

1. The prevalence of eye diseases and visual impairment

Poor eye health is, surprisingly to many, one of the most common health problems for people in developing countries. The World Health Organization (WHO) estimates that one adult goes blind every second, and one child becomes blind every minute.¹ Globally, an estimated 314 million people are visually impaired, including 45 million people who are blind – 90 per cent live in low-income countries.²

The two biggest causes of visual impairment in developing countries are cataract, a clouding of the lens that stops light reaching the retina, and uncorrected refractive errors, where the eye doesn't focus images on the retina correctly (leading to blurred vision) and this isn't adjusted through glasses or contact lenses. Two of the leading five neglected tropical diseases (NTDs) are also significant causes of blindness: trachoma, an infection that can eventually lead to scarring of the cornea, and onchocerciasis (or river blindness), a parasitic disease transmitted by small black flies, both of which are being reduced through effective long-term control programmes. A collection of childhood conditions, including corneal scarring from vitamin A deficiency, are also important causes.

Beyond blindness and visual impairment, a range of other eye diseases and conditions, such as presbyopia and conjunctivitis are also widespread, and hamper individual and community productivity, well-being and development. Overall, the limited available data suggest that eye diseases and visual impairments affect up to 25 per cent of the population in developing countries at any one time.³ Indeed, eye problems often rank highly in national health statistics. In Zambia, for example, eye infections are the fifth most common cause of visitation to health facilities.⁴

Not only are eye diseases very common, they affect the poorest disproportionately. People in lower socio-economic groups are often more exposed to risk factors (such as poor sanitation and nutritional deficiencies) and less able to access services. Studies in India and Pakistan, for example, have found that eye diseases and visual impairment are more prevalent among low socio-economic groups.⁵ There are also important gender variations: globally, two-thirds of people who are blind are women.⁶

While socio-economic development and improved eye care services have brought some progress in the prevention and treatment of certain eye diseases (particularly infectious conditions such as trachoma and onchocerciasis), the rise of diseases such as HIV/AIDS, hypertension and diabetes, which can cause blinding conditions, together with an ageing population, means an ever-increasing number of people are at risk of visual impairment.⁷ Climate change may also affect both the distribution and prevalence of eye diseases. Evidence to date is limited, but it has been predicted that diseases affected by access to water and sanitation, such as conjunctivitis and trachoma, will spread if water resources become depleted,⁸ and changing temperatures and rainfall patterns are likely to affect and expand the range of onchocerciasis.⁹

2. The impact of poor eye health on poverty and development

Poor eye health has a profound impact on the achievement of the MDGs. Even minor eye complaints can create social and economic problems, and blinding conditions can have a devastating impact on individuals, families and communities. As shown in numerous studies, people with visual impairments are more likely to be income poor, unemployed, and excluded from education, healthcare and social networks. A few examples are given in Box 1.

Box 1: Eye health and the Millennium Development Goals¹⁰

MDG 1 Eradicate extreme poverty and hunger:

There is considerable evidence that people with disabilities and their households are more likely to be below a defined poverty line and to have lower income levels. Recent research among people visually impaired from cataract found that they were consistently poorer than control subjects, whether measured in terms of assets, expenditure, subjective quality of life or household position in the community.¹¹

Levels of hunger are often higher among people with visual impairments. Research in rural Guinea found that chronic food insecurity was over 40 per cent more common among people who were blind.¹²

MDG 2 Achieve universal primary education & MDG 3 Promote gender equality and empower women:

Children with disabilities, including those with visual impairments, are less likely to enter, remain in and succeed in school. Research among blind and severely visually impaired adults in Pakistan found that nearly three-quarters had not received any education, and for the vast majority of those who did access education, this was before they lost their sight.¹³ Girls with disabilities are particularly unlikely to attend school.¹⁴

Blindness can also limit access to education for other household members, as school-age children (usually girls) are often required to assist relatives who lose their sight.¹⁵ A multi-country study on the impact of onchocerciasis found that the risk of children dropping out of school was twice as high when the household head was infected with onchocerciasis, and this relationship was especially strong among girls.¹⁶

MDG 4 Reduce child mortality:

Research shows higher mortality rates among children and adults who are visually impaired. An estimated 50–60 per cent of children who become blind die within one to two years.¹⁷

Blindness also has a huge public cost for countries. The annual global economic impact of blindness and low vision was estimated at US\$42 billion in 2000. If the prevalence of visual impairment does not decrease, this figure is projected to rise to US\$110 billion per year by 2020, with a regional cost of 0.5 per cent of GDP in Sub-Saharan Africa and India.¹⁸

3. The absence of eye health services

The good news is that with today's knowledge and technology, up to 80 per cent of global blindness is preventable or treatable¹⁹. Many eye problems can be tackled easily and efficiently, often at primary care level. Strategies to prevent blindness are feasible, proven and cost-effective. As recognised by the World Health Assembly, "the treatments available [for blindness] are among the most successful and cost-effective of all health interventions".²⁰ For example, cataract surgery generates increased economic productivity in the first year equivalent to 1500 per cent of the cost of the intervention.²¹

Despite these possibilities, most developing countries have a dramatic lack of eye health services, particularly in

poor rural districts. WHO estimates that in Africa, no more than 30 per cent of those in need have access to eye health services, and in many countries, the figure is far lower, often less than 10 per cent.²²

Perhaps the greatest problem is the huge shortage of eye health personnel, both dedicated eye care workers and general doctors and nurses with eye care skills. Many countries in Africa have less than one ophthalmologist per million inhabitants,²³ and low population densities, poor transport, and a concentration of ophthalmologists in urban areas and the private sector make coverage even lower.²⁴ At primary level, general healthcare workers rarely have adequate training in the promotion of eye health.²⁵ So, many people visit traditional healers or chemists for help, where they may receive inappropriate treatment that makes the problem worse or permanently damages their sight. Shortages of eye care drugs and equipment are also widespread – even where trained health workers exist, they may not have the tools or medicines to help patients properly.²⁶

Underlying the absence of services is the low priority often given to eye health by national governments and development partners. Despite numerous official commitments, evidence on the scale of the problem and the existence of highly cost-effective interventions, eye health remains low on international and national agendas, and is often not included – either at all or sufficiently – within health policies, packages and budgets. As stated by WHO:

"Despite the availability of much WHO information on the magnitude and causes of blindness and strategies for their prevention, policy-makers and health providers in many countries are evidently not fully aware of available eye-care interventions, their cost-effectiveness and their potential to prevent or treat the 80 per cent of global blindness that is avoidable....There have been major shortfalls in the resources available for national programmes of eye health and blindness prevention."²⁷

This is not always the case: there are shining examples of governments that have made a commitment to control blindness, including Pakistan and The Gambia (see Boxes 2 and 3). Where political commitment, leadership and vision are combined with effective partnership, strategies and resourcing, there can be impressive successes in reducing blindness and promoting eye health.

Box 2: The Gambia: integration and community action

The Gambian Eye Care Programme (GECPC) was introduced in 1986. In the first ten years, the programme delivered a reduction in the crude prevalence of blindness from 0.70 per cent to 0.42 per cent between 1986 and 1996, despite a 52 per cent population increase during this period.²⁸ The cost of the programme during this period was US\$1.28 million, and based on estimated lifetime productivity gains, analysis indicates an internal rate of return above 20 per cent.²⁹

A key ingredient for success has been the strong focus on community approaches and primary health care. Over 1000 village health workers ('nyateros', or friends of the eye), were trained in primary eye care, including health promotion, identification and referral of cataract and trichiasis cases, and recognition and treatment of conjunctivitis. School health was another arena for action, including screening for trachoma, promotion of face washing, and distribution of tetracycline ointment to children with active inflammation.

Development of mid-level personnel has also been critical. In particular, the training of cataract surgeons has brought about a huge increase in the availability of services, easing dependence on the very few ophthalmologists.

Another important strategy was integration of eye health within the main healthcare system. All nurses have some eye care training, so they can identify eye problems, treat minor conditions, and refer others to the community ophthalmic nurse (CON). In turn the CON has general medical training and so can identify non-eye related conditions (for example, TB) and refer patients to other PHC services. These links ensure a more comprehensive and timely service for patients, and a more efficient and effective healthcare system.³⁰



Nyatero Mustapha Jagne examines a man in Bakang village

Box 3: Pakistan: research, advocacy and partnership

A national blindness survey conducted in 1987–88 revealed a prevalence of blindness of 1.78 per cent, with about 2.6 million people blind in both eyes. The country had only 20 tertiary eye care centres, located in the major cities, only 40 per cent of eye departments in district hospitals were even partly functional and none were adequately staffed, and there was virtually no primary eye care.

Since then, concerted efforts by the government and NGO partners have delivered major changes. Partnerships between NGOs and the government established model district eye care services, with linkages between primary and secondary levels of care, and training institutions for the education of mid-level eye care personnel. Eye health has been integrated as a component of primary health care, notably through the Lady Health Workers programme, and the Ministry of Health has committed substantial funding to eye care: £25 million in 2005–10. Research played a central role in this, with approaches field tested before sharing for replication, and the national eye health committee was instrumental in raising awareness of the issues.

Through these efforts, the prevalence of blindness has been halved in 15 years (from 1.8 per cent in 1989 to 0.9 per cent in 2004). Such impressive successes show what can be done.³¹



Lady Health Care Worker Training in Pakistan

4. Strong foundations

The building blocks for faster progress on eye health are all in place. First, there are several long-standing and effective international partnerships for blindness prevention that can provide guidance and coordination, including the African Programme for Onchocerciasis Control (APOC), Global Elimination of Blinding Trachoma by 2020, and VISION 2020: the Right to Sight. At country level, many developing countries have established committees and plans for the prevention of blindness that can provide national coordination and direction.

Second, there are established strategies that can provide a model for further work. These include the renewed interest and experience in primary eye health, and WHO-recommended approaches for the control of major blinding diseases, notably the SAFE strategy (surgery, antibiotics, face washing and environmental hygiene) for trachoma, which can be a platform for linking health and water and sanitation interventions, and Community Directed Treatment with Ivermectin (CDTI) for onchocerciasis. Developed through APOC, with key input from Sightsavers International, CDTI is recognised as having strengthened primary health systems and the network of volunteers is providing a platform for other health interventions, such as the distribution of Vitamin A, Insecticide Treated Nets and deworming tablets.³²

Third, international and national commitment to eye health is on the increase. In May 2009, the World Health Assembly endorsed a new Action Plan for the Prevention of Avoidable Blindness and Visual Impairment, providing an agreed framework for action. The plan asks governments to promote and integrate eye health at all levels of health-care delivery, and urges WHO to make visual impairment a priority. International partners are requested to support these efforts, notably by raising awareness of the magnitude of visual impairment and availability of cost-effective interventions, by supporting national forums for planning and coordination, and, importantly, by generating resources for the implementation of national blindness prevention plans and providing continued support to programmes controlling nutritional and communicable causes of blindness.³³

5. What needs to happen?

Services at primary level are the foundation for effective eye health. An estimated 80 per cent of eye problems could be tackled at this level,³⁴ and a primary health approach is both more efficient and effective. Services and eye health workers need to be close to the community, where they can provide education to prevent eye diseases, promote eye health, treat simple conditions and identify and refer on more serious problems.

Working on a primary health foundation, both governments and development partners should intensify their efforts to promote eye health and strengthen this critical component of the health system, as agreed at the 2009 World Health Assembly. Key recommendations are set out on the next page.

6. Conclusion

With the move towards a more comprehensive approach to the health sector, it is time to recognise eye health as an essential component of a strong health system.

We know that eye diseases and visual impairments are among the most common health problems affecting poorer communities. Evidence shows the strong impacts of poor eye health on poverty, education, mortality, employment and social exclusion, as well as the high financial costs to governments. Evidence and experience also show the availability of highly cost-effective interventions and feasible, proven strategies to improve eye health and reduce blindness.

With the new WHO Action Plan in place, governments and development partners have an opportunity and a framework to tackle this important cause of poverty. They should now take up their roles in developing the eye health component of national health systems, recognising this as a critical part of pro-poor, equitable and effective health care.

Key Recommendations

National governments should integrate eye health within all components of the health system – policy, finance, human resources, medical supplies, information systems and service management. This means:

- including eye health within national and subnational health plans and budgets, to provide direction and resources;
- strengthening the eye health component of general primary health care training, and investing in mid-level eye health professionals (for example, ophthalmic nurses and cataract surgeons), who play a critical role in support and supervision, and in delivering more complex services;
- including eye care drugs and equipment in lists of essential medicines and medical supplies, and ensuring they are available, so that health workers have the tools to treat patients;
- collecting data on eye health through the national health management information system, to raise awareness of their magnitude and enable planning for effective services;
- ensuring effective service delivery structures and systems for eye health, including
 - effective development of primary level eye health services;
 - integration of eye health within the wider health system;
 - effective team work and referral systems between ophthalmic and general health workers, and between primary, secondary and tertiary levels of care (for example, midwives must be able to recognise neonatal conjunctivitis and direct parents to eye care staff, and ophthalmic nurses or primary health workers must be able to refer cataract patients to secondary services);
 - effective supervisory and support structures to ensure quality of care and support for community or primary level health workers;
 - collaboration with and regulation of the traditional and private sectors; and
- promoting an intersectoral approach and taking action beyond the health system, notably through school health and water and sanitation.

Development partners play a critical role in providing support and resources for national and international efforts to promote eye health. These partners should ensure their health strategies reflect the prevalence of poor eye health and its impact on poverty and development by:

- generating resources for the implementation of national eye health plans, including adequate human resources for eye health;
- committing to support programmes controlling onchocerciasis and trachoma until these are eliminated as public health problems;
- supporting integrated and coordinated approaches, including by facilitating the development of plans and inclusion of eye health within wider health and development programmes; and
- supporting capacities for collecting and analysing eye health information, and for applying it in programme development and quality improvement.



Dr Mastura performs a cataract operation in Bangladesh

Notes

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- 2 World Health Organization (2009) *Prevention of Avoidable Blindness and Visual Impairment*. Report by the Secretariat. 62nd World Health Assembly, A62/7, April 2009
- 3 Daniel Etya'ale (2009) Vision 2020 co-ordinator, WHO, personal communication. The figure would vary considerably between communities and regions, depending on the status of service provision, poverty, endemic diseases and other factors, and could be far more than 25 per cent in areas with onchocerciasis and trachoma (C. Gilbert, Professor in International Eye Health, London School of Hygiene and Tropical Medicine, personal communication). For example, a study to determine the load of non-vision-impairing eye conditions in a village in Chakwal district, Pakistan, found their prevalence to be 31 per cent, and with visual impairment and blindness added, the burden would be higher still (Hussain, A., Awan, H., Khan, M.D. (2004) 'Prevalence of non-vision-impairing conditions in a village in Chakwal district, Punjab, Pakistan', *Ophthalmic Epidemiology*, 11/5, pp407-420).
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With our partners around the world, Sightsavers International works to:

Promote eye health and strengthen health systems to reduce avoidable blindness

Promote the rights of people with disabilities, through

- strengthening inclusive systems for quality education
- supporting inclusive development
- supporting organisations of people with disabilities.

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