

President's Insights February 2021

Recently I asked myself, what could we do to better detect and diagnose glaucoma, especially in resource poor countries around the world?

According to the World Report on Vision, 64 million people globally have glaucoma and of those almost 7 million are reported to have moderate or severe distance vision impairment or blindness. If detected, diagnosed, and treated the vast majority of these people would not have lost their vision. The vast majority of cases would have been prevented.

We all know that the two most important causes of preventable vision loss are uncorrected refractive error and cataracts. Uncorrected refractive error can be detected in any number of ways by optometrists, ophthalmologists, and trained volunteers. There are affordable screening devices and auto-refractors. There are inexpensive and efficient screening protocols. When it comes to refractive error, we know what to do, we just have to do it. You could call uncorrected refractive error the "low hanging fruit" or the most affordable and efficiently method of reducing suffering due to visual impairment with little to no risk to the patient. This fact inspires me every day.

Cataracts can be detected with a penlight, retinoscope, ophthalmoscope, or slit lamp. Usually, it's not that difficult. The challenge is arranging for cataract surgery. Ophthalmologists have created the Manual Small Incision Cataract Surgery (MSICS) technique to safely and relatively inexpensively complete the surgery. In the most efficient volunteer-based program, the surgery takes about 5 minutes and costs \$15. But we are so behind, so inundated with new cataracts every day, that people live their lives without ever accessing this important intervention.

Glaucoma is entirely different. As we know, glaucoma is a degeneration of the optic nerve. In most cases, it is painless and very slow to progress, meaning that the patient has no signs or symptoms. Once the patient has signs or symptoms, they are well on their way to being visually impaired or blind. To detect glaucoma we need to evaluate the optic nerve and in a resource poor situation, that is not often easy to do.

Dilating the pupil is the safest and most efficient way to visualize the optic nerve using an ophthalmoscope. We look at optic nerve size, contour, cup-to-disc ratio, and pallor. But even a good view will not confirm the diagnosis. A visual field assessment is important and the best instruments cost tens of thousands of dollars. An optical coherence tomography (OCT) of the nerve fiber layer can be important, but once again, those instruments cost tens of thousand of dollars. Intraocular pressure (IOP) can be measured fairly easily, and that is an important step, but IOP tells only part of the story. People go blind from normal tension glaucoma, that is, optic nerve degeneration in people with normal IOPs.

Many countries do not allow optometrists to dilate the pupil. Even if the diagnosis of glaucoma were made, only a handful of countries allow optometrists to treat glaucoma with eye drops and there are too few ophthalmologists to address the issue in any real way.

This is why, according to the World Health Organization, glaucoma is the second leading cause of blindness in the world after cataracts. Blindness from glaucoma is 6 to 8 times more common in people of African descent as compared to Caucasians. In the United States, African Americans are 15 times more likely to be visually impaired from glaucoma than Caucasians. Proyecto VER in Tucson, Arizona showed that people of Mexican American heritage also have higher risk than Caucasians. Other high-risk groups include people over 60, people with diabetes mellitus, and people who are highly myopic. We have big segments of our population that are at higher risk of glaucoma, and they tend to be the same people that are economically disadvantaged and suffer from access to health care.

I would be interested to hear your ideas on how to best detect, diagnose, and treat glaucoma, especially in resource poor environments. I do not see any easy and quick path forward. But I have some good news, I believe. The best path forward is to continue doing what we are doing. We must continue to develop eye care capacity steadily and sustainably all around the world. This is precisely the work that VOSH/International is doing in its support of developing optometry schools in Vietnam, Haiti, Africa and Latin America. The growing work force of well-trained optometrists will be able to address glaucoma, especially as licensure laws are enacted and broadened as training improves. Optometrists are becoming and will be more and more important in preventing visual impairment and blindness all over the world.

<https://www.who.int/publications/i/item/world-report-on-vision>

<https://www.seeintl.org/glaucoma/?gclid=Cj0KCQiA1KiBBhCcARIsAPWqoSoYcp1I1BRjtDqKmMoBfEfYKOfLhHueRbkN5WoIggBLOYJrTimE UaAmhQEALw wcb>

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5961221/>

Proyecto Ver: <https://pubmed.ncbi.nlm.nih.gov/11735794/>

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