

Eye Care: Where We Are?

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The prevalence and disabling effects of eye diseases such as cataract, glaucoma, age-related macular degeneration, and diabetic retinopathy increase as the population ages. Therefore, the main outcome in modern ophthalmology is not only recovered vision, but dominantly will be preservation of vision. To achieve this goal, we need to heighten not only our diagnostic and therapeutic (surgical, laser, pharmacological) armamentarium, but also at the same time develop simultaneously cost-effective measures directed to quickest visual recovery from one hand, and from the other hand – easily conducted time-saving wide spread eye examinations for early detection of any of ocular abnormalities. The last one represents screening, which will have a priority, taken into account an economical burden worldwide. Screening definition in medicine, is a strategy used in a population to identify the possible presence of an as-yet-undiagnosed disease in individuals without signs or symptoms. This can include individuals with pre-symptomatic or unrecognized symptomatic disease [1]. Screening can also be defined as the examination or testing of a group of individuals to separate those who are well from those who have an undiagnosed disease or defect or who are at high risk [2].

One of subtypes of screening is Multiphasic Screening underscoring a feasibility of screening undertaken for one or more diseases at the same time [1], related to ophthalmology the following diseases will be covered - glaucoma, age-related macular degeneration, and diabetic retinopathy. This approach will have a high patient-oriented and economic impact in eye care.

In case of diabetes currently available findings obviate that early treatment of diabetic eye disease offers the best long-term outcomes and reduces risk of progression. The same is spreading on glaucoma. Development in information technologies is accompanying the progress in ophthalmology. Digital Retina Cameras or Digital Fundus Cameras are used to capture images of the interior surface of the eye. Many of these Digital Retina Cameras boast features like angle variations, color, red-free and angiography imaging, high grade LCD monitors. These images of the retina, optic disc, macula and posterior pole are digital, which enables quick transfer and detailed image study as well as side-by-side image comparison and longitudinal tracking over time, but the main disadvantage is a high cost. The latest advance in examination of the retina is represented by the innovative D-EYE Portable Eye and Retinal Imaging System- Fundus Smartphone Adapter easily attached to an Apple or Samsung smartphone, creating a ophthalmic camera for vision care screening and evaluation [3]. D-EYE Portable Eye and Retinal Imaging System is a portable Fundus Camera -digital ophthalmoscope. D-EYE uses the camera and the light source from the Smartphone, illuminating the interior of the eye for examination. Redirecting the light path through the D-EYE lens eliminates corneal glare, a common problem when using a standard ophthalmoscope. Selecting the type of exam (video or multi-shot), type in the patient name and begin the exam. Upon completion, the exam will be stored in the encrypted D-EYE App for later assessment. This device does not require any physician. A photo could be taken by technical worker. Thus, modern non-invasive, time-saving, cost-effective retinal exam could be incorporated in routine practice of general practitioner.

The latest advances in software were presented in automatic detection of diabetic retinopathy [4,5].

Summarizing, eye diseases screening algorithm should include retinal photo taken at the family doctor's office, sent to be analyzed first by comprehensive software, selecting patients and cases requiring immediate attention of ophthalmologists in respective subspecialties with subsequent monitoring disease progression, providing timely follow-up examinations and management. Our suggestions may be

important from a public health perspectives since they could highlight the effect of interprovider communication including general practitioner, ophthalmologist and communication with patients, opening a window to family screening and preventive therapy with particular relevance to aforementioned visually debilitating conditions.

In conclusion, having an awareness of current diagnostic tests and best practices - can be key to timely identifying ophthalmo-vulnerable population and treating it, which is vital for optimizing patient management and outcomes.

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