A Sustainable Approach to Control Avoidable Blindness and Vision Loss

Using the Commonwealth’s Systems Framework for Healthy Policy to control avoidable blindness and visual impairment in the context of Universal Health Coverage (UHC)

This policy brief is for policy-makers, decision-makers and planners involved in healthcare. The purpose is to provide information that will enable them to contribute to a reduction in the magnitude of blindness and vision loss by taking informed decisions on policy, planning and allocation of resources for comprehensive, inclusive eye care integrated within health systems to strengthen Universal Health Coverage (UHC).

Key messages

1. **Vision loss is large**, is serious and is increasing in magnitude as a result of the ageing population, the increasing number of people with diabetes, and rising levels of short-sightedness among children and young people.

2. **Some 95 million blind and vision-impaired people** need assessment and treatment immediately in the Commonwealth countries (Bourne et al., 2013).

3. **Blindness and vision loss is associated** with reduced quality of life, loss of economic productivity and reduced life expectancy.

4. **Blindness in children** is associated with underachievement in education.

5. **Four in five blind or vision-impaired** Commonwealth citizens could have their sight completely restored with skilful, cost-effective treatments.

6. **There are highly effective treatments** for cataract and uncorrected refractive error (URE) that restore sight in 95 per cent of affected individuals. Ongoing programmes could eliminate blinding trachoma and the transmission of river blindness (onchocerciasis) in the next 10 years, if sustained.

7. **There is good return on investment in eye care.** For every US$1 invested, there is an estimated average of $4 gain from improved economic productivity (Fred Hollows Foundation and PWC, 2014). This means that investing in universal eye health to reduce blindness and vision loss stimulates local economic development.

8. Comprehensive, inclusive eye health integrated into general healthcare services **improves the effectiveness of a whole-person approach** in the control of emerging non-communicable diseases and co-morbidities, e.g. diabetes.


**Policy recommendations**

1. Governments are called upon to take overall responsibility for scaling up existing interventions to promote universal eye health within health systems to strengthen UHC.

2. Mainstream avoidable blindness within relevant health systems policy—including health protection, with emphasis on environmental health, prevention and the promotion of health as part of plans to address non-communicable diseases.

3. Build workforce capacity across the health system, with an emphasis on primary healthcare and community services, to prevent, detect at an early stage, diagnose and manage avoidable blindness and vision loss.

4. Mainstream upstream preventative measures within relevant cross-sector policy, including education, the environment and trade, with an emphasis on water sanitation and hygiene (WASH) measures and the promotion of healthy eating and prevention of diabetes.

5. Develop leadership skills among health policy-makers and planners to mainstream an evidence-based approach within cross-sector policy for the prevention of avoidable blindness and vision loss.

6. Enable the sharing of effective policy and the scaling up of capacity and innovative approaches to address avoidable blindness through the Commonwealth health and education hubs.

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**Why it is important to control avoidable blindness and vision loss**

**Defining blindness and visual impairment**

When sight is assessed using a Snellen’s visual acuity (VA) chart, visual impairment is defined as an inability to see 6/18 (equivalent to difficulties with some everyday tasks, such as driving—see Figure 1). Blindness is defined as an inability to see better than 3/60 (equivalent to an inability to walk unaided—see Figure 2).

**It is important to address avoidable blindness and vision loss** for the following reasons.

1. **The consequences of vision loss in daily life situations are enormous, with impact on personal care, mobility and work. The wider impacts include under-achievement in education, reduced quality of life, loss of economic productivity and reduced life expectancy.**

2. **Investment in eye care services can strengthen health systems for Universal Health Coverage (UHC) and contribute to achieving the United Nations’ Sustainable Development Goals (SDGs) (UNDP, 2015).**

3. **There are cost-effective interventions that can address avoidable blindness and vision loss, and which offer a good return on investment in eye health.**

The **consequences of inaction** in relation to avoidable vision loss deriving from the commonest blinding diseases (i.e. cataract and glaucoma), in addition to diabetic retinopathy, trachoma and retinopathy of prematurity, include that:

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**Figure 1. Visual impairment compared with normal vision. Source: www.peekvision.org**

**Figure 2. Blindness compared with normal vision. Source: www.peekvision.org**
• escalating numbers of people who are blind or vision-impaired will result in increasing social welfare costs and a decrease economic productivity;
• blindness, particularly from age-related cataract, compounds the challenges of changing dependency ratios associated with an ageing population;
• glaucoma and diabetic retinopathy will affect the most economically productive age group;
• trachoma blindness, which principally affects women, can have far-reaching consequences both for the woman individually and in her role as a caregiver; and
• failure to reduce blindness in children, e.g. from retinopathy of prematurity, can lead to catastrophic expenditure on health and require greater investments in inclusive/special education.

Globally, between 2006 and 2010, uncorrected refractive error (URE) alone resulted in over US$200 billion per year in lost economic productivity. Only a fraction of that amount, i.e. $28 billion over five years, is required to provide service to address URE (Fricke et al., 2012).

**Universal eye health in the United Nations’ 2030 Agenda on Sustainable Development**

Addressing avoidable blindness and vision loss through cost-effective interventions will have a positive impact on achieving the SDGs (see Figure 3) not only in terms of SDG 3, which aims to 'ensure healthy lives and promote well-being for all at all ages', but also other interrelated goals for wellbeing, infrastructure and partnerships (UNDP, 2015). There are important interfaces between eye health, the empowerment of women and the inclusion of marginalised groups. This means that improving eye care also addresses the broader development agenda.

**Figure 3. Sustainable Development Goals**

Source: UNDP (2015)
Universal eye health and the global goal on health

3 Good health and well-being

The prevention of blindness and the provision of eye care and rehabilitation services to help blind and visually impaired people to lead independent lives emphasise universal access to health for all people. Cataract surgical coverage (CSC) has been recognised as an important indicator and a good measure with which to monitor progress towards UHC on a national level, particularly reflecting access to healthcare for those aged 50 years and above (Gray and Ackland, 2015). Additionally, the development of a sustainable eye health workforce is in line with the target under SDG 3 to '[s]ubstantially increase … the recruitment, development, training and retention of the health workforce in developing countries …'.

Universal eye health and linkages with the global goals outside health

1 No poverty

Sight restoration and the provision of rehabilitation services for people who are irreversibly visually impaired or blind enables them to participate fully in society and thus have a positive impact on social protection and prosperity.

4 Quality education

Improving children’s sight improves their academic performance and enables their success, with lifelong consequences. Giving visually impaired or blind children access to inclusive education greatly improves their opportunities to lead fulfilled lives. Additionally, good vision enables adult education and literacy.

5 Gender equality

Addressing barriers to promote equal access to healthcare will empower women—particularly those living in poverty—towards gender equality.

8 Decent work and economic growth

Government investment in sight restoration will improve employment opportunities and promote growth in labour and economic productivity.

9 Industry innovation and infrastructure

Rapid expansion of technology for diagnosis, e.g., imaging and smartphone apps, and for treatment, e.g., lasers and anti-vascular endothelial growth factor (anti-VEGF) agents, are improving access to screening and increasing the range of eye conditions that can be effectively treated, such as age-related macular degeneration.

10 Reduced inequalities

The provision of universal eye healthcare helps to address inequality for women, the poor, persons with disabilities and ethnic minorities. It affords the elderly a good quality of life, enabling them to be independent and productive.

16 Peace, justice and strong institutions

Reducing visual impairment and disability resulting from incurable vision loss promotes effective, accountable and inclusive institutions.

17 Partnerships for the goals

Collaboration in all spheres including eye health, as demonstrated by the Commonwealth Eye Health Consortium (CEHC), is a means of strengthening partnerships for sustainable development.

Cost-effective interventions

Another important reason to address avoidable blindness and vision loss is that cost-effectiveness analysis, measured in terms of disability-adjusted life year (DALY) averted or quality-adjusted life year (QALY) gained, indicates that there are a number of extremely cost-effective eye care treatments (IAPB Vision Atlas, 2016).

- **Onchocerciasis (river blindness)** can be eliminated by means of an annual dose of Mectizan® in endemic areas. This is one of the most cost-effective of all health interventions.
- **Cataract surgery** performed with high-quality, low-cost intraocular lenses has a good surgical outcome. In Africa and South-East Asia, the average cost per DALY averted ($Int) is $Int97—$Int116 (IAPB Vision Atlas, 2016).
• **Schoolchildren screening** for correction of refractive errors with eyeglasses has an average cost per QALY gained of $10—$155 (IAPB Vision Atlas, 2016).

• **Presbyopia correction** with eyeglasses for reading or doing near work (e.g. threading a needle and sewing, clipping fingernails or mending small appliances) has an average cost per QALY gained of $5—$10 (IAPB Vision Atlas, 2016).

**Good return on investment in eye health**

Although the rising costs of health systems are becoming increasingly unsustainable (WHO Europe, 2016), there is a compelling economic case for investing in policies and services to reduce visual impairment (Frick and Foster, 2003). The scale of return on investment means that correcting visual impairment resulting from refractive error and sight restoration provides a good opportunity for global development (see Figure 4).

Investments in eye health have very important benefits, with far-reaching impacts, which include the following.

1. Increased **economic productivity**
2. Improved **academic achievement** in children
3. Steps towards achieving **gender equality**

**Figure 4. Return on investment in eye health**

A Good Return on Investment (ROI)

Investment in Eye Health

$1

COST

$1

BENEFIT

$1

$1

$1

Economic Gain

There is a **400% to 600%** economic ROI in sight restoration as demonstrated in Kenya and Pakistan

Source: [Please supply source]
A systems approach to health policy to address avoidable blindness and vision loss

To effectively control avoidable blindness and vision loss and build resilient health systems, member countries need to identify priority areas for action. To this end, this policy brief uses the Commonwealth’s Systems Framework for Healthy Policy (The Commonwealth, 2016), which contributes to the Commonwealth Secretariat’s commitment to strengthening policies and health systems towards the ‘One Health, One Commonwealth’ approach (see Figure 5).

Building on success and lessons learnt from how countries and programmes have addressed avoidable vision loss, this policy brief sets out a number of policy options that countries might adopt for their health systems and eye health services. Priorities will depend on the context of each country and its nationally identified needs and challenges, including major causes of vision loss, the resources available and the capacity of its health system.

Figure 5. Systems Framework for Healthy Policy: a summary

Source: The Commonwealth (2016)
Current challenges and potential solutions

There are three main challenges to delivering eye care in the Commonwealth countries, as follows.

1. Lack and maldistribution of eye care professionals, i.e. ophthalmologists, optometrists, ophthalmic nurses, ophthalmic assistants, managers, etc.
2. Inadequate financing for eye care services
3. Lack of full integration of eye care in government health systems and of convergence within health systems

These challenges must be understood so that they can be addressed with replicable models that have demonstrated success.

The Global Action Plan 2014–2019 (GAP) towards universal eye health (WHO, 2013), endorsed by the 66th World Health Assembly of the WHO, aims to reduce avoidable visual impairment by 25 per cent by 2019 and to ensure that the visually impaired have access to rehabilitation services.

Some members of the Commonwealth have already signed the ‘Commitment to promote Universal Eye Health’. The indicators for monitoring the GAP in a country include: the number of cataract surgeries performed; the number of eye care personnel, including ophthalmologists, optometrists and allied eye health personnel; and whether there is an eye health plan (IAPB Vision Atlas, 2016). Data in relation to the prevalence of blindness and visual impairment, along with GAP indicators, for Commonwealth member countries is supplied as Appendix A. (See http://atlas.iapb.org/gvd-maps/#AllAges for the latest data.)

The major causes of vision loss are cataract and URE, which can readily be treated with surgery and eyeglasses, respectively. Glaucoma and diabetic retinopathy, which lead to irreversible blindness, can be treated to prevent vision loss, if detected early. Thus more than 80 per cent of blindness in Commonwealth countries is avoidable (see Figure 6). Nevertheless, a comprehensive approach is recommended to provide universal eye health.

The cataract surgical rate (CSR)—defined as the number of cataract surgeries per million population per year—is an indicator and a good proxy measure for eye care service delivery. The rate can easily be calculated year by year to monitor trends over time and by state or province to demonstrate equity of eye care services within large countries. Figure 7 illustrates the CSR by Commonwealth member country using available data.

Figure 6. Magnitude of avoidable vision loss in Commonwealth countries: a summary

Source: [Provide source]

- 95 million people with vision loss
- 13 million blind
- 82 million visually impaired
- At least 80% avoidable
- At least 60% are women
- 33 million vision impaired due to cataract
- 42 million moderate or severe vision loss due to uncorrected refractive error
- 4 in 5 people who are vision impaired or blind can have their vision restored with 95% success by: cataract surgery or eyeglasses
- Glaucma, Diabetic Retinopathy and Retinopathy of Prematurity which lead to irreversible blindness, can be treated to prevent vision loss, if detected early
- Corneal disease, an important cause of avoidable vision loss, can be prevented or treated
Figure 7. Cataract surgical rate by Commonwealth member country

1. Who will operate on the 33 million Commonwealth citizens who are cataract blind or vision impaired?

There are enormous shortages of all professional groups in all areas of eye care service delivery within the Commonwealth. Cataract—the leading cause of blindness worldwide—is surgically treatable, but that surgery requires skilled ophthalmologists and allied eye health professionals. However, the lack and misdistribution of ophthalmologists reflects the ‘inverse care law’ (Bastawrous and Hennig, 2012), with the greatest shortages being in countries in which the number of people who are bilaterally blind is greatest (see Figure 8).

Potential solution: Government health workforce planning to include eye care professionals

Figure 8. Cartograms showing distribution of ophthalmologists (top) and bilaterally blind people (bottom) worldwide

Source: [Please supply source]
Figure 9. <AQ Please supply caption>
Source: <AQ Please supply source>
2. How can sufficient eye health financing be made available to ensure that essential sight-saving treatments are available to people living in economic poverty?

The proportion of the governmental health budget allocated to eye health in many low- and middle-income countries is low, with over-reliance on civil society organisations (CSOs) to make up the shortfall.

One strategy is to ensure line-item budgets for essential eye care interventions such as cataract surgery and eyeglasses for schoolchildren and those aged 60 years and over. These can save sight, reduce poverty, and allow people to maintain their education and occupation.

**Potential solution:** Government to include eye care within health financing mechanisms

3. Integration of eye health

There is some evidence of the effective integration of eye health into the general health system. However, baseline evaluation in Kenya, Malawi and Tanzania indicates that eye-specific knowledge and skills among primary healthcare workers are low (Du Toit et al., 2013). In addition, general practitioners in high-income countries have inadequate knowledge and training in ophthalmology.

**Potential solution:** Integration of eye care into national health plans at every level of service delivery; inclusion of primary eye care within education and training of health providers

To promote access to eye healthcare and to improve service delivery, an eye health plan needs to be included in national health plans, incorporating potential solutions to these challenges (see Figure 9).

**Systems framework components**

**Governance**

Public health governance can be defined as ‘the actions of governments and stakeholders to steer communities, whole countries or even groups of countries in the pursuit of health as integral to well-being through both whole-of-government and whole-of-society approaches’ (The Commonwealth, 2016).

There are proven interventions for the prevention and treatment of blindness and vision loss from the most common causes (i.e., cataract and refractive error), from chronic eye diseases (e.g., glaucoma and diabetic retinopathy) and from infectious causes (i.e., trachoma and onchocerciasis).

Commonwealth member countries are encouraged to draw on the political commitment to healthcare financing embodied within the United Nations’ SDGs (UNDP, 2015) and the African Union’s 2001 Abuja Declaration (WHO, 2011) by aiming to allocate at least 15 per cent of their annual budget to the health sector.

The Commonwealth member countries are urged to develop their national policy on eye health in line with the Commonwealth’s Systems Framework for Healthy Policy (The Commonwealth, 2016).

The policy on eye health should be a working document providing direction on all aspects of eye care delivery at all tiers of government and levels of healthcare provision, which provides an interface for all stakeholders in eye care.

The policy should clearly outline the roles and functions of all professional bodies in eye care, including how they relate and collaborate, for example in partnerships and by establishing training or academic links, and it should provide for access by specific disadvantaged groups.

Because priorities are based on opportunities, financial ability and geographical determinants, it is important to undertake systems assessment of the key components and their interactions, e.g., using eye health systems assessment (EHSA) (Blanchet et al., 2012) or the Eye Care Service Assessment Tool (ECSAT) (WHO, 2015b), and to set priorities for disease control, human resources (HR) development for sufficient capacity to deliver and eye health information systems. For example, in Ghana, EHSA was the basis on which eye care professionals were included in health workforce planning, eye health interventions were strengthened and outcomes of eye care improved (Potter et al., 2013).

**Advocacy**

To achieve the GAP targets on universal eye health (WHO, 2013), advocacy is needed within the health sector and within the broader development agenda. The integration of eye health within the broader policy frameworks of HR planning, health systems design, health service delivery structures
and health financing models requires policy engagement with the responsible departments on the different administrative levels.

- Advocating with the education sector can ensure that school health programmes include eye health promotion and the early detection of visual impairment in children.
- The inclusion of key eye health services and the provision of assistive and low-vision devices within social protection schemes are key to promoting affordable and accessible eye care and rehabilitation.
- Cross-sector planning alongside the national implementation of other related World Health Organization (WHO) Action Plans—such as Ageing, Diabetes and Disability—creates synergies and comprehensive strategies to achieve universal eye health.
- Given the strong links between universal eye health and the United Nations’ 2030 Agenda on Sustainable Development, the inclusion of eye health in national implementation and monitoring plans to achieve the SDGs (including targets and indicators) provides an opportunity to advance universal eye health.

The effectiveness of such advocacy initiatives depends on the close collaboration and inclusion of all relevant stakeholders, on agreeing on joint positions and priorities, and on carrying them forward with one voice.

**Capacity**

The capacity to scale up existing interventions for avoidable blindness and vision loss depends on the progress made in all six building blocks of health systems: governance; healthcare financing; health workforce; material and technologies; health information and research; and service delivery.

Capacities can be augmented by including eye health in national policies and plans.

- Cross-sector policies to include eye health in the WHO STEPwise approach to surveillance (STEPS) of non-communicable disease risk factors can ensure better integration towards a whole-person approach to healthcare.

Examples of items to include are distance and near visual acuity, intra-ocular pressure measurement, visual field assessments and information on the wearing of eyeglasses.

- An important barrier to achieving universal eye health is the lack of adequately trained, deployed and equipped eye health staff. A targeted investment in HR capacity within the overall HR strategy for health will overcome this limitation.

Ongoing concerted international efforts in eye health interventions include the elimination of blinding trachoma and the transmission of onchocerciasis (river blindness), and children’s programmes that provide comprehensive child eye healthcare and eyeglasses to correct children’s poor vision from refractive error to improve their academic performance.

**Knowledge**

One of the key objectives of the GAP towards achieving universal eye health is the collection of evidence on the magnitude and causes of blindness and vision loss. Data and evidence generated by the Vision Loss Expert Group for the Global Burden of Disease (Bourne et al., 2013; IAPB Vision Atlas, 2016) and data obtained from rapid assessments of avoidable blindness (RAAB) are important for planning, and can be tracked for temporal trends and to monitor the outcomes of interventions. These data can also be used to inform advocacy towards increased political and financial commitment by governments.

Research and evidence are required to assess the utility and impact of guidelines and documents produced for processes and protocols.

Innovations and cross-sector policies have the potential to improve eye care delivery far beyond current levels in the Commonwealth countries.

1. **Portable Eye Examination Kit (PEEK)** PEEK includes smartphone apps for accurate vision testing, as well as retinal imaging and software (see Figure 10). It is being used to screen schoolchildren and community members to connect those in need of eye care with service providers, particularly in rural and remote areas. At time of writing, PEEK is being validated in community outreach programmes and school vision screening programmes in India, Kenya and Botswana.
2. Policy and programmes Large programmes in eye care have demonstrated wide-reaching advances in eye care delivery. These include the Queen Elizabeth Diamond Jubilee Trust’s ‘Avoidable Blindness’ programme, Standard Chartered Bank’s ‘Seeing is Believing’ (SiB) collaboration with the International Agency for the Prevention of Blindness (IAPB), the ‘Our Children’s Vision’ campaign, and those of the International Council of Ophthalmology (ICO).

Programmes across the Commonwealth, such as the CEHC, supported by the Queen Elizabeth Diamond Jubilee Trust, involve strengthening knowledge-sharing, capacity-building, co-financing and integration with health systems, and affirm people-centred interventions for the prevention of vision loss (see Figure 11). These programmes are often implemented through CSOs including non-governmental organisations (NGOs), which play major roles in eye care delivery.

Professional bodies such as the College of Eastern Central and Southern Africa (COECSA) play a central role in professional development, training and quality assurance in their regions.

3. Integration Despite limited eye health knowledge and skills among primary healthcare workers, there are some examples of the successful integration of eye health,

Figure 10. PEEK retinal imaging
Source: <AQ Please supply source>

Figure 11. <AQ Please supply caption>
Source: <AQ Please supply source>
such as the inclusion of school eye health in the general school health programme in Sri Lanka, of primary eye care in neonatal care and childcare in Tanzania, and of primary eye care in primary healthcare in Rwanda. The key informant method (KIM), pioneered in Bangladesh, promotes the development of community-based approaches to child eye health (Muhit et al., 2007). These approaches are replicable and scalable.

4. **Collaborations and partnerships** Networks for knowledge-sharing and HR development have improved practice protocols and standardised quality of care. The African Programme for Onchocerciasis Control (APOC), which ran between 1996 and 2015, aimed to stop the transmission of river blindness (WHO, 2015a). Both this and the WHO Alliance for the Global Elimination of Trachoma (GET2020) (WHO Alliance for the Global Elimination of Trachoma, 2016) demonstrate the vital role of partnerships in eye health. These large global programmes involve many Commonwealth countries, different sectors of health delivery and a variety of professional groups, resulting in wide-ranging benefits and improved HR development.

Training opportunities and health workforce development have been facilitated by means of:

- the Links health partnerships programme under the ‘VISION2020: The Right to Sight’ global initiative;
- the CEHC clinical fellowship programme and diabetic retinopathy team training network (DR-NET);
- the ICO’s subspecialty training networks;
- national and regional professional bodies and colleges, such as the COECSA and the West African College of Surgeon (WACS); and
- the Pacific Eye Institute in Fiji, which trains eye health workers in the Pacific islands.

5. **Knowledge-sharing** Practice improvements based on knowledge-sharing have included:

- curriculum development among the ICO, COECSA and Indian colleges; and
- the provision of free online resources (Open Educational Resources) for planning and managing eye care services by the International Centre for Eye Health (ICEH).

**Protection**

As provided for by the Commonwealth’s Systems Framework for Healthy Policy, the sphere of health protection now includes communicable diseases control, emergency preparedness, environmental health, climate change and sustainability (see Figure 12).

Trachoma is the leading infectious cause of blindness that is being addressed. A communicable diseases control programme focusing on neglected tropical diseases (NTDs) employs a strategy known as SAFE—surgery for trichiasis (i.e. inturned eyelashes), antibiotics, facial cleanliness and environmental improvement—that involves, among other things, the mass distribution of azithromycin in endemic areas, and surgery for entropion and blinding trachoma (WHO Alliance for the Global Elimination of Trachoma, 2016).

For emergency preparedness, eye health practitioners are required to be aware of eye symptoms and signs of infections that are global threats, such as those from the Ebola virus and the Zika virus, both of which may persist in the eye and/or tears. There are also risks of the transmission of HIV and the Hepatitis B virus on surgical instruments and during surgical procedures. Thus eye examinations and procedures must always be undertaken with adequate caution.

Healthcare provision requires adequate electricity supply. Thus the planning of programmes to eliminate avoidable blindness must take the health of the planet into consideration and reduce environmental impact by providing renewable energy and sustainable power to the healthcare infrastructure, encouraging also the use of recyclable (‘green’) surgical equipment and consumables.

**Promotion**

Health promotion is the process of enabling people to increase control over and to improve their health, thereby also addressing inequalities in knowledge. It moves beyond a focus on individual behaviour towards a wide range of cross-cutting social and environmental interventions.

(The Commonwealth, 2016, emphasis added)
The Pakistan and Nigeria national surveys of blindness and visual impairment demonstrate substantial evidence that indicators of poverty are associated with the major causes of blindness, especially cataract, glaucoma and trachoma (Gilbert et al., 2008; Kyari et al., 2016; Tafida et al., 2015). Women in poor households are substantially less likely to access cataract surgery and glaucoma treatment, with greater gender differences in Nigeria than Pakistan (Ramke et al., 2015).

Community-centred interventions to improve health literacy and awareness of blinding eye diseases, especially among socially excluded groups (poor women, schoolchildren, people with disabilities, ethnic minorities and the elderly) will improve their knowledge, so that people are able to take more responsibility for their eye health and sight.

Additionally, intersectoral collaborations aiming to develop wealth creation and poverty alleviation strategies are required to address the socio-economic determinants of blindness and visual impairment.

People-centred services

People with chronic eye conditions and irreversible vision loss need access to health and rehabilitation services.

To accelerate progress towards UHC, evidence-based, integrated, person-centred quality eye health services need to be available at the primary, secondary and tertiary levels of service delivery of care, so that everyone can access affordable and quality services at any time, without barriers. Rehabilitation and low vision services for people who are blind or vision impaired as a result of irreversible conditions should also be available, with access to complementary social services and physical adaptations for the blind.

In addressing inequalities, governments need to develop structural and systematic approaches to address gender and other socio-economic disparity, supported by policies that make eye care affordable to the most socially excluded groups. Of all persons with disabilities, half cannot afford required healthcare; people with disabilities are also 50 per cent more likely than those without to suffer catastrophic health expenditure (WHO, 2016).
People with vision loss may also suffer general health conditions, such as malaria or diabetes, or require antenatal care. Whole-person, life-course approaches are required.

**The way forward**

Developing sustainable, cost-effective interventions for the control of avoidable blindness and vision loss in the context of UHC will be different for each country owing to variation in the magnitude and causes of avoidable vision loss. The following key focus areas should be considered.

1. Governments are to take overall responsibility for the provision of eye health services, albeit that CSOs are likely to continue to play a major role in delivery.

2. Sufficient and appropriately trained human resources for eye care are to be developed within the health workforce, including managers.

3. Investment in eye health to achieve comprehensive eye care in the context of UHC must be implemented, to include in particular (but not restricted to):
   a. eye health interventions and treatments in private/public health insurance schemes;
   b. financing mechanisms for correction of refractive errors in children to optimise their development and educational/academic achievement;
   c. accessible and affordable cataract surgery, especially to those aged 60 and over; and
   d. rehabilitation services and access to low vision and assistive devices within social protection schemes.

5. Eye health is to be integrated into general healthcare with whole-person, life-course approaches.

6. The governance structure for best practices in managing resources and investments (workforce, equipment and medicines) is to be improved.
Case studies

Case study 1  Cataract Impact Study

Cataract is responsible for over 50 per cent of blindness and is visually disabling in 33 million people in the Commonwealth countries. Blindness from cataract is almost entirely avoidable because cataract surgery is highly effective in restoring normal vision in the majority of cases. Cataract surgery is undertaken in secondary- and tertiary-level facilities and can be offered as a day-case procedure, which reduces cost.

Cataract surgery is made affordable by means of public health insurance in some Commonwealth countries, such as Rwanda.

National cataract surgical coverage (i.e. the CSR) indicates the proportion of people with visually disabling cataract that have had cataract surgery. These data are available for Botswana, Malaysia, Nigeria, Pakistan, Rwanda, Sierra Leone and Sri Lanka.

The Cataract Impact Study (CIS), conducted in Bangladesh and Kenya, clearly demonstrated that having cataract surgery increases family wealth (as shown by household expenditure), daily hours of productive work and quality of life (Danquah et al., 2014). These economic gains and gains in wellbeing were found to persist even six years after cataract surgery.

Prior to surgery, people with cataract were poorer financially, poorer in health, less independent and less able to engage in economically productive activities than people without cataract. The study clearly demonstrated poverty alleviation in households within which someone has had cataract surgery, showing benefits extending beyond the individual affected.

While this study was conducted in Africa and Asia, the findings are generalisable to countries with similar socio-economic and demographic characteristics.

The findings also demonstrate that investing in eye health is a cost-effective strategy for poverty alleviation.

Positive externalities include effective, affordable and accessible services for cataract surgery, strengthening the eye health system, and attracting individuals with other eye and health conditions.

Case study 2  Comprehensive eye care

Under its National Eye Health Programme (NEHP), Pakistan developed a model comprehensive eye care plan (covering the period 2002–2007), which aimed to strengthen 25 eye units in secondary-level hospitals that had initially been supported by CSOs and international aid (Khan et al., 2010). This was consolidated by the training of primary healthcare workers in primary eye care. The resulting increase in access to cataract surgery led the government of Pakistan to invest in eye health, with replication of the model in more than 120 public district hospitals across the country by 2010.

The plan entailed strengthening facilities by training ophthalmologists in microsurgery and by creating posts for allied health personnel, including hospital managers, who were recruited and trained. Clear referral pathways were established from primary to secondary care.

The impact of the NEHP was demonstrated in a marked increase in CSR, a 50 per cent reduction in all-age blindness prevalence from 1.8 per cent in 1990 to 0.9 per cent in 2004 and a move towards equitable service provision, with the 2004 national survey showing fewer gender differences in the uptake of cataract surgery.

In India, a primary healthcare approach for the control of avoidable blindness has been initiated in the form of vision centres (VCs): permanent structures located either in small towns or villages and staffed by vision technicians (VTs), who are recruited from the community (Avarind Eye Care System, 2015).

The VTs are trained to provide comprehensive eye care at the primary level. They can identify the major causes of visual impairment and blindness, can perform a refraction (to determine the power of the lenses that will give the best-corrected vision), can prescribe eyeglasses and will refer where necessary. They collaborate with the community, promote eye health education and create awareness. Some VCs are IT-enabled and provide telemedicine services linked to secondary and tertiary centres.

The impact of this initiative is that people are motivated to seek care earlier and to receive treatment before they become blind. The Prakasam district in the South Indian state of Andhra Pradesh demonstrated a four-fold
reduction of blindness prevalence among people aged 50 years and over, from approximately 8 per cent in 1998 to 2 per cent in 2014 (<AQ Reference to be confirmed>).

The overarching factors that contribute to the success of both the Indian and Pakistani models of comprehensive eye care are:

- government support—i.e. both India and Pakistan have increased their budgets for eye health significantly as a proportion of the national health budget;
- the development and implementation of a national/district-level eye health plan;
- the integration of eye care within the general healthcare system;
- improved leadership, governance and management;
- plans that are people-centred, acceptable and embraced by the community;
- appropriate HR training and deployment for eye health; and
- international partners continuing to play a key role in technical collaborations.

Case study 3  Health partnerships and institutional links

The Clinical Fellowships Programme, facilitated by the CEHC and funded by the Queen Elizabeth Diamond Jubilee Trust, demonstrates how countries can assist one another to improve human resources and to develop their capacity for eye health. There are 14 participating training centres across the Commonwealth, which provide north–south and south–south institutional links for clinical training fellowships (see Figure 13).

The CEHC’s Diabetic Retinopathy network (DR-NET) and the VISION2020 Links programme aim to address the growing burden of diabetic retinopathy across the Commonwealth. The latter was established in 2004, its main aim being to improve eye care training by linking eye care institutions in the United Kingdom with those in countries in Africa in a health partnership with a whole-team approach. The success of DR-NET is manifest in its 15 partnerships between hospitals in Africa, the Caribbean and the UK, Australia and New Zealand (see Figure 14), which are working together to develop strategies and services to screen and treat people with diabetic retinopathy.

Early detection of diabetic retinopathy enables early treatment, which prevents vision loss and blindness.
The Commonwealth also exemplifies partnerships beyond eye health between member countries, e.g. scholarship schemes and open educational resources. This tradition should be sustained because the impact and benefits for participating countries are immense. Furthermore, eye healthcare initiatives can be integrated into existing and planned inter-country partnerships and Commonwealth programmes.

Commonwealth values

To support its principles, the Commonwealth endeavours to promote:

• quality healthcare, including eye care services that are sustainable, accessible, acceptable, appropriate and equitable;
• cost-effective, evidence-based approaches, while promoting innovation and good practice; and
• sustainable approaches that facilitate economic, environmental and social development, in alignment with the United Nations’ 2030 Agenda on Sustainable Development.

Useful links

http://atlas.iapb.org/global-action-plan/gap-indicators/
http://cehc.lshtm.ac.uk/
www.iapb.org/blog/committing-universal-eye-health

www.iapb.org/home
www.ourchildrensvision.org/
www.peekvision.org/
www.thecommonwealth-healthhub.net/
www.undp.org/content/undp/en/home/sustainable-development-goals.html
www.who.int/sdg/en/
www.wpro.who.int/health_services/health_systems_framework/en/

Contributions

The main contributors to the policy brief are:

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• Stephen Dorey
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Figure 14. Diabetic Retinopathy Network

Source: <AQ Please supply source>
Acknowledgements
Declarations of conflicts of interest, details of any funding, links to other organisations
• Damodar Bachani
• Michael Gichangi
• Johannes Trimmel

References


### Appendix A

Global Action Plan (GAP) indicators, blindness and moderate-to-severe VA (worse than 6/18 in the better eye) in Commonwealth countries, 2010

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<th>Year</th>
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a A figure of 0 means that no information was provided for the Vision Atlas database.