"How to Broaden the Availability of Eyeglasses Worldwide?"

Council on Foreign Relations Global Health Roundtable

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The World Health Organization estimates that 333 million people are blind or visually impaired[1], and that 153 million, or nearly half of the global burden of blindness and vision impairment, is due to uncorrected refractive error.[2] The WHO measurement of refractive error encompasses myopia (nearsightedness), hyperopia (farsightedness), and astigmatism. Not included in this estimate are 150 million people with presbyopia, age-related farsightedness, which puts the total global burden of visual impairment due to lack of eyeglasses at 303 million.[3] An estimated 90% of people with uncorrected refractive error live in low and middle income countries.

For over half a century, eyeglasses have enabled individuals to see more clearly, improving their potential for academic success, enhancing productivity in the workforce, and helping to avoid life-endangering accident and injuries. Yet, today, eyeglasses still do not reach the majority of the population in need in poor countries. Why has such a simple, relatively inexpensive and politically neutral health intervention been so under funded and underutilized in poor countries?

On October 9th 2007, The Global Health Program at the Council on Foreign Relations brought together key representatives from industry, philanthropies, academia, health and the public sector to discuss the how to broaden access to eyeglasses worldwide. The roundtable was chaired by CFR Senior Fellow for Global Health, Laurie Garrett, Jordan Kassalow, Liliana Riva-Clement, and organized in collaboration with Puneet Sapra. The event was the last in the series "*Can U.S. Foreign Aid Support What Works for Global Health*?" developed with the Global Public Health Practice at McKinsey & Company to examine proven technologies that are known to be life-saving, but are not yet in widespread use in poor countries.

Magnitude of issue

The World Health Organization recently included refractive error in its calculations for the global burden of blindness and impairment, bringing vision problems from 9th place globally to the 3rd place as one of the leading causes of disease and disability worldwide. Refractive error makes up the largest percentage of overall vision problems, is the easiest of all vision impairments to treat, and is also one of the most cost-efficient of eye care interventions. The cost of the elimination of blindness and impaired vision due to uncorrected refractive error has been estimated at US$5 per person in need of eyeglasses, including the development of the necessary infrastructure, training of necessary personnel, and supply of glasses.[4] The cost

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[1] Resnikoff S, Pascolini D, Etya'ale D, Kocur I, Pararajasegaram R, Pokharel GP, Mariotti SP. Global data on visual impairment in the year 2002. Bull World Health Organ 2004; 82: 844–851.
Medline, ISI

[2] Sight test and glasses could dramatically improve the lives of 150 million people with poor vision. 2006 [cited 2007 April 6]; Available from: http://www.who.int/mediacentre/news/releases/2006/pr55/en/index.html.

[3] Holden B. Uncorrected refractive error: The major cause of global visual impairment. IAPB News 2006; 51: 3–5.

[4] Holden, Brien A Blindness and poverty: a tragic combination. *Clinical and Experimental Optometry* 90 (6), 401-403., Schlenther G, Holden B, Layland B. Unpublished report. International Centre for Eyecare Education.

of providing eye care to the 300 million people who are blind or visually impaired because of uncorrected refractive error by the year 2020 would be $1.5 billion dollars, a mere $115 million a year for the next 13 years.[5]

Beyond financing and delivery, some of the primary obstacles to provision of eyeglasses to those who need them are the lack of eye care services and affordable eyeglasses in poor countries. A recent study conducted in Sub-Saharan Africa found that more than 80 per cent of the population between the ages of five and 93 years who needed eyeglasses had never had an eye examination.[6] Another study found that 90 per cent of the people seeking eye care in poverty-stricken areas in Sri Lanka had similarly had no previous eye care.[7]

One panelist emphasized that capacity and affordability are issues not only in developing countries, but also here in the U.S. "We don't have the capability to provide eye exams to every child in Boston, let alone every child in the developing world. Yes, we have problems in the developing world, but we also have problems two blocks away from where we are stilling right now [in the US]."

Having a large population unable to see clearly has a severe impact on the productivity of individuals, their family, their community, and the overall GDP of a nation. But there is a dearth of research and data that measure the loss of productivity due to vision impairment. "Although these links are fundamentally and anecdotally evident we really need scientific data to link up and show how improved vision leads to improved economic outcomes", said another panelist. "One challenge is that there is currently no effective way to incorporate the loss of productivity of people who work in the informal sector into their calculations."

"Our challenge through demonstration projects is to show when you do something about vision impairment, it can have big impacts," said Dr. Leon Ellwein, of the National Eye Institute, National Institutes of Health. But even something as seemingly simple as documenting the correlation between vision improvement and academic achievement in school can be immensely difficult. "A lot of factors effect school performance and there are a lot of complications that come in when following children over time," said a panelist. "It is very difficult to sort out all the things that can get in the way of a child's educational attainment– disentangling the effect of eyeglasses can be very complicated – but it ought to be done."

Also lacking is a universally agreed upon understanding of what the optimal vision level is for adults and children. "The real problem is when we start thinking about correcting refractive error, we don't know where to make the cut points – what is optimal? Where do we see the greatest improvement in function? What is functional vision – what is important for a child to be able to see in terms of educational output, socialization, in terms of some metric that says that we are going to correct to that level. It is extremely difficult to assess the magnitude of the problem because there is not a standard metric that is universally recognized," said a participant. What may be most valuable to policy maker is to have a cost

[5] Brien A Holden OAM DSc PhD BAppSc LOSc FAAO FVCO DCLP DSc (2007)
Blindness and poverty: a tragic combination Clinical and Experimental Optometry 90 (6), 401–403.
[6] Naidoo K. Poverty and blindness in Africa. Clin Exp Optom 2007; 90: 425–421.
[7] Holden, Brien A Blindness and poverty: a tragic combination. *Clinical and Experimental Optometry* 90 (6), 401-403. doi: 10.1111/j.1444-0938.2007.00217.x

effectiveness analysis of interventions that examines that cost of burden versus the cost of alleviation – this would include looking at cost of screening, prescription, manufacturing of eyewear and distribution. Ultimately, a panelist said, “we will need to compare the cost of that set of activities with the benefits that they accrue in the form of increased productivity, decreased informal and medical care, and deaths and disability averted.”

Without standard measurements or solid data to prove the links between vision and productivity, it is difficult for policy makers, ministers of health, or private philanthropists to prioritize correcting vision over other, better documented, life-saving/improving health interventions.

As one participants explained, “requests for data from Congressional staffers interested to get peer-reviewed scientific citations to back up claims made by advocate visitors to the Hill are not infrequent, and hence scientific evidence to substantiate the need, together with data to prove its value, should motivate additional support and consumer demand both here in the US and abroad. However, in the field of vision research, there is increasing pressure to focus limited research funds on understanding the scientific basis of debilitating age-related eye diseases and less attention devoted to learning more about conditions, such as refractive error, for which, while of public health importance, there are "readily available" therapeutic options.”

"How do we go from here, if there is no here to go from,” commented a participant. If we have no baseline data to measure the impact and no solid understand of the magnitude of the problem, how do we rally advocacy and funding to solve the problem?”

Innovative Solutions

Although the magnitude of the problem and the full impact of vision impairment on human productivity has not been concretely linked, solid technical and medical interventions do exist to treat or prevent 80% those with vision impairment. The challenges of correcting refractive error of millions of people around the world is finding innovative ways to provide access to eye exams, consistent supply and financing of eyeglasses.

A number of non-governmental organizations, philanthropists, governments and industries have created innovative programs to try to expand access to eyeglasses for people in developing countries and underserved areas of the U.S.

Gift of Sight, a charitable foundation created by Luxottica, one of the world’s largest producers of eyewear collects used eyewear, and with teams of volunteers and optometrist, provides free eye exams and eyeglasses to thousand of individuals during two weeks mission in developing countries. Charitable foundations provided one of the first models of how to expand eyewear to developing countries, and with international partners such as the Lions Club, have examined and fitted a significant number of people with eyeglasses. A challenge to this charitable model is finding a way in which the work accomplished during these two week missions can be followed-up with sustainable programming to integrate eye care into their larger health systems, rather than have it remain a stand-alone, one-time health intervention.

Besides the charity based model, another model that has increasingly gained traction in recent years is linking social entrepreneurship with the provision health services. The Scojo Foundation utilizes a market-based approach to train community members, primarily women, to become 'vision entrepreneurs' and sell eye care products within their own communities. Scojo sells glasses to vision entrepreneurs for around $2, and vision entrepreneurs in turn sell the glasses to customers for $3-5 depending on location. "Glasses have to be approached by a market based perspective – they are a classic example of a product that millions of people need, are affordable, we can deliver, and unless we tap into the power of the market – we will never be able to create a sustainable system," said Scojo co-founder and president, Dr Jordan Kassalow.

Helen Keller International has been a leader in supporting vision interventions. Working together with international development organizations, local and national governments, and universities, HKI has played a key role in researching, piloting, assessing, scaling up and advocating for interventions that significantly reduce, and, where possible, prevent these conditions both domestically in underserved communities, and in developing countries.

Although each organization has taken a different approach to expanding access to eyeglasses worldwide, common successes and challenges emerged from the discussion. Programs that built upon the existing infrastructure and personnel used for other health initiatives, such as immunizations or maternal health seemed to be the most successful and sustainable. Currently, HKI is training midwives in Niger and Nigeria to give standard eye exams to use all distribution mechanisms that already exists as a basic infrastructure to integrate eye care screening into the larger health system.

One of the participants discussed her experiences working in developing countries, activating demand of reproductive health products ands accelerating access to reproductive health technologies. "There are a lot of insights that can be shared across health sector programs."

Although many groups are finding innovative approaches to expanding access, the movement is disparate, successes are largely undocumented and therefore un-replicable, and small scale non profit organizations and charitable organizations are unable to meet the huge need for eye care in developing countries.

The Way Forward

The last panel of the day was moderated by Laurie Garrett who compared expanding access of eyeglasses to the experiences of expanding access to treatment of AIDS. "Where is the data, where are the advocates, where is the money to fund such interventions? And most importantly, who is the target?" As Laurie Garrett pointed out, unlike the AIDS, there are no activists shouting that access to treatment is a human right. Eyeglasses are taken for granted in the rich world – there is no sense of need or urgency being drummed up to influence policy makers.

Representatives from the private sector, government and private foundation commented on three strategic ways to expand funding and access to eye care: research, advocacy, and expanded linkages to other health initiatives.

Research

While it is extremely difficult to provide solid data of the linkages between vision and productivity, it is absolutely imperative that efforts be made to fund and develop research methodologies to collect such information so that the magnitude of the issue can be widely understood. As mentioned by a participant working in the private sector, "we need to know the cost on the ground for the invention, how to best approach the issue, how to best invest private funds."

It is also essential that standardized research methodologies extend to the field so that programs providing eye care services can be evaluated and replicated if successful. "A lot of innovative programs have been done and are being done on the ground, but their results have not been systematically measured. There is very little information in peer reviewed literature about programmatic successes'" said one participant. "We need a definition of what success in programming is - given that we are dealing in non gold-standard methods, we need definitions that can world across the board to show us what is working on the ground and how it can be replicated."

More programmatic evidence of the link between eyeglasses and improved education or improved ability to sustain livelihoods is critically important.

Build a strong constituency of advocates

Having a solid foundation of evidenced-based best practices and an understanding of the magnitude of this issue could greatly strengthen and consolidate the efforts of those advocating for funding from private foundations and governments.

Armed with this data, advocates need to create an easily understood message that will resonate with potential funders. Disease and health issues that are receiving the most funding and attention are those with a pithy messages and common interventions that are well- known and agreed upon. "There are a lot of interventions for eye care- if the eye care community could get behind a few standard interventions, and agree on a way to explain it and advocate for it great progress could be made," said a panelist. "It is hard to convince governments, worldwide, to focus much more support on inventions working to essentially enhance opportunities and proven problems. This kind of investing is often seen as a zero-sum competitor with fighting killer diseases like AIDS, malaria, and tuberculosis" said another panelist

Currently U.S. funding for international eye care initiatives is nothing more than a directive under the US Agency for International Development (USAID). As was pointed out in the meeting, a directive is not an earmark, meaning that it is at the discretion of the Agency head to honor its funding each year, rather than a guaranteed annual amount. Each year, groups must go to Capital Hill to lobby for continued funding of global child blindness programs. The impact of this discretionary funding has obvious repercussions both for the design of sustainable programs and the ability to make long term commitments on the ground.

Expand Linkages

Finally, it is important to position eyeglasses as part of a larger mutisectoral approach to improving health, education, and economic outcomes. Integrating eye care into already

existing health and development infrastructures not only expands access to eye care services, it can also help to increase the visibility of the need for such services, and funding for the provision of eye care.