

Everyone matters

EDITORIAL

Inequality and inequity in eye health



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According to the 2010 Global Burden of Disease (GBD) study, the global prevalence of blindness (age-standardised) has declined from 0.60% in 1990 to 0.47% in 2010.¹ This seems to indicate that an increasing number of people have access to good eye health services.

However, this improvement is not equally distributed within and across nations. The GBD study also showed that 60% of blindness worldwide is among women, underlining that gender equity in eye health has not yet been achieved.

There are several other studies which show how inequitable access to eye health services is worldwide. A recent assessment of avoidable blindness and visual impairment in seven Latin American countries concluded that the prevalence of blindness and moderate visual impairment was concentrated among the most socially disadvantaged, and that cataract surgical coverage and cataract surgery optimal outcome were concentrated among the wealthiest.² The same study showed that unoperated cataract remained the most common cause of blindness in Argentina, despite



Azahara Sánchez/IAPB

People living in rural areas or in poverty are often unable to access eye care, even when it is available free of charge. It is important to bring eye care closer to these communities, for example by offering visual acuity screening in the community. CAMEROON

the high national cataract surgical rate (CSR) of 5,935 cataract operations per million population per year. A 2010 study in Gujarat, India concluded that, despite an even higher reported CSR of 10,000, cataract remained the predominant cause of blindness and visual impairment and blindness remained a significant problem among the elderly.³

A systematic review of barriers to cataract surgery in Africa⁴ (which involved reviewing 86 articles, including 12 RAAB, 10 quantitative and 5 qualitative studies) showed variability in the study outcomes. In the RAAB studies, barriers related to awareness and access were more commonly reported. Other studies reported cost as the most common barrier. Some qualitative studies tended to report community and family dynamics as barriers to cataract surgery. Overall, the systematic review found that the CSR was lower in females in 88.2% of the studies. These major barriers point to underlying factors of unequal access: illiteracy and low educational levels, poverty and economic hardship, no physical access (distance), and the socio-cultural situation.

While, increasingly, data on eye health provision are collected separately by

Continues overleaf ➤

INEQUALITY AND INEQUITY: WHAT ARE WE TALKING ABOUT?



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According to the World Health Organization, inequalities in health can exist for various reasons, some of which are biological (e.g. a higher incidence of cataract in people over 60 years of age). If these inequalities are **avoidable**, however – e.g. if services were made more affordable – then they are better

described as **inequities**, a word which captures the unfairness of the situation.

Equal provision of eye health does not create equity: it is important to ensure that eye care provision is proportional to need (see Figure 1 on page 3). For example, women are often much more likely than men to have age-related cataract. An equal number of operations for women and men would therefore be **inequitable**, as women's needs are greater.

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gender, age and economic situation (known as 'disaggregation of data'), there is less information available for ethnic minorities, migrants and people with disabilities. In the United Kingdom, people from black and minority ethnic communities are at greater risk of some of the leading causes of sight loss, and adults with learning disabilities are 10 times more likely to be blind or partially sighted than the general population.⁵

The World Report on Disability⁶, jointly produced by the World Health Organization (WHO) and the World Bank, states that the affordability of health services and transportation are two main barriers for people with disabilities to access health services. In low-income countries, 36% of non-disabled females and 40% non-disabled males could **not** afford the visit to the health service provider, compared to 61% (female) and 59% (male) of disabled people. A recent study from Sightsavers on data disaggregation by disability in India and Tanzania⁷ showed that, despite the eye health programmes being open to all, the level of access of people with disabilities varied greatly.

As these examples show, there are many dimensions to inequity. Inequity can be understood as a reflection of multidimensional poverty which, besides income poverty, includes poor health, low levels of education, lack of water and sanitation, an unhealthy or unsafe residential

environment, insecurity and violence, social exclusion, lack of participation, disempowerment, a lack of self-esteem, and more.

The multidimensional understanding of poverty is reflected in the Sustainable Development Goals (SDGs, see page 4). Adopted by the UN General Assembly in September 2015, they comprehensively address the economic, social and environmental dimension of sustainable development. There is a strong focus on tackling the systemic issue of inequity and a promise to 'leave no one behind'. The World Health Organization action plan called Universal Eye Health: A Global Action Plan 2014-2019⁸ has established universal access and equity, human rights, and empowerment of people with visual impairment as core principles.

What can we do?

To tackle inequities in eye health, a number of measures can be taken. First of all, as eye care providers we should commit to providing eye health services of the same quality for everybody, irrespective of age, gender, wealth, ethnicity, place of residence, education or disability status. Just as important, as individuals we should treat everyone equally on a personal level: everybody turning up at an eye health clinic or hospital should enjoy the same level of interest, respect and support. As authors we recommend awareness training of



"Improving eye health through the delivery of practical high-quality information for the eye care team"

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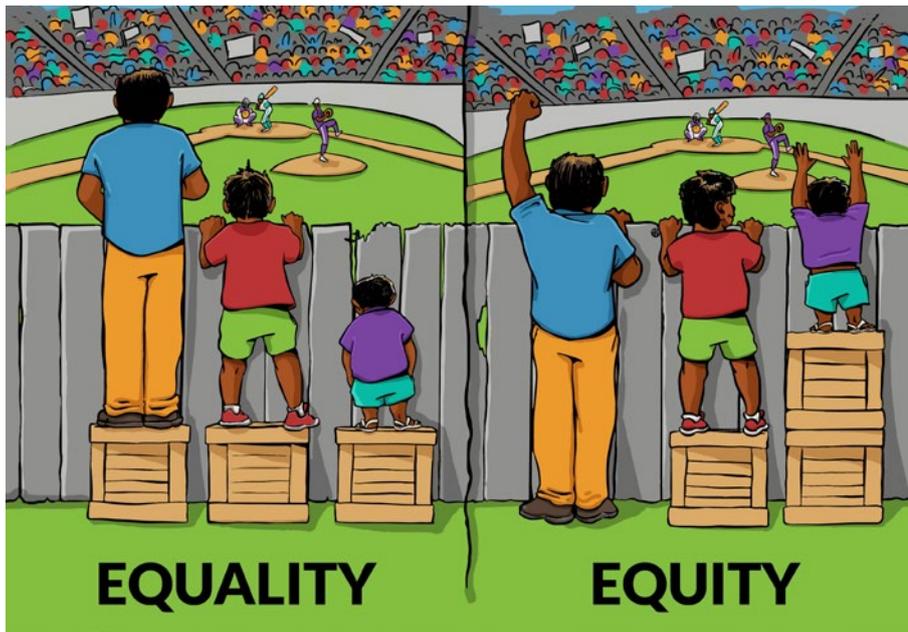


Figure 1. Providing equal eye care services is not enough – equity is only achieved when the eye care services meet the needs of different groups of patients

staff members and setting quality standards that are monitored regularly.

Eye care units can be made more accessible for people with disabilities as outlined in the CBM Guide ‘Inclusion made easy in eye health programmes’.⁹

Eye care providers are also employers and can support inclusion and diversity by recruiting a wide spectrum of staff members: those with or without disabilities, from both genders (and transgender), all sexual orientations, and all population groups. This will not only support communication with patients, but also help to increase understanding and awareness among staff members.

A change in perspective

However, offering equal eye health services to everyone will not by itself lead to equity in eye health services. Equal services will only be effective at reducing inequity if every person in the community has the same starting point (Figure 1). Evidence and life experience show that this is not the case, and that an equality of service provision alone is insufficient to promote fairness and justice.

What is needed to address inequity in eye health effectively is a change of perspective. Rather than putting the eye care service unit at the centre of planning and action, it is necessary to look at eye health programmes from the point of view of the person needing eye health services and what they need to enjoy a full and healthy life. The best eye clinic will not deliver what people need when there are barriers that prevent them from arriving there!

Engagement at the community level is very much needed. Many of the barriers

identified – ignorance, lack of awareness, cultural traditions, to name a few – need to be effectively addressed at family and community level. As these barriers are not specific to eye health, there needs to be either partnerships with other community-based services (primary health care and community development in general) or a policy framework which addresses these issues effectively. This is particularly relevant for eye care providers who implement community outreach activities.

In any community initiative, participation and empowerment are key. By specifically addressing people, families and groups who are socially excluded in local communities we can tackle inequity and help to change the behaviour of mainstream society.

A helpful policy framework

The Sustainable Development Goal on health calls for efforts to ensure healthy lives and wellbeing at all ages. To achieve this, a number of political decisions need to be taken and policy choices made. Besides lack of knowledge and awareness, cost is the most prominent factor leading to inequity in eye health.

Universal health coverage and social insurance (or cost coverage) schemes are currently being put in place in many countries to help cover the cost of health care. These must be designed to actively and effectively include people from disadvantaged and poor populations. Simply reviewing whether or not these groups are equally included is not enough: there is a high likelihood that poorer people (understood in terms of multidimensional poverty) do not seek the services they need due to ignorance, fear, lack of

means for transport, and other reasons. Positive and pro-active (affirmative) action is required to ensure that upcoming cost-coverage schemes are not only effective for the educated and socially included, but also reach out to the poorest. Affirmative action is not discriminatory, as the UN Convention on the Rights of Persons with Disabilities states in Article 5 (4): ‘Specific measures which are necessary to accelerate or achieve de facto equality of persons with disabilities shall not be considered discrimination under the terms of the present convention.’

A popular quote these days is: ‘If you can’t measure it, you can’t manage it’. While this rightly can be questioned – as there are many qualities in life not easily measurable – evidence also shows that it is very hard to achieve political support for addressing inequities in eye health unless there is reliable data. Accordingly, the SDGs requires that high-quality, timely and reliable data – disaggregated by income, gender, age, race, ethnicity, migratory status, disability, geographic location (and other characteristics relevant in national contexts) – is made available. This should be standard for the eye health sector as well.

Conclusion

Tackling unequal access to eye health services and inequity in eye health requires a people-based view and an approach that reaches far beyond service provision. Moving outside the eye health sector (or silo) is essential in order to reduce inequity in eye health. The current international development frameworks (see article on page 4), which also put a strong emphasis on domestic resource mobilisation, provide an excellent framework which needs to be used.

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Tackling inequality and inequity in eye health: can the SDGs help us?

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The Sustainable Development Goals (SDGs)¹ were adopted at the United Nations (UN) General Assembly in September 2015. They are a set of goals and targets that all UN member states have committed to achieving: 'to end poverty, protect the planet, and ensure prosperity for all'. A major emphasis of the SDGs is to 'leave no one behind'; that is, to reach everyone, including the poor and the marginalised.

The health goal (Goal 3: Good health) is to ensure healthy lives and promote wellbeing for all, at all ages. One of the targets within Goal 3 is about universal health coverage (defined as access for all people to health services without suffering financial hardship). There is also considerable focus on attending to the needs of people with disabilities and vulnerable groups. Goal 3's emphasis on tackling health inequity and promoting access for all people complements the approach of the World Health Organization (WHO) action plan called Universal Eye Health: A Global Action Plan 2014-2019.²

The importance for eye health

There are a number of targets and indicators within Goal 3: Good Health which are very relevant for eye health.

The inclusion of **Neglected Tropical Diseases (NTDs)** in the targets is a major achievement: the global indicator is the 'number of people requiring interventions against NTDs'. If this is adequately addressed in national level indicators, policies and practices, it can significantly support efforts to manage and control blinding NTDs such as onchocerciasis and trachoma. These are largely diseases of poverty and addressing them can help to reduce eye health inequalities.

The indicator for the Goal 3 target on **health financing and human resources** includes a requirement for data collection on ophthalmologists at the national level. This information can help to strengthen advocacy to improving the size and distribution of the eye health workforce – which is essential to address rural/urban eye health inequalities.

The Goal 3 target about **universal health coverage** is very important.



As countries progress on this, there should be opportunities to get eye health included within essential packages in social insurance or cost coverage schemes, which can greatly benefit eye health, including helping to reduce inequalities by reducing patients' out-of-pocket payments.

Currently, there is a significant political push for countries to mobilise their own resources, in order to meet their population's needs (e.g. health), rather than relying on international aid. This makes it critical to get involved with discussions about universal health coverage on national/country level.

There are other SDG goals and targets, such as on inclusive education, which may provide scope for advocating at the national level, such as promoting eye screening in schools as a means to improve access to inclusive education.

Including eye health when implementing the SDGs

UN member countries have all made a major commitment to implement the SDGs. They are now starting to develop their own national action plan or strategy, with national targets and indicators to measure their progress against the SDG goals. National strategies and indicators will be particularly important as they will direct funding and government commitment towards programmes and services.

It is beneficial to get involved in these national processes and ensure that eye health targets and indicators are included – and that there is adequate action to achieve them. Here are a few examples.

- Ensuring that the national strategies, implementation and indicators adequately address the NTD indicator and target (in countries where blindness caused by NTDs remains a problem).

- Advocating for the inclusion of eye health services (for example trichiasis surgery, cataract surgery and low vision and rehabilitation services) within universal health coverage and social insurance schemes, in a way that enables access for the poorest and most marginalised.
- Lobbying to ensure that the health workforce indicator is taken up at national level and that there is a specific focus on eye health workers.

- Lobbying for the inclusion of cataract surgical coverage (CSC) as a national indicator, which will help prioritise action on cataract surgery. CSC is recognised within the WHO/World Bank universal eye health monitoring report³ as an important indicator of older people's access to health care, which can help to support arguments for CSC as an indicator.

The development of plans and indicators, and what part of government will take the lead, will differ from country to country. UN country teams, international agencies in-country and/or health ministries should be useful points of contact to advise about these processes. Working with other relevant organisations, both within and outside eye health, can be very effective, making it possible to deliver joint messages and lobby collectively.

Accountability

Programmes and service delivery must be monitored to ensure that efforts are having the intended impact and reaching those most in need. Monitoring and research is needed to track progress and to support calls for new approaches when there are challenges or failures.

It is very likely that some countries will be selective and prioritise some of the SDG goals and targets rather than covering all of them. Advocacy is needed to hold governments to account and help them to achieve the stated ideals and aims of the SDGs.

There is an important role for the eye health community to promote the ideas of 'leave no-one behind' and equity, whether in service delivery or in advocacy.

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Overcoming challenges in the UK's National Health Service



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Working in an eye clinic in Dewsbury, West Yorkshire (with its large South Asian migrant population) in the 1990s, Andy Cassels-Brown noticed the large number of young South Asian patients who presented with much more advanced keratoconus than their Caucasian counterparts, who tended to be detected much earlier. This indicated an inequality in access to eye care services which, we discovered, was made worse as the Asian patients frequently had preventable associated allergic conditions (such as allergic conjunctivitis or eczema) and a strikingly strong family history of keratoconus.¹ Better access to eye care would permit earlier identification of family members with the condition and, these days, prevention of progression by means of cross-linking to stabilise the keratoconic cornea.

After doing a Masters in Community Eye Health at ICEH London in 2000, Andy cycled daily to the eye department at St James's Hospital, through Leeds' multi-ethnic suburb of Chapeltown. Andy started to wonder why there were not more African-Caribbean patients with glaucoma coming to St James' Hospital, given the higher prevalence and earlier onset (but often all-too-late presentation) in this population group. Research confirmed² that there were no optometry practices in this socio-economically deprived community, and that people found it difficult and expensive to come into the city centre for eye tests and to pay for prescription spectacles.

The Leeds Ophthalmic Public Health Team (which includes Darren Shickle, John Buchan and other colleagues) is part of the UK's National Health Service and is based at the University of Leeds. The team undertook a Glaucoma Health Equity Profile needs assessment across the whole city of Leeds, which confirmed that late presentation was highly linked with socio-economic deprivation.³ A VISION 2020 Equity Profile conducted across Leeds and Bradford⁴ also confirmed the links between high

prevalence, late presentation, ethnicity and socio-economic deprivation. These studies were a clear demonstration of the inequalities present in the UK, despite its developed economy and world-renowned National Health Service (NHS), which offers universal access to health care.

Along the way, the team has tried to honour the well-known adage: 'no survey without service' and has undertaken health promotion campaigns for glaucoma, diabetes and smoking cessation in Leeds, including the use of community radio and health promotion stands at festivals and carnivals. We have also trained link workers in many locations across the city to talk to community groups, community support workers, social workers and staff members in elderly care homes about the importance of having regular sight tests.

As part of the VISION 2020 Leeds programme, we developed consultant-led multiprofessional Community Eye Centres. The centres are located in specific communities around Leeds. They help to target inequalities by offering eye care services to people who would otherwise face socio-economic and geographical barriers to accessing eye care.

The Leeds Ophthalmic Public Health Team have continued to research and pilot innovative ways to deliver primary eye care in areas of deprivation, including the provision of free sight tests and free prescription spectacles in the community.

We have identified that the number of people registered as blind in communities with high levels of deprivation and large ethnic populations is significantly lower than expected, considering what is known about the incidence of blindness in these communities. This suggests inequality in access to the registration system, which in turn excludes people from the state support offered to those registered as being visually impaired or blind.

In summary, despite our well-resourced National Health Service, there are many examples of inequality in access to services, and care often depends on where you live (known in the UK as the postcode lottery). Our biggest challenges now include increasing detection, prevention and curative service capacity to meet the increase in demand for hospital eye care in England (due to the ageing of the population and an increase in treatment options, e.g. for wet ARMD).

Our response in Leeds, as with much of the rest of the world, is to train our primary care workforce and continue to decentralise eye care by dealing with lower complexity cases in consultant-led, multiprofessional community settings, rather than in hospital. We are developing a multi-disciplinary academy to train ophthalmic nurses, optometrists, orthoptists, health care assistants and allied health professionals in line with an emerging 'competency framework'⁵ which is currently being developed in the UK. And finally, before it is too late, we are also starting to develop strategies to be resilient against the impact of environmental change and to reduce health care's damaging environmental footprint.

Leeds Public Health Team



The Leeds Ophthalmic Public Health Team and students promoted eye health at Leeds Carnival. UK

Further reading

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Measuring inequality in eye care: the first step towards change



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‘Health inequalities’ are differences in health between different subgroups of a population¹, for example women/men, people with/without disabilities, and urban/rural dwellers.

Many of us have insufficient information to understand the nature and extent of the inequalities that exist, and whether our services are effective. This lack of information restricts our ability to plan appropriate strategies to reduce inequality, and to track our progress towards equitable eye health.

Fortunately, we can obtain this information by monitoring health inequality. Monitoring is a process that helps to determine whether policies and practices are working, and whether change is needed. There are two main sources of data we can use to monitor inequality – population-based surveys, and information collected from our clinics. Ideally, we would use information from both of these data sources. However, few of us have the time and money to implement population-based surveys, so this article will focus on monitoring inequality using clinic-based data. For example, you may have noticed that, compared to the community served by your hospital, most of the people undergoing cataract surgery are from the families of government employees (and very few are farmers) or from a ‘wealthy’ area in town (and very few from poorer areas, or rural areas), or from the most powerful ethnic, religious, or language group (and very few from minority groups). Or perhaps you have noticed that very few of your surgical patients are elderly widows. Collecting clinic-based information is a way to confirm or uncover these sorts of inequalities.

Who should we monitor?

To reduce inequality, we must identify which **subgroup(s)** of the population (e.g. farmers, people from poorer or urban areas, or minority groups) are less able to get access to, and benefit from, our services. Some of us work in settings where the Ministry of Health and/or hospital has already identified priority subgroups to monitor, so advice and resources may be available locally. For others, we will need to decide which subgroups are most relevant to monitor in our particular setting.



Lance Beilers/CEH

Gathering appropriate information helps us to understand inequality. TANZANIA

The acronym ‘PROGRESS’ can help us to think about which subgroups to monitor, as it sets out a range of social factors that are often associated with health inequality (Figure 1.)² Some of these have obvious subgroup categories (e.g. age, gender, disability), but others require us to adopt clear and consistent definitions, e.g. socioeconomic status, education level, area of residence (rural vs urban) or occupation category.

Figure 1. PROGRESS: social factors associated with health inequality²

P	Place of residence
R	Race, ethnicity, culture and language
O	Occupation
G	Gender and sex
R	Religion
E	Education
S	Socioeconomic status
S	Social capital
Plus	Age, other disability, migratory status

What should we monitor?

Once we have identified the subgroups, we can use any of our routinely collected **health indicator(s)** to investigate inequalities between the subgroups. These indicators include:

- The prevalence of conditions (e.g. blindness, visual impairment, trachomatous trichiasis, diabetic retinopathy)
- Quality of care (e.g. visual outcome after cataract surgery).
- Access to services by different groups; e.g. cataract surgical coverage, cataract surgical rate, refractive error correction coverage, attendance at diabetic retinopathy screening, ability to pay
- Eye care service factors; e.g. the distribution of eye care facilities and the eye health workforce, and the availability of subsidised services or financial protection for vulnerable subgroups.

Equality vs equity

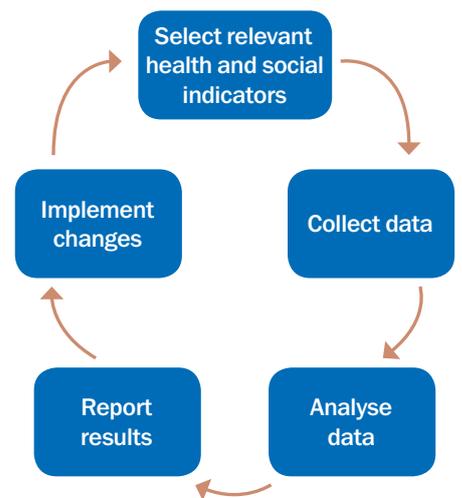
We must remember that equal rates of treatment between subgroups (such as surgery) will not necessarily mean we are delivering equitable services. For example, the Nigerian National Blindness and Visual Impairment Survey showed that, although women had received almost half of all cataract surgery (47%), they still suffered from two-thirds of the bilateral cataract blindness (67%)⁴ in the country. This means that Nigerian women must receive **much more than 50%** of all the operations in order to reduce this inequity.

How do we monitor inequality?

We can incorporate inequality monitoring into our hospital or clinic’s existing system, whether electronic or manual. The monitoring cycle is shown in Figure 2.

We have already selected the relevant health and social indicators and chosen the subgroups we want to monitor. The next step is to collect the data. If we want to know if there is inequality in who receives cataract surgery, for example, we can begin to record, on a regular basis (e.g. monthly), the number of people in each of our selected subgroups who are receiving surgery.

Figure 2: Cycle of health monitoring



Adapted from Figure 1.1 of WHO’s Health Inequality Monitoring Handbook³

Once we have collected the data, we can calculate, and then compare, the proportion of cataract surgery delivered to each subgroup (e.g. by dividing the number of women by the total number of operations). These figures are often

presented as percentages (the proportion multiplied by 100). Another simple way to quantify inequality is to calculate the gap between the subgroups (e.g. subtract the number of women from the number of men to see how many more men have received surgery).

This can be done on a monthly, quarterly and annual basis, and inequality calculations can be reported alongside the total number of operations in each subgroup in well-designed tables, graphs and maps. The information can then be communicated to hospital administrators and health managers. A worked example is provided below.

When expanding your monitoring process, try to be realistic about what is

feasible and sustainable in your setting. It is better to begin with a small number of indicators (such as uptake of cataract surgery by gender and urban/rural residence) and collect and analyse these accurately and consistently, rather than introducing many measurements that take a lot of time and effort; which means it will become unsustainable. You can expand your monitoring system with more indicators once it is running smoothly.

Monitoring is essential if we are to understand the nature and extent of inequality in the populations we serve. The information must then be used to inform policies, programmes and practices to reduce inequities and

ultimately achieve universal eye health. For more information on monitoring inequality, see WHO's Health Inequality Monitoring Handbook: http://www.who.int/gho/health_equity/handbook/en/

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Worked example

Imagine your eye clinic is in an urban centre (population 150,000) that also serves the surrounding rural district (population 350,000). You conduct intermittent outreach services, and would like to conduct more as you think few rural dwellers are coming to your eye clinic.

You begin to monitor who is presenting for cataract surgery. In the first quarter you conduct no outreach trips and your monitoring data for January to March is shown in Table 1.

Table 1. Tally of cataract operations by gender and area of residence

	Number of operations		
	Women	Men	Total
Rural	4	31	35
Urban	91	94	185
Total	95	125	220

You can work out and compare what percentage of the total number of operations were performed on patients belonging to each subgroup, e.g.:

- 57% of patients ($125 \div 220 \times 100$) were men
- 43% of patients ($95 \div 220 \times 100$) were women
- 84% of patients ($195 \div 220 \times 100$) were urban
- 16% of patients ($35 \div 220 \times 100$) were rural

You can further demonstrate the inequality between women and men, and between rural and urban dwellers, by calculating the absolute gap (subtract the smaller number from the larger number) and the relative gap (divide the larger number by the smaller number).

Table 2. Measures of inequality: absolute gap and relative gap

	Absolute gap Difference	Relative gap Ratio
Gender	Men – Women $125 - 95 = 30$	Men \div Women $125 \div 95 = 1.3$
Place of residence	Urban – Rural $185 - 35 = 150$	Urban \div Rural $185 \div 35 = 5.3$

In a report, you would normally include Table 1 (which shows the number of operations in each subgroup) and compare the percentages in each subgroup). In addition, you can use the information about the relative ratio to point out that there were 1.3 times more male than female patients, and 5.3 times more urban than rural patients.

This information alerts you that rural dwellers, and rural women in particular (of whom there were only 4), are not accessing your services as much as their urban counterparts.

You then decide to do more outreach and deliver two outreach activities in the next quarter. The monitoring data for April to June is given in Table 3.

Table 3. Tally of cataract operations after outreach

	Women	Men	Total
Rural	35	41	76
Urban	62	59	121
Total	97	100	197

Table 2. Measures of inequality after outreach

	Absolute gap Difference	Relative gap Ratio
Gender	Men – Women $100 - 97 = 3$	Men \div Women $100 \div 97 = 1.0$
Place of residence	Urban – Rural $121 - 76 = 45$	Urban \div Rural $121 \div 76 = 1.6$

You might conclude from this that providing outreach services has been effective in reducing both gender and place of residence inequalities. You could use this information to advocate for regular outreach activities and continue to monitor your services each quarter to identify further changes that are needed.



Putting women's eyesight first



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Two-thirds of blindness and visual impairment occurs in women¹, and recent prevalence surveys in Vietnam and China show an imbalance in the coverage of services across some areas. We know that, compared to men, women account for the greater burden of blindness from cataract.² Women and girls face numerous barriers in accessing eye care services and are less likely to utilise them.

Understanding gender dimensions is an important aspect of public health and development. In 2009, Gender was the theme for World Sight Day and the focus of articles in this Journal.³ The World Health Organization action plan called Universal Eye Health: A Global Action Plan 2014-2019⁴ prioritises equity and it is clear that we need to do more to improve services for women and girls.

What are the barriers for women and girls?

Often, the barriers faced by women are not fully understood by health care providers. Greater understanding can be achieved through regular data collection (separately for men and women), knowledge, attitudes and practice (KAP) surveys, satisfaction surveys and gender analyses. Consultation with both women and men helps to ensure that services are delivered in a way that is gender-sensitive and relevant to that community.

Lack of access to household resources and opportunity costs (e.g. loss of income due to the time taken to attend appointments) prevent women from accessing eye care services. As women are often less educated than men and are less likely to access information outside the home due to their caretaking role, they are also less aware of eye health treatments and services. Women have reduced power to make decisions in the household and sometimes de-prioritise their own health in favour of others in the family.



A woman waits to have her patch removed after surgery. KENYA

Mark Maina/Fred Hollows Foundation

sufficient. Some organisations already disaggregate data by gender for analysis, but it is important that all eye care organisations should do so. Data should be carefully analysed and compared to the demographics of the community. Are there gender differences in the number of patients? Why do they exist? Do the numbers vary on certain days or in different locations? How does the gender balance of staff members affect the balance of patients? Increasingly, donors

expect this data and expect to see gender issues addressed.⁴

How can we improve?

Although many barriers exist for both men and women, gender inequalities makes access harder for women. In November 2015, a regional forum (meeting) was held in Cambodia to focus on improving eye health for women and girls. Knowledge from the forum and from other effective models will be used to produce a guide for good practice. The forum highlighted five practical ways to improve services for women and girls.

- 1 Ensure services are community-based.** Screening and appropriate treatment should be provided close to home or in the workplace. Outreach services should be tailored to the specific needs of women and girls and be organised at a time and location suitable to maximise their participation. Schools and market places are two possibilities, but the best ideas and advice will come from women themselves – therefore encourage female community representatives to work with you in programme design.
- 2 Tap into the expertise of others.** Partnerships with women's organisations, the women's agency or ministry in the government, maternal and child health services, gender-focused NGOs and microfinance networks can strengthen and more effectively target programmes for women and girls. In Cambodia, the Fred Hollows Foundation is working with the Ministry of Women's Affairs to deliver a project to remove the barriers faced by women.
- 3 Disaggregate and analyse data.** Disaggregating (or splitting) clinical data by gender and age is critical – just collecting the figures is not

- 4 Create opportunities for women across the eye health workforce, and support them.** Although this varies according to cultural contexts and regions, the gender of eye health workers can affect access to services by female patients. Female eye health professionals need to be supported and mentored. Women often have to work extra hard to negotiate for resources to do their clinical work and must balance family pressures. They also face a greater risk of overt and subtle discrimination and violence in the workplace. Managers of programmes, services, clinics and hospitals need to be attentive and responsive to ensure female workers are employed, retained and promoted.
- 5 Reach higher.** Our approach should be based on equity, not just equality. In many contexts, it is not enough for service data to report an equal 50/50 split between men and women. Blindness prevalence is generally higher for women because they have a longer life expectancy and are more likely to experience non-communicable diseases such as cataract and communicable diseases such as trachoma. Some organisations set firm targets that encourage services to reach a higher number of women than men.

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How to ensure equitable access to eye health for children with disabilities



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All children need access to good quality eye care, and this must include children with disabilities.

Childhood disability is very common. The World Health Organization (WHO) estimates that there are at least 93 million children with disabilities worldwide, which equates to one in twenty children.¹ Childhood disability is particularly common in low- and middle-income countries.

Children with disabilities may have a particularly high need for eye health services. This is because eye problems are a common cause of disability in children, and children with disabilities are particularly vulnerable to eye problems. For instance, one in three children with cerebral palsy experiences visual impairment.

Eye health services will exclude many children if they are not accessible to children with disabilities or if they are not proactive about ensuring inclusion. Eyesight is very important for all children, even more so when children have other impairments, such as those who are deaf or hard of hearing.

Even though children with disabilities have a greater need for eye health, they may not have equal access to these services, because they face a number of barriers, including:

- **Financial barriers**, e.g. paying for travel or services, since children with disabilities are more likely to come from poor households.¹
- **Physical barriers** that limit access to buildings or transport
- **Attitudinal barriers**, e.g. when children with disabilities are seen as less worthy of attention by their own families or health workers.
- **Communication**, e.g. for children who are deaf or hard of hearing or who have intellectual impairments/learning difficulties.

Eye health services therefore need to be strengthened to ensure that children with disabilities have equal access, and this must cover all the different activities (e.g. screening, outreach, outpatient, counselling, medical and surgical treatment, and referral to other services).

The first step in ensuring that children with disabilities have equal access to eye health is to

understand the different difficulties they face in accessing services in your setting. Children with disabilities are not all the same. For example, children who are deaf or hard of hearing will face different difficulties in accessing eye services compared to children with physical impairments or those with intellectual impairments. It is therefore very important to work with people with disabilities and their families in the community to find solutions together. As the disability movement says: 'Nothing about us without us.' In order to do this, it is useful to link with a local disabled persons organisation or other people with experience of living with disability.

This consultation process will identify specific things which can be strengthened in your setting, from which a disability plan of action can be made.²

Clinics must be made physically accessible for children with disabilities. The child should be able to enter the building and access the clinics, toilets and washing facilities. It is also important that equipment can be used to examine and treat children with disabilities, so that they can receive the same quality of treatment as everyone else. Ideally, physical accessibility should be considered when the clinic is being built, but there is much that can be done to improve existing facilities.

Outreach eye care services for children are often conducted in schools.

However, many children with disabilities are not enrolled in school, and so will miss out. Linkages can be made with local community health workers and also with rehabilitation programmes so that children with disabilities who don't go to school can still be included.

Staff must be trained in disability awareness to make sure that they interact well with children with disabilities and their families. This can include raising awareness about the rights of children with disabilities to have access to eye services, challenging negative attitudes, and offering practical training on communication with children with disabilities. Eye health workers can also receive the encouragement that the care they provide may change the whole life of those children, resulting in their inclusion in education, livelihoods and social opportunities. Local Disabled People's Organisations may be able to deliver, or participate in, the training.

Systems can be strengthened to help overcome cost barriers for children with disabilities, as for other marginalised patients. For instance, transport services may be set up or subsidised to help children with disabilities.

Formulating a plan is the first step, but it must be carried out. It can be useful to establish a disability committee or focal person to oversee the implementation of the plan and to develop

a specific disability policy. It is important to designate a budget line for disability inclusion to cover the costs. The plan and policy may evolve over time, so the programme must be reviewed regularly to make sure it is constantly being strengthened.

VISION 2020: The Right to Sight aims for all services to be equitable, and so must include children with disabilities. Furthermore, if children with disabilities do not have equal access to eye health then this violates their right to health care, and may also deprive them of life-long opportunities. It is the responsibility of all eye health workers to make sure that children with disabilities are fully included in their services.

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Amina is profoundly deaf and then found her eyesight was deteriorating; this made communication difficult as she had relied on her sight for lip reading. Following an eye examination, Amina had surgery for congenital cataracts and received spectacles. She is also receiving rehabilitation to assist her with both her deafness and remaining vision impairment. These intervention activities will greatly improve Amina's ongoing opportunities in social inclusion, education and the chance of decent work as an adult.

Assisting people who are visually impaired

Can I help you?

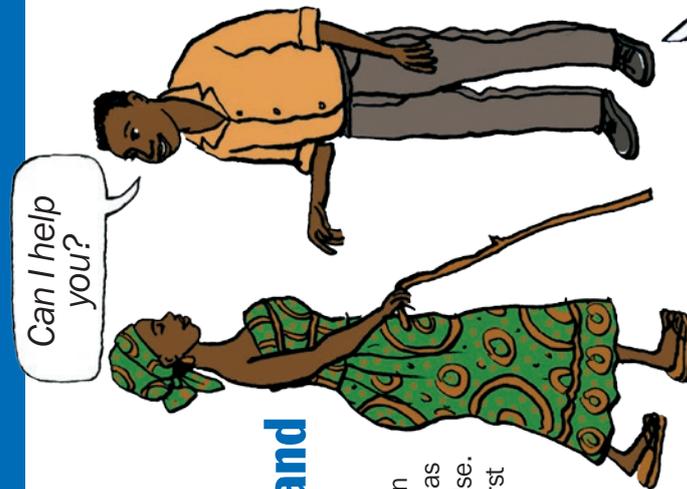
Meeting and greeting

Always treat a person with impaired vision as you would anyone else. Introduce yourself first before offering help.



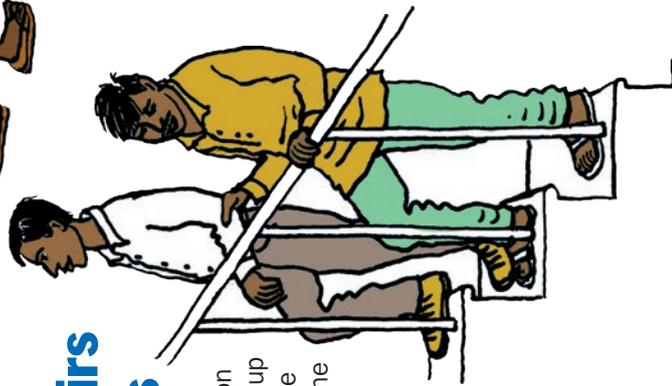
Guiding

Walk side by side. Allow the person with impaired vision to set the pace and to hold your elbow (hand to elbow).



Steps, stairs and slopes

Tell the blind or visually impaired person whether you are going up or down, and allow time for her or him to hold the handrail. Go one step ahead and take a slightly longer stride on the last step to allow your partner space.



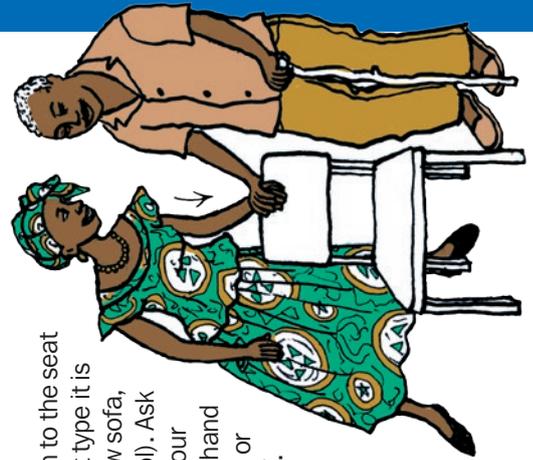
Doorways

Tell the person whether the door opens towards or away from you. Position yourself so that your partner will pass through the door on the side of the hinge. Open the door with your guiding hand. Allow your partner to feel the handle, follow you through the door, and close the door behind both of you.



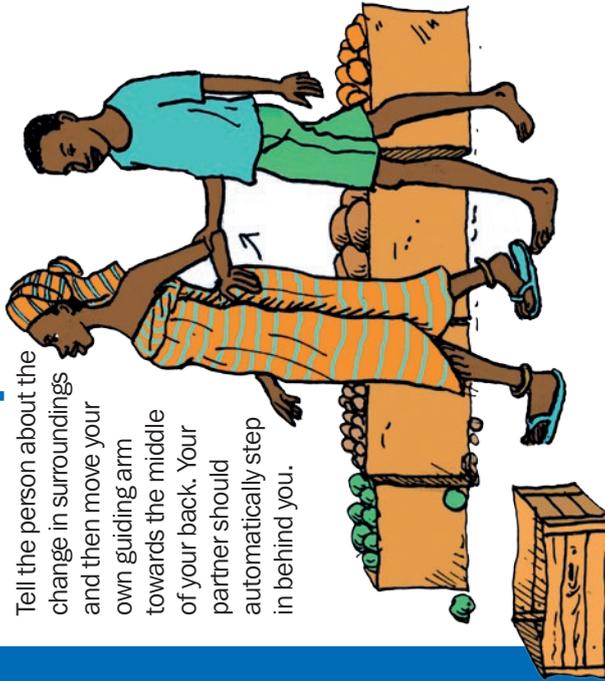
Seating

Guide the person to the seat and explain what type it is (upright chair, low sofa, armchair, or stool). Ask him to let go of your arm and place a hand on the seat back or on the seat itself. He will now be able to judge its height and sit down safely.



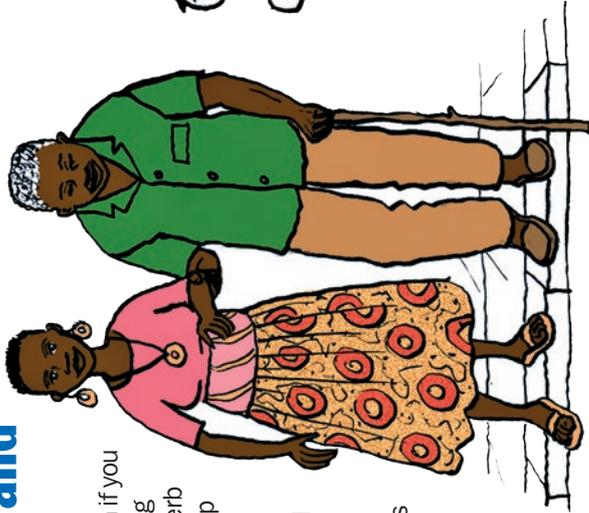
Narrow spaces

Tell the person about the change in surroundings and then move your own guiding arm towards the middle of your back. Your partner should automatically step in behind you.

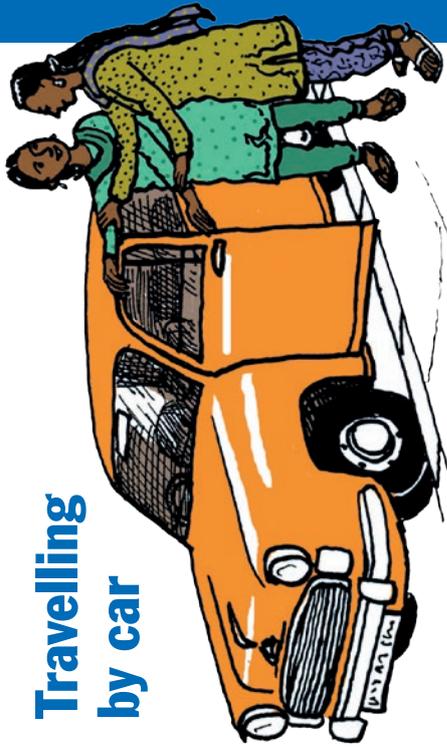


Roads and kerbs

Tell the person if you are approaching 'kerb up' or 'kerb down' (the step onto or off a pavement or sidewalk), and pause slightly before taking the step. Cross the road using the shortest distance - usually straight across.



Travelling by car



Tell the person if she is getting into the back or the front seat of the car, and whether it is facing left or right. Place your guiding hand on the door handle and allow her to slide her grip hand down your arm to the door handle. With the other hand she will be able to note the car roof and lower her head appropriately. At the end of the journey, get out first and help your partner out.

Remember!

Incorrect position



'Don't pull me'



Correct position



'Walk with me'





The importance of assessing vision in disabled children – and how to do it



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Children with disabilities are at a much higher risk of having visual impairment than those without disabilities (10.5% vs 0.16%)¹ and are also at higher risk of other ocular disorders such as strabismus and refractive error. One reason for this higher rate among disabled children is that brain injury (such as pre-natal asphyxia or prematurity) underlies a range of disabilities, including learning disabilities and sensory impairments.

Sadly, however, children with disabilities often have poorer access to eye services (see page 9), even though it is possible for their visual function and eye health to be accurately assessed – as we will show in this article.

Clinical history taking

It is important to take a careful history from either the child (depending on age, development and communication ability), or from the main carer of the child, or both. Carers can be asked if they have noticed whether the child has any problems moving around or finding things, or responding to a smile – both of which can be related to poor vision. Children with blindsight (see panel opposite), but who are not mobile, may rock to and fro. They do this to create apparent motion of their visual environment in order to obtain some visual stimulation.

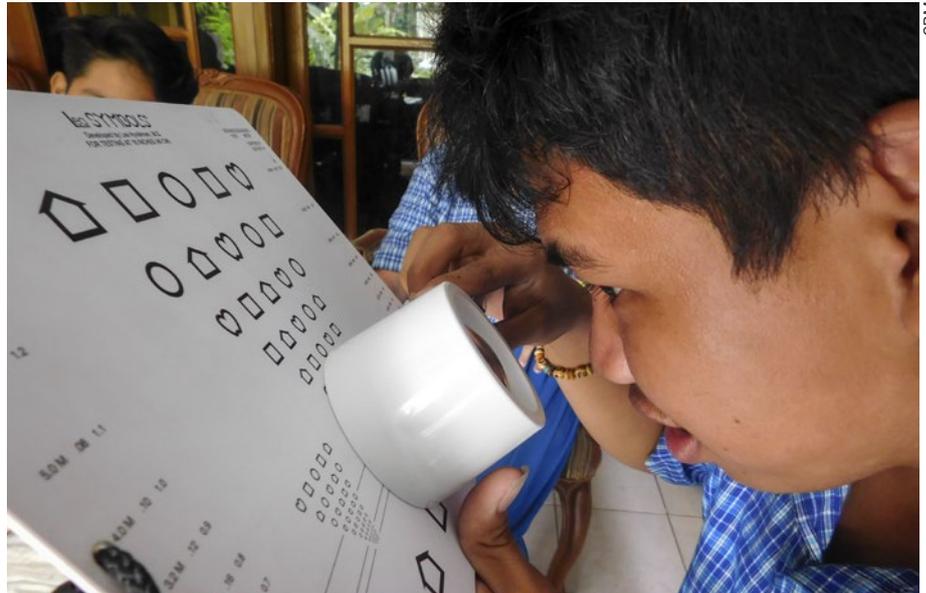
You may wish to adapt how you respond to children depending on the type of impairment that the child has.

• Child with intellectual impairments.

It is useful to know the developmental age of the child so that language and questions can be developmental age appropriate. When talking to the child it may be helpful to slow your voice down and to exaggerate facial expressions.

• **Child with hearing impairments.** Mild hearing impairment may require slower, louder speech, making sure the child can see your mouth (as they may also lip read). The consultation should be in a quiet room. More severe hearing impairment may require sign language.

• **Child with mobility impairments.** It is important to make the clinic comfortable and easy for these children to access. It may be necessary to make some changes to the clinic, such as a ramp for wheelchairs or for children who use crutches. Alternatively, children



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A child with a hearing impairment undergoes a low vision assessment at the school for children with disabilities which he attends. CAMBODIA

might have to be assessed at home.

Handheld equipment such as a portable slit lamp may be needed.

• Child with behavioural difficulties.

Assessing these children requires patience, a quiet environment and finding out from carers when is the best time of the day for an assessment.

Gordon Dutton and his team at the Royal Hospital for Sick Children, Glasgow have developed the Visual Skills Inventory, which can be a useful basis for taking a structured history.² For children with profound motor and/or intellectual impairments, the shorter version of this inventory (the Short Visual Skills Questionnaire³, adapted by the Vision Science Research Group at Ulster University) is useful. It contains questions such as:

- Does she know and recognise your face? Other peoples' faces?
- Does he react to you approaching him?
- Does she react to a light being switched on?
- Does he screw up his eyes in bright light?
- Does she return your silent smile?
- Does he reach for objects? What size?
- Is she aware of a spoonful of food coming towards her mouth? From both sides?
- Does his vision seem better in bright or dim light?

For children with less profound disability and better vision it is often possible to take a more detailed history, looking for evidence of visual-perceptual problems.

For these patients, the full Visual Skills Inventory³ is helpful. It is longer with 53 questions and is useful for older and less profoundly disabled children. It has been shown to be reliable and has been used effectively in the UK⁴ and in Bangladesh⁵ to elicit problems with higher visual function in disabled children.

The inventory can be particularly helpful for children with a mild disability (motor or intellectual), and often with good visual acuity, who seem to have a lot of trouble visually processing the real, busy, crowded, moving world. Their problems can include difficulty finding objects or recognising faces, difficulty walking on uneven ground, and difficulty seeing moving objects.

Once their problems are better understood, suggestions can be made on how the impact can be minimised to improve the quality of life of these children and their carers. The Visual Skills Questionnaire now has specific recommendations³ for adapting the environment and behaviour of the child both at home and at school, depending on the answers given. The family or carers will therefore have a set of recommendations which are tailored to the particular needs of their child.

For example, if a child cannot recognise faces, the parent can agree to wear clothes of a particular colour when meeting them outside school. If there is loss of vision in the lower field and poor visual control of the legs, then a child is taught to stop and look down before negotiating rough ground

or steps. Such simple changes can be surprisingly effective.

In addition to all of the above, it is important to take a routine medical history in order to understand the cause of the child's disability. For example, a child born prematurely and who has cerebral palsy is likely to have cerebral visual impairment and/or visual-perceptual problems. A child without disabilities whose parents report that her development has stopped, or even gone backwards (i.e. she can no longer read), may have a rare neuro-metabolic condition with retinal manifestations, e.g. Batten's disease.

Clinical examination

To assess a disabled child, we should ideally be in a calm environment, when the child is not too tired. Vision can fluctuate significantly according to environment and tiredness, especially for children with cerebral visual impairment (see panel). It is important that you, the child, and the parents or carers are feeling relaxed, so allow enough time for the examination and schedule it when the child is likely to be most active and alert.

The examination should be thorough and cover all the basics, as disabled children are more likely – not less likely – to have abnormal visual findings. Research into children with cerebral palsy in Bangladesh and India showed that the majority could perform preferential looking visual acuities e.g. Cardiff Cards or Teller compared to recognition tests such as Snellen or Lea recognition/matching.

Preferential looking tests are detection tests, not recognition tests, and the results should not be taken as equivalent to Snellen values even if the preferential looking card has a 'Snellen equivalent' written on it. Nevertheless, they are very useful for pre-verbal or non-verbal children. The choice of visual acuity charts should be decided by the child's mental, not chronological age. For example, a 10-year old child with an IQ of 50 would respond well to a visual acuity chart that measures the vision of a 4- or 5-year old.

Visual fields can be assessed by confrontation. Field defects are quite common in disabled children, particularly if there is brain pathology. Evidence of a hemianopia or bilateral lower visual field loss (which is common) can be obtained by basic confrontation techniques. Functional vision can be assessed briefly using the questions from the Insight visual skills inventory as a basis, especially if the carer is not sure of the answers to these questions.

Eye movements should be assessed using standard methods. Slit lamp examination can be performed for a child in

CBM



Portable equipment makes eye examinations easier to carry out

a wheelchair using a side-on approach or sometimes by removing the foot platforms. Portable slit lamps, such as those used for babies, can also be useful for very immobile children.

Dilated fundoscopy, at least once, is essential (as for any paediatric examination). Ask yourself:

- Are the optic discs swollen, which might suggest hydrocephalus?
- Are the optic discs pale or smaller than usual?
- Is there cataract in children with Down's syndrome?

- Is there retinal pathology, which can offer a hint about the underlying condition?

Finally, cycloplegic refraction is one of the most important parts of the examination. There is a high rate of refractive error in children with disabilities and spectacles may be the safest and most effective intervention we can give. Even if they are emmetropic, many children have poor accommodation and therefore are relatively impaired for near vision. It may well be worth a trial of +3.00 spectacles, even at an early age (when the main visual world of interest is near). These spectacles also give magnification when there is reduced acuity.

The lives of children with disabilities are significantly improved when they receive the eye care they need. Children with disabilities are at greater risk of having visual impairment and eye care professionals should therefore actively seek out and provide eye care to disabled children – it is worth the effort.

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Vision and the brain

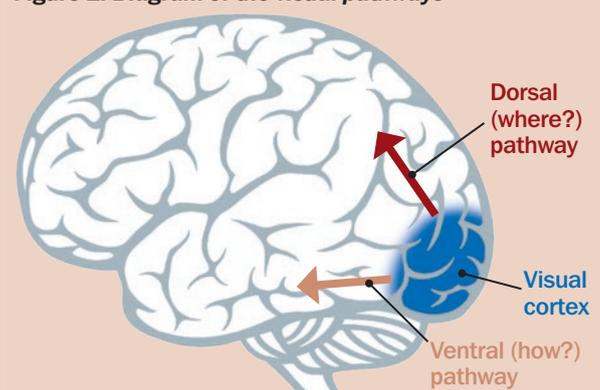
The function of the eyes is to generate clear, focused images which are transmitted to the visual cortex of the brain via the optic nerves and optic tracts.

From the visual cortex, information is transmitted to multiple other areas of the brain (higher centres) via ventral and dorsal pathways, so that the visual information can be interpreted ('I know that face') or acted upon (a faster heart beat after seeing a snake on the path in front of you). Some of the reactions are conscious, but many are subconscious, for example 'blindsight'. This is the ability of some people with profound visual impairment to see movement which allows them to navigate reasonably well without bumping into things.

Many children who are disabled have problems with **seeing** (due to damage in the pathways leading to the visual cortex).

Other disabled children have difficulties **interpreting** visual information as a result of damage to the pathways leading **from the visual cortex** to the higher centres, or as a result of damage to the higher centres themselves; these are called visual-perceptual problems.

Figure 1. Diagram of the visual pathways





Eye care in rural communities: reaching the unreached in Sunderbans



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Good health is dependent on having services which are accessible and affordable. The Sunderbans in West Bengal, India, is a conglomeration of 106 islands, 52 of which are inhabited, and the remaining of which are home to India's famous tigers and the world's biggest mangroves. Small boats are the main mode of transport.

Sunderbans has the most deprived and marginalised population in India, with more than 40% of households living below the poverty line and 13% officially declared as the poorest of the poor.¹

The health infrastructure is dismal and nearly 70% of health services in the Sunderbans is provided by the government (in the public health system). There is a huge shortfall in the number of primary health centres and in the number of people working in the public health system. The general morbidity rate is higher in Sunderbans than in the rest of West Bengal: about half of the children under 5 years are chronically malnourished and women are very vulnerable. The Sunderbans are prone to natural disasters, which further accentuates poor health conditions.

People in the Sunderbans are significantly disadvantaged in terms of eye health: whereas the prevalence of blindness amongst people aged 50 and above in West Bengal is 1.19% (and in India 1.0%), the prevalence of blindness in Sunderbans is 2.1%.

To address these challenges, Sightsavers is implementing the *Sunderbans Eye Health Service Strengthening Project* supported by Seeing is Believing. The five-year project, which started in September 2013, has recognised that multiple efforts and approaches are needed to address the inequity in eye health experienced by the people of Sunderbans. They have therefore employed various strategies to provide services and access to these remote communities: both by strengthening the existing channels of eye care provision and by creating new ones to provide eye health services in this rural part of West Bengal.

Establishing vision centres

At the core of the project are 17 vision centres at locations where the 'block' (or



Rural Medical Practitioner Narayan Haldar at his clinic with a patient in Basanti, Sunderbans. INDIA

local) government administration has its offices. Refraction, detection of cataract, provision of subsidised spectacles and making appropriate referrals are amongst the services delivered at these centres. People from the local area manage the vision centres after receiving specialised training to ensure a good quality service. The vision centres are linked to hospitals which help patients to make use of free and subsidised services that are available under government schemes, including operations. They are designed within a sustainability framework to ensure delivery of services beyond the life of the project.

Direct service delivery

As the vision centres gain popularity and acceptance, outreach camps are being held to reach even more remote areas and to focus on the needs of those who get left behind or are more vulnerable, including women and girls, older people, and people with disabilities. Vision assessment and outreach refraction services are also organised in schools, and the aim is to reach 457,000 children. Every child identified with correctable refractive error is offered free spectacles.

Strengthening existing systems

It would be futile to address issues of accessibility while working independently of the government. At present, the sub-divisional government hospitals in Sunderbans are poorly managed, conducting fewer than one hundred cataract operations every year. The project is planning to conduct a facility survey to find out what needs to be done, and where, to enhance the capacity of these hospitals, for example by providing training in cataract

management. In addition, 930 government health workers such as accredited social health activists (ASHA) and auxiliary nurse midwives (ANMs) are being trained to help with identifying cataract and creating awareness. The idea is to come alongside the hospitals and work with them to improve services.

While working in the community, one cannot ignore informal health seeking channels. One such channel in Sunderbans is rural medical practitioners (RMPs) or 'village doctors'. They practise modern medicine without any regis-

tration or qualification. However, 62% of outpatients are treated by them.¹ The project therefore aims to train 2,520 RMPs in primary eye care and appropriate referral.

Creating new workers and awareness generation

Volunteers from villages are trained to improve eye health awareness and uptake of services locally. They are selected from the groups who are most likely to need eye care: women and young people.

The volunteers are called 'Health Ambassadors.' Through them, the project receives credibility, acceptance and reach. A total of 3,814 volunteers will be trained.

Service availability is not enough: people must be aware of services and be motivated to come forward. Through media such as radio, leaflets, posters, local folk theatre and interactive games the project is trying to make people aware that the service is now available – and that it is accessible and affordable.

Monitoring using GIS technology

Monitoring effectiveness and reach is crucial. With a population as widely-dispersed as in the Sunderbans, the use of geographic information system (GIS) technology is indispensable. It has allowed us to record information from the baseline findings (about the need for eye care) on a map. Patient information from vision centres is then plotted on the same map so we can estimate coverage and see how far into the rural areas the vision centres reach. This is helping to ensure good coverage in all respects.

Reference

- http://r4d.dfid.gov.uk/PDF/Outputs/FutureHealth_RPC/sunderbans.pdf



Improving access to eye care for older people: experiences in South Africa

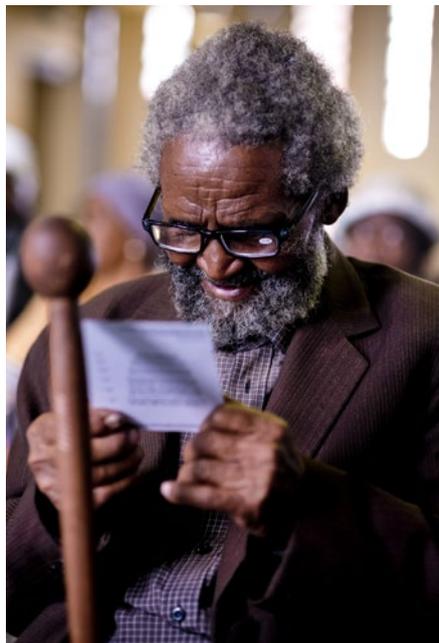
Older people need greater access to good eye care: 82% of people living with blindness worldwide are over 50, even though they only represent 19% of the world's population.¹ In South Africa, the 80% of people who are unable to afford expensive private medical insurance are reliant on the state to provide affordable health care.² Older people have access to primary health clinics in the community where many of their health needs are met, free of charge. However, eye care has mainly been provided by private optometrists (usually based in city centres) and at district and university teaching hospitals, which have been struggling to cope with the demand.

Concerned about the lack of eye care provision for older people, the Brien Holden Vision Institute has been working with the provincial departments of health in both KwaZulu-Natal and Gauteng to improve and expand eye care in primary health clinics; this was first achieved in KwaZulu-Natal through the Giving Sight in KZN Project. **Sally Crook** of Seeing is Believing (which has been involved in supporting this work), spoke with **France Nxumalo** about the challenges of replicating the project in Gauteng. France led on the Gauteng project for the institute and has since moved on to a position within the Department of Health in South Africa.

How did this project come about?

The Brien Holden Vision Institute started collaborating with the Gauteng Department of Health (DOH) in 2010, initially focusing on school eye health. As we started to look at the wider health system, however, one key gap that emerged was access to eye health for older people in Soweto, an area of socio-economic deprivation. There were long waits to see an optometrist and no access to affordable spectacles. Older patients were going directly to the university teaching hospital, resulting in long queues.

The DOH was initially reluctant to adopt the model. However, we conducted active advocacy that culminated in a visit to KwaZulu-Natal by the Gauteng managers. As a result, the DOH agreed to add eye care services to the services already provided by local primary health care centres, where older people were already going for support with all their other health care needs. The DOH agreed to provide space, access to district health information systems, staff (nurses and optometrists) and services.



Brien Holden Vision Institute

Older people need access to eye health in their own community. SOUTH AFRICA

How did you support the DoH to understand the eye care needs of older people?

Advocacy was key. We shared prevalence data demonstrating the eye care needs of older people with senior managers. We also organised a visit to KwaZulu-Natal to show managers the primary eye care model that was already working there. The Gauteng managers were then able to discuss the model with their KwaZulu-Natal counterparts and saw how the programme was implemented at both primary and district levels.

What happened once the Gauteng DOH agreed to the project?

The nurses working in the clinics had to be trained in primary eye care so they would be able to screen and refer the older patients. Optometrists had to be recruited and access to equipment and consumables also had to be addressed. There are already full-time optometrists providing services at 13 Soweto primary health care centres, with plans to have a full-time optometrist serving each of the remaining primary health centres in the province. At some facilities, where the nurses are particularly busy, health promoters (who were already employed in the primary health care centres) were trained to assist with screening.

How has the new model improved access for older people?

Older people are already visiting primary health care centres for their other health

care needs, so they are now able to access refractive error and screening services very easily. There are clear referral links with other chronic clinics, such as diabetes and hypertension clinics, and access to cataract services has improved thanks to referral to the local district hospital. Only patients with more complicated needs are referred, within the health system, to the provincial hospital. Reading spectacles are dispensed free of charge although prescription spectacles must be paid for. The government is currently working on a sustainable model of spectacle supply.

Are people using the new services?

The number of older people seeking care at the primary health care centres has increased and is still increasing. People like the new eye care services and use them as access is much easier – the services are nearer to their homes and wait times are shorter. This improvement in access at the primary and district level has also eased pressure at the university teaching hospital level, which has been noted by the DOH.

Is this model sustainable?

Yes, it is sustainable because it is integrated into the DOH system, which means that the staff and facilities are all paid for by the government. Spectacle supply remains an issue as government staff at primary level facilities cannot accept cash for spectacles or services.

What are the key things you have learned in this process?

- Advocacy is important and needs to be continued. We had to provide evidence to back up the model proposed. Showing senior managers what worked helped to engage them in the issue.
- The government needs to be involved early on. Their commitment was needed to employ a new cadre of staff (optometrists) and this also prevents future collapse of the project.
- Be adaptable and be prepared to change strategy. For example, when the primary health centre nurses did not have enough time during their working day to deliver all the necessary eye care, we trained the health promoters to take on some of the eye care workload.

Reference

- 1 Evans J. Eye care for older people. *Comm Eye Health J* 2008. 66(21):21-23.
- 2 <http://www.southafrica.info/about/health/health.htm#.V1636luraN5>

Assessing vision in a baby



Richard Bowman

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Don't be anxious about examining a baby. If the baby is awake and attentive, there is a lot you can find out by asking the parents and by simply observing the baby's reactions.

- First, ask the parents what they think about their baby's vision.
- Notice how the baby looks at things in the room, such as the window or any lights.
- Watch for eye contact between the baby and parents.
- Does the baby look when someone comes into the room?
- Does the baby respond to silent smiles or to raised eyebrows?
- Do you get eye contact?

You should have realistic expectations about what a baby should be able to do by a certain age. Table 1 shows when a baby is too young to show a visual response, when the response is likely to develop, and at what age you should be worried if a baby does NOT show the expected response. You can ask the mother or



Figure 1. An eye care worker checks a baby's fixation. The baby is looking at her face, which is a reassuring sign.

Aderonke Baiyerolu

check the baby's responses yourself.

For example, if a baby of about three weeks old does not turn to a diffuse light, such as light coming from a window, you would not necessarily be worried – although you would still believe the parents if they are concerned. On the other hand, if a baby is eight weeks old

and does not eventually turn to a diffuse light, then there may be a problem and you should investigate further.

Bear in mind that there can be a lot of variation in babies' development; however, the table should be a helpful guide.

The most common and helpful test is the ability to fix and follow a light or a face.

Table 1. Normal visual functioning for a baby

Behaviour	Age				
	Neonate	6 weeks	3 months	4 months	5 months +
Blinks when a light is flashed in their eyes?	Healthy babies will do this. If not, suspect a problem				
Turns to a diffuse light, such as a light coming from a window?	May do it	Healthy babies will do this. If not, suspect a problem			
Looks at your face when 10–20 cm away (less than 1 foot)? Any response to silent smiles or eyebrow raising?	Too young	May do it	Healthy babies will do this. If not, suspect a problem		
Eyes fix on, and follow, a dangling ball or toy?	Too young	May do it	Healthy babies will do this. If not, suspect a problem		
Watches an adult at 1.5 metres (5 feet)?	Too young	May do it		Healthy babies will do this. If not, suspect a problem	
Converges accurately? (If you move a toy closer and further away, do the eyes focus on the toy and line up properly?)	Too young	May do it		Healthy babies will do this. If not, suspect a problem	
Blinks in response to a threat? (Any silent, sudden movement close to the face which causes no breeze, e.g., opening your fist very suddenly.)	Too young	Too young	Too young	May do it	Healthy babies will do this. If not, suspect a problem



Wanjiku Mithenge

Figure 2. A healthy baby with good fixation. It is clear that he can see the camera and is reaching out for it.

This can be recorded using CSM notation, where:

- C = Central (fixing)
- S = Steady (following)
- M = Maintained (fixation resumed after cover/uncover)

Tips for examining a baby

- Try to carry out as much of the examination as possible without touching the baby. Children often resist having their eyes held open, for example.
- Have many toys available. For each new toy, the baby will momentarily hold their eyes steady, allowing a quick examination. If available, use toys which are bright and can flash on and off. A good rule to remember is one toy, one look.
- Don't be embarrassed about making funny noises! These help to attract the baby's attention and to keep them interested and calm.
- In order to be able to do a more detailed examination in an infant, examine the child while he or she is being bottle fed or breast fed.

If you are struggling, ask the parent's permission to wrap the baby. Place the baby on a blanket or sheet, hold the arms to the side and the legs straight, and wrap the blanket around the body and arms (Figure 3). Ask the parent to hold the baby. Either the parent or a helper can then carefully open one eye at a time for the examination by gently holding the eyelids apart, without putting pressure on the eye. Remember that this may be very stressful for both the baby and the parent.



Sue Stevens

Figure 3. Wrapping a baby for an eye examination.

Understanding and caring for the direct ophthalmoscope



Ismael Cordero
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A direct ophthalmoscope, or simply an ophthalmoscope, is a hand-held optical instrument used to inspect the fundus or back of the eye.

The ophthalmoscope (Figure 1) contains a handle with a rechargeable battery and a head, frequently detachable, that contains a bulb, a set of apertures for the light source, and a set of lenses. The view provided by the ophthalmoscope is monocular, non-stereoscopic (2D), narrow field (5°), and is magnified about 15 times.

Light from a bulb (Figure 2) is reflected at right angles and projected as a spot through the iris of the patient to illuminate the retina. This reflection is achieved using a mirror or prism. The illuminated retina is seen directly by the health professional (the user) through the iris of the patient.

The ophthalmoscope can be adjusted to suit the task at hand. A disc or wheel contains lenses of different powers and the required lens can be brought into the line of sight to correct any refractive error on the part of the patient (or of the user if she is not using her spectacles). The user looks just above the mirror or reflecting prism. Many ophthalmoscopes include a set of filters to cut out reflection from the cornea or to reduce the red glare from the retina. A disk or wheel allows the user to change the aperture of the light source. A small aperture is used for an undilated or small pupil. A regular aperture is used otherwise. A slit aperture is used as in a slit lamp. Finally, the brightness of the light can be adjusted by rotating the collar surrounding the on/off button.

Care

- Keep the instrument in its case or pouch when not in use.
- Make sure the on-off switch is fully turned off (a click sound will be heard) before placing the instrument in its case.
- Recharge the batteries by placing the ophthalmoscope handle in the charging base at the end of each working day.
- When the ophthalmoscope is not likely to be used for long periods of time, remove the batteries from the handle to avoid leakage.
- Wipe dust off the outside of the instrument daily.
- While storing the instrument, keep the lens disc on the zero setting so dust does not build up on the other lenses (the zero setting is just a hole with no lens).
- Some ophthalmoscopes include a shutter for the viewing window. It should be closed when the instrument is not in use to prevent dust from entering.

Figure 1

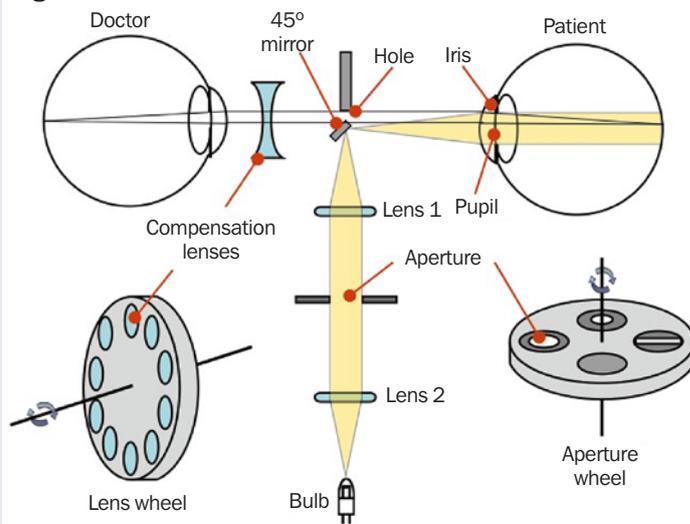
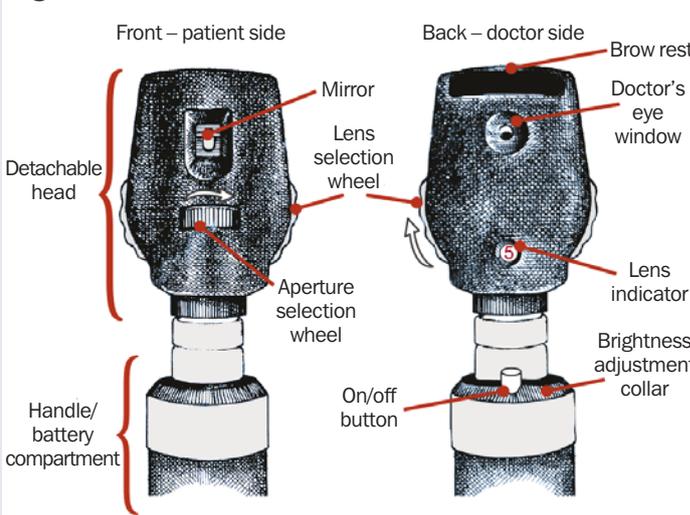


Figure 2



Eliminating trachoma: accelerating towards 2020

With less than four years to reach the elimination target for trachoma, we need to tackle this preventable disease head-on. Through the powerful unity of the Alliance for GET2020, there is global commitment to eliminating a disease that has existed for thousands of years.

According to data released in April, around 200 million people are at risk of trachoma, 1.2 million people are blind and 3.6 million need surgery to avoid blindness. Based on current estimates, an additional US\$700-800 million is needed to implement the SAFE strategy and eliminate trachoma globally by 2020.

Thanks to recent progress resulting from intensive efforts by partners, we now have an accurate understanding of where trachoma exists, how to treat it, and at



8-year-old Namaría has her eyes checked for trachoma. KENYA

what cost – and we have the antibiotics necessary to do so.

Whilst there are many successes to celebrate in the concerted efforts of the past five years, the trachoma community recognises the challenges in achieving

global elimination targets: increasing coverage, identifying transmission routes, engaging other sectors for sustainability, and attracting the funding needed for elimination efforts in the 43 countries requiring SAFE interventions.

Eliminating Trachoma: Accelerating Towards 2020 launched as an online publication in June 2016. Targeting funders, policy makers and implementing partners, the publication outlines the current disease burden, defines

elimination challenges and priorities and communicates a strong call to action for continued and increased support of trachoma elimination.

Visit www.trachomacoalition.org for more information.

Free online course for trachoma programme teams

Discover how communities and experts are joining together to end trachoma across 51 endemic countries by the year 2020.

200 million people are affected by trachoma. It's a slow and painful way to go blind. But we now have the tools and knowledge to confidently plan for its elimination as a public health problem by the year 2020.

We have a global district-by-district map that is nearly 100% complete and an intervention strategy, known as the SAFE strategy, that is promoted to reduce infection (by the organism *Chlamydia trachomatis*) and the subsequent scarring of eyelids and in-turning of eyelashes that leads to blindness.

Trained teams from the health, education and environment sectors collaborate to plan and deliver SAFE activities using protocols agreed by the international trachoma alliance GET 2020. The SAFE strategy involves:

- Surgery to correct in-turned eye lashes
- Antibiotic to reduce chlamydia infection
- Face washing to promote facial cleanliness to reduce transmission
- Environment improvement through provision of adequate water and sanitation to reduce transmission.

A new, free, online course aims to support and inform the teams delivering trachoma control activities who are implementing a programme to eliminate trachoma blindness in their community.

Developed at the London School of Hygiene and Tropical Medicine by an international team of trachoma and SAFE strategy experts, the course focuses on the actions that need to take place at the local community level to eliminate trachoma. Over 5 weeks, participants on the course will cover essential topics, including:

- Mapping trachoma to identify the affected communities
- Implementing the SAFE strategy at the community level
- Validating and certifying successful trachoma elimination



Course participants will take part in a variety of engaging and interactive learning activities throughout the course, including:

- Animated presentations and expert talks
- Quizzes and optional interactive exercises
- Articles and discussions
- Real life case studies

Course materials are optimised for access in settings with irregular or low quality internet access. For example, videos are also made available as downloadable presentations in text and PDF formats. Materials are published as Open Educational Resources (OER) so they can

be freely shared, adapted and re-used by learners and educators. They will remain available to all learners after the course completion.

The course is suitable for:

- Trachoma programme managers and teams
- Eye health workers in affected regions
- Those involved in improving water and sanitation provisions
- Those interested in neglected tropical diseases.

The course can be taken as an individual or as a group. If you work in a team we encourage you to all sign up and learn together on the course.

The course will offer a great opportunity to learn from the experiences of participants from many other countries fighting to end trachoma. More than 3,000 participants from 118 countries took part in the similar Global Blindness course on Futurelearn last year.

If you are already involved with, or simply interested in, action with communities to eliminate trachoma by 2020, we hope this course will inform and inspire you. Your participation can be critical to progress in the elimination of trachoma blindness.

The course will launch in the first week of September 2016. To find out more and register your interest in the course please visit <https://www.futurelearn.com/courses/eliminating-trachoma> or email Romulo.Fabunan@LSHTM.ac.uk



Test your knowledge and understanding

This page is designed to help you test your own understanding of the concepts covered in this issue, and to reflect on what you have learnt. We hope that you will also discuss the questions with your colleagues and other members of the eye care team, perhaps in a journal club. To complete the activities online – and get instant feedback – please visit www.cehjournal.org

1. A high national cataract surgical rate (CSR) of over 5,000 indicates that everyone over 60 has equal access to surgery.	Select one
a Yes, as it suggests people are aware of the services and are accessing it	<input type="checkbox"/>
b No, as CSR is not a good indicator to use to measure a surgical service	<input type="checkbox"/>
c You cannot know without more local information, disaggregated (recorded and presented separately) by age, sex etc.	<input type="checkbox"/>
d No, because it may include a second eye operation	<input type="checkbox"/>
2. Reliable and timely data for your team to plan equitable eye care services need to be disaggregated (recorded and represented separately) by:	Select one
a Age and gender alone	<input type="checkbox"/>
b Disease, ethnicity, disability and age	<input type="checkbox"/>
c Geographic location, age and income groups	<input type="checkbox"/>
d That which is important for your team to know and feasible for your health management information system (HMIS) to collect	<input type="checkbox"/>
3. Looking at data on page 57 Table 3, is the following statement true? 'Urban women receive cataract operations at an equitable level with urban men'.	Select one
a No	<input type="checkbox"/>
b Yes	<input type="checkbox"/>
c We don't know, as we do not know number of men and women with cataracts living in this urban area	<input type="checkbox"/>
d We don't know, as this was only 3 months of data	<input type="checkbox"/>
4. How can we improve eye care services for children with disabilities?	Select one
a Take services to regular schools	<input type="checkbox"/>
b Consider the barriers faced by children with different disabilities when they access eye care services, in consultation with the children and their families	<input type="checkbox"/>
c Focus on improving screening	<input type="checkbox"/>
d Improve accessibility for wheelchairs at the clinic	<input type="checkbox"/>
5. What does the term 'Nothing about us without us' suggest?	Select one
a Only local disabled persons organisations can deliver services	<input type="checkbox"/>
b It is important to work with people with disabilities and their families to find solutions together	<input type="checkbox"/>
c Every unit must have a disabled person working with them	<input type="checkbox"/>
d None of the above	<input type="checkbox"/>

ANSWERS

- Without knowing the demographics of this country, plus local disaggregated data (age, sex, income groups, regional, rural/urban issues) we cannot know if surgical needs are met for everyone equally.
- Do not collect data that your team has no time or interest to analyse. At a minimum, a reliable health management information system (HMIS) should collect age, sex, ethnicity, location, diagnosis and treatment, and generate monthly reports on time. You must analyse the data to quantify the results and then make a plan to remove inequities.
- We do not know the unmet need (potential demand for services, or the denominator) across the urban area. So although at present the number of men and women accessing services appears almost equal, there may be more (or fewer) older women compared to men living in this town, in which case access does not appear equitable. The data collected is therefore insufficient to determine whether access to cataract operations is equitable.
- Children with disabilities face many barriers in accessing various services (and may often not be in school). So all the barriers must be considered to both locate children with different disabilities, and then plan how to offer quality eye care services to them. Staff training is important, both to teach skills for service delivery, and to change attitudes. The attitudes of staff can be a major barrier too.
- The disability movement often uses the phrase to highlight the need for collaborative and consultative planning as the most desirable way to strengthen services for disabled persons.

Picture quiz



Allen Foster

A 65-year-old man presents with gradual loss of vision in both eyes. His visual acuity is light perception with accurate projection in both eyes.

Q1. What is the main cause of his loss of vision?

- a. Bilateral central corneal scars
- b. Corneal droplet (climatic) keratopathy
- c. Refractive error
- d. Bilateral cataract
- e. Anisocoria

Q2. Which of the following will make it more likely that someone will suffer from untreated age-related cataract blindness?

- a. Low family income
- b. Living in a rural area
- c. Female gender
- d. Lack of formal education
- e. Living in a low-income country

ANSWERS

1. Answer: d. The main finding and cause of his visual loss is bilateral mature cataracts. There is moderate bilateral corneal droplet (climatic) keratopathy, probably due to long-term exposure to ultra violet light, however this is unlikely to significantly affect his vision. The pupils are unequal in size. This is called anisocoria and can be due to a variety of causes; in this case the left pupil is larger because it has been dilated with drops. **2. All of the answers are correct,** as they all contribute to inequity in access to eye health, which means people are less likely to get the cataract operations they need.

REFLECTIVE LEARNING

Visit www.cehjournal.org to complete the online 'Time to reflect' section.



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Closing date: 7 October 2016. Visit www.bcpb.org or contact Diana Bramson, Charity Manager, BCPB, 4 Bloomsbury Square, London WC1A 2RP. Call +44 (0) 20 7404 7114 Email: info@bcpb.org

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News and notices

New South Asia edition of the Community Eye Health Journal

Readers in **Sri Lanka, Bangladesh, Bhutan, the Maldives, Myanmar, Nepal, Pakistan and India** are reminded they will no longer receive paper copies of the International Edition of this journal. Readers are encouraged to subscribe to the new online South Asia Edition by emailing Shivani Mathur at editor@cehjsouthasia.org. Contact Shivani if your educational or training institution requires paper copies.

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Teaching institutions

German Jordanian University

Email: vtc@gju.edu.jo

University of Cape Town Community Eye Health Institute

www.health.uct.ac.za or email chervon.vanderross@uct.ac.za

Inequalities in eye health at the IAPB 10GA



The International Agency for the Prevention of Blindness' (IAPB) 10th General Assembly is the premier global event on public health issues related to blindness and visual impairment. Its programme offers courses covering the themes in this issue.

Do visit <http://10ga.iapb.org>

Come and visit the Community Eye Health Journal stand at the 10GA



Course 13 - Integrating eye health into school health programmes



Course 16 - Primary eye care and the global action plan



Course 22 - Inclusion made easy in eye health programmes



Course 24 - Sustainable Development Goals and eye health



Course 38 - Equity and Eye Health



Course 39 - Universal Eye Health: A Global Action Plan

Lions Medical Training Centre

Write to the Training Coordinator, Lions Medical Training Centre, Lions SightFirst Eye Hospital, PO Box 66576-00800, Nairobi, Kenya. Tel: +254 20 418 32 39

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Next issue



The next issue of the *Community Eye Health Journal* is about **postoperative care**

Peter Caton/Sightsavers

Field testing project to pilot World Health Organization global eye health indicators in Latin America: lessons learned thus far

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Global eye health indicators

The World Health Organisation (WHO) global action plan 'Universal eye health: a global action plan 2014-2019' (the GAP)¹ includes a global target to reduce the prevalence of avoidable visual impairment by 25% by 2019 (compared to the 2010 baseline). Progress against this target will be measured by three core indicators, which the WHO suggest should be reported on regularly by member states:

- Prevalence and causes of visual impairment
- Cataract surgical services: cataract surgical rate (CSR) and cataract surgical coverage
- Number of eye health professionals by cadre (ophthalmologists, optometrists and allied eye health personnel).

A project is underway in Latin America to strengthen the collection and reporting of eye health indicators in collaboration with ministries of health, national VISION 2020 or prevention of blindness committees, and national professional societies in five countries: Chile, Honduras, Mexico, Peru, and Uruguay. Secondary objectives include evaluating the feasibility of accurate data collection, the reliability of the indicators, and the adequacy of the metrics used to define the indicators, as well as barriers to obtaining these data.

The project has four phases: 1. Situational analysis, 2. Implementation, 3. Data collection and 4. Final evaluation.

During phase 1, public and private sector representatives from each country completed a situational analysis of data collection and reporting in their respective countries. Data were presented during the First Latin American Global Indicators Workshop in Lima, Peru, in March, 2014. In phase 2, country teams developed and implemented improved data collection strategies and global indicator work plans (March 2014–January 2015).

For phase 3 (ongoing), teams should use the tools and lessons learned from phase 1 and 2 to collect and report 2015 eye health data. The final evaluation (phase 4) will take place in 2016 and will conclude with development of a research protocol to implement the global indicators in other regions of the world.

What follows are the lessons learned thus far.

1. Inter-sectoral and inter-institutional cooperation is essential to the success of complete and accurate data collection. Without a functioning national VISION 2020 or prevention of blindness committee, objectives are much harder to achieve.

The active participation of all potential stakeholders (groups and individuals with an interest, or who are involved, in data collection) is necessary. The national committees are the appropriate channel for this process. Previously, the committees in each country varied in function, with some committees meeting on a regular basis to advance eye health planning and implementation, while others were either dormant in recent years or only active when commissioned to perform a project, such as an epidemiological study. An important outcome of this project has been that national committees were reorganised in 2014 to incorporate global indicator data collection among their ongoing functions.

2. Both a complete, national data registry and a data validation process are needed for successful outcomes.

The gold standard of CSR data collection is when every cataract operation is reported to the ministry of health. Although ministries of health may have good data from the public sector, the estimation of number of operations conducted in the private sector is poor. The most effective solution to this problem is legislation that mandates the reporting of all cataract operations, with cross-referencing from intra-ocular lens (IOL) sales and importation data.

This requires further inter-institutional and inter-sectoral cooperation. Argentina has spearheaded this effort, with new legislation in 2014 that mandates the reporting of all cataract operations to their ministry of health (Resolution No. 8/14) and requires that the sales, distribution, and surgical implantation of all IOLs in the country are registered on a government website for medical goods and technology.²

3. The lack of standardised indicators for different eye health personnel roles is a barrier to data collection.

Across the globe, there is no standardised, defined eye care team, nor is it defined by the WHO GAP. Most countries will collect different human resources data. Each ministry of health defines their country's official, legally recognised health care roles in their policy. Optometry is not recognised in some countries and allied eye health personnel vary. For example, although Chile does not allow optometry, there are trained medical technologists, working in ophthalmology, who can provide refractive services. There is therefore a need for minimum competency requirements and regional certification for human resources in eye care.

Moving forward

Strong, clear coordination and continuous knowledge sharing between all project stakeholders are essential if we are to learn from each country's experience and ensure a successful final evaluation of global indicators.

Acknowledgements

The project is sponsored by the Fred Hollows Foundation, with additional financial support from Orbis International and the International Agency for the Prevention of Blindness (IAPB). The project is managed by Strategic Solutions, Inc, with the collaboration of the Pan American Health Organization (PAHO), Orbis International, and IAPB.

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(accessed 15 June 2016).

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