge
- Further evaluation and treatment will be totally or partially reimbursed by medical insurance
- PHCWs and retina specialists are provided with secure login information to get access to screening forms and results
- Vulnerable participants will be supported to receive proper treatment
- PHCWs receive initial training and regular supportive visits
- Monitoring accuracy of screening tests by providing specificity, sensitivity, and positive and negative predictive values
- Providing emergency support to those who get side effects due to pupil mydriasis
- Minimum time-lag between screening and notification of the result as some conditions may need urgent treatment and some people may suffer from anxiety while waiting for the result
- Fundus images and other data will be encrypted and transmitted to a secure place.

## DISCUSSION

The WHO recommends considering 10 criteria introduced by Wilson and Jungner for evaluating the necessity of



**Figure 2.** Interaction methods to communicate the feedback of the screening program.

routine screening for a health problem.<sup>[19]</sup> Box 2 presents the relevance of our suggested screening program to each of those criteria.

Although blinding eye disorders are not routinely screened at the community level in many countries, there are examples of successful screening programs or models in this field. The Misión Milagro initiative particularly in Latin America and the Sankara Nethralaya Mobile Teleophthalmology Mode in India have provided screening and surgery for cataract to show the feasibility of delivering care in a relatively short time for disadvantaged populations.<sup>[28,29]</sup>

Preventive strategies may also be relevant to high-income countries; a study in the Netherlands showed that more than half of the causes of VI in this country were avoidable. Therefore, the investigators suggested redistribution of tasks between care providers and delivering a vision screening program to the vulnerable elderly population.<sup>[30]</sup> Glaucoma screening at the general population level has been considered in the UK.<sup>[31]</sup> Furthermore, there are active screening programs for diabetic retinopathy in several countries including the UK and Canada.<sup>[26,32]</sup>

The primary health care system in Iran has an extended network with a high coverage in rural areas.<sup>[33]</sup> It traditionally provides free of charge PHC services including vaccination and prenatal care. Attempts have been made to integrate some non-communicable disorders like diabetes, nutrition and mental health into this system in recent years. However, primary eye care services for the adult population are not yet established and integrated into the PHC system.<sup>[10]</sup> As a consequence, there remains a high proportion of avoidable blindness in this country.<sup>[4]</sup> We propose this screening program, which can improve eye care utilization and integration of eye care services into the PHC system through the local PHC units.

Both conventional and modern methods can be considered for delivering this screening program. Mobile technology has been recently improved for measuring visual acuity,<sup>[24]</sup> fundus imaging,<sup>[25]</sup> and strengthening data collection and interaction between different care providers.<sup>[34]</sup> With a great number of mobile phone users, it may provide a less expensive, more convenient and extended platform<sup>[35]</sup> that may be beneficial for prevention of blindness. However, rigorous evaluations are needed to determine the efficacy and best practice models compared to conventional methods.<sup>[35,36]</sup>

We used a PAR method in this study as it is a relevant method for designing new interventions particularly when changing the practice in a specific setting is the ultimate goal. However, it may reduce the generalizability of the results to other contexts.<sup>[17]</sup>

It is possible that some elements of the current study have been subjectively affected by the reflexivity and preconceptions of the researcher as a limitation of qualitative studies, however, we tried to minimize this bias



**Box 2. Evaluation of the necessity of the screening program for prevention of blindness in adults in Iran based on the Wilson and Jungner criteria**

Criteria	Relevance to the program
1) Importance	According to the WHO, blindness is a global health issue particularly in LMICs. <sup>[1,2]</sup> 80% of causes of blindness are avoidable, in other words, they could be effectively prevented or treated. <sup>[20,21]</sup> There is a high proportion of avoidable blindness in the selected setting, too. <sup>[4]</sup>
2) Effectiveness of treatment	The prevalence of blindness and low vision in high-income countries is much lower than in LMICs. This suggests that there should be effective strategies to reduce the burden of blindness. Cataract surgery is the most cost-effective way of restoring sight. <sup>[22]</sup> Nevertheless, untreated cataract is still the most common cause of blindness and second cause of low vision globally and in Iran. <sup>[4,20]</sup> There are also effective strategies to treat or slow down the progress of other common causes of avoidable blindness including uncorrected refractive errors, diabetic retinopathy, glaucoma, and age related macular degeneration. <sup>[23]</sup>
3) Availability of treatment	Recent studies showed that the facilities for diagnosis and treatment of blinding eye disorders are available in Iran. <sup>[10,11]</sup>
4) Recognizable latent phase	Blindness due to preventive causes including glaucoma, DR, and corneal opacities have recognizable latent stages and it is possible to control their progression through effective preventive strategies. <sup>[23]</sup>
5) Availability of tests	There are conventional and new methods to test visual acuity and conduct fundus imaging <sup>[24,25]</sup> and relevant resources are available in Iran. <sup>[10]</sup>
6) Acceptance of test	The tests (visual acuity and fundus imaging) are among acceptable, routine and safe ophthalmologic tests. There are no cultural or social barriers for conducting these tests. Although instilling mydriatics may cause rare side effects, <sup>[26]</sup> stepwise evaluation, instructions and emergency ophthalmic care is provided in this program to reduce and manage side effects.
7) Known natural history	The natural history of the main avoidable causes of blindness are adequately understood. <sup>[23]</sup>
8) Agreed treatment policy	There are approved clinical practice guidelines available to the local ophthalmologists to treat avoidable causes of blindness.
9) Cost	Reducing disabilities from VI through preventive and curative strategies decreases the economic burden on society and health system and improves the quality of life and productivity of patients, <sup>[27]</sup> however, further local evaluation is needed.
10) Follow up services	This is an annual screening program and those who are referred will be followed after 2 months of receiving the feedback.

WHO, World Health Organization; LMICs, low- and middle income countries; DR, diabetic retinopathy; VI, visual impairment

by maintaining a neutral position, ensuring participants' confidentiality and considering every response.<sup>[37]</sup>

The concept and the method used in this study are pioneers in its setting and by evidence consolidation and further studies, we hope to get closer to the objectives of the Vision 2020 initiative.<sup>[2]</sup> It is necessary to test the program on a larger scale in a complex interventional trial which will hopefully contribute to establish a robust and sustainable program. In particular, more evidence is needed to identify the minimum age of participants, the minimum level of acceptable vision, accuracy and likelihood of screening tests to detect blinding eye conditions, task redistribution between different contributors, the best interaction method, and the cost of case finding in this program (including diagnosis and treatment of referred participants).

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### Conflicts of Interest

There are no conflicts of interest.

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