

# The impact of Vision 2020 on global blindness

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## Abstract

**Introduction** Recent data suggest that there are 37 million blind people and 124 million with low vision, excluding those with uncorrected refractive errors. The main causes of global blindness are cataract, glaucoma, corneal scarring (from a variety of causes), age-related macular degeneration, and diabetic retinopathy.

**Conclusion** It would appear that the global Vision 2020 initiative is having an impact to reduce avoidable blindness particularly from ocular infections, but more needs to be done to address cataract, glaucoma, and diabetic retinopathy.

*Eye* (2005) 19, 1133–1135. doi:10.1038/sj.eye.6701973

**Keywords:** blindness; prevalence; Vision 2020

## Introduction

In 1975 the International Agency for Prevention of Blindness (IAPB) was formed and in 1978 the WHO established the Prevention of Blindness program (PBL). Over the next 20 years a good working relationship developed between WHO/PBL and the international nongovernmental organisations (NGOs) involved in eye care. One outcome of this collaboration was the African Program for Onchocerciasis Control (APOC), a partnership between the World Bank, WHO, Merck Inc. and the NGOs. This public–private partnership to control one specific blinding disease—onchocerciasis—was successful, and based on this experience the NGOs and WHO formed a joint Task Force in 1994 to address the problem of increasing global blindness. The work of the Task Force resulted in 1997 in publication of ‘The Global Initiative to Eliminate Avoidable Blindness’. This document explains the rationale, global strategy and, targets for the Vision 2020 programme.<sup>1</sup>

## Trends in global blindness

The first estimates of global blindness in 1978 reported 28 million blind people (corrected visual acuity in the better eye less than 3/60). In 1984 this had risen to 31 million, in 1990 to 38 million.<sup>2</sup> Projections for the 1995 population reported an estimated 45 million blind people<sup>3</sup> and Frick taking into account population increase and increased life-expectancy suggested that, if services do not improve, there would be 76 million blind people by 2020.<sup>4</sup> Low vision (<6/18 to 3/60 in the better eye) is estimated to affect approximately three to four times as many people as blindness.

The causes of blindness and visual loss vary according to socioeconomic conditions and the availability of health and eye care services.<sup>5</sup> In very poor areas the prevalence of blindness often exceeds 1% (10 000+ blind people per million population) with cataract and corneal scarring (from trachoma and vitamin A deficiency) being the major causes. In rural communities with better economy, improved nutrition, and sanitation, corneal scarring is less of a problem, with cataract being the major cause. In urban populations with reasonable economy and access to healthcare, the prevalence of blindness is usually less than 0.5%. Cataract services are more accessible, but there may still be a backlog of cataract blindness among poorer sectors of urban society, and glaucoma and diabetic retinopathy become proportionately more important. In populations with good health care cataract is not a major cause of blindness, although significant numbers of people have visual impairment from untreated cataract,<sup>6</sup> and age-related macular degeneration, glaucoma and diabetic retinopathy are the major reasons for blind registration.

## Recent data on global blindness

The World Health Organization have recently undertaken a further systematic review of all

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Received: 30 April 2005  
Accepted: 2 May 2005

**Table 1** WHO estimates of global blindness<sup>s</sup> (<3/60—NLP in the better eye with best correction) by WHO region for 2002

WHO region	Population (millions)	Prevalence (%)	Number blind (millions)	Blindness (%)
Americas	853	0.3	2.4	7
Europe	878	0.3	2.7	7
Eastern Mediterranean	503	0.8	4.0	11
Africa	672	1.0	6.8	18
South East Asia	1591	0.7	11.6	32
Western Pacific	1717	0.5	9.3	25
Total	6214	0.6	36.9	100

**Table 2** WHO estimates of global visual impairment<sup>s</sup> (<6/18—NLP in the better eye with best correction) by WHO region for 2002

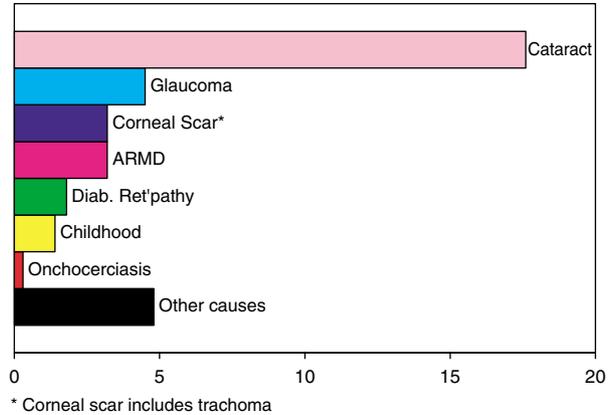
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South East Asia	1591	2.8	45	27
Western Pacific	1717	2.4	42	26
Tota	6214	2.6	161	100

population-based surveys of blindness and low vision, and have analysed available data on blindness and low vision from 55 countries for the year 2002, and applied it to the 17 WHO epidemiological subregions.<sup>7,8</sup> The results show that approximately 37 million people are blind and 124 million people have low vision. The prevalence of blindness varies from 0.2% in western Europe and north America to 1.0% in Africa. Of the 37 million blind, 1.4 million are aged 0–14 years, 5.2 million 15–49 years, and 30.3 million 50 years or above, with women being affected more than men, the female to male blindness ratio varying from 1.5 to 2.2. The numbers of blind and with visual impairment by WHO region are given in Tables 1 and 2.

The major causes of blindness are cataract (48%), the glaucomas (12%), corneal scarring including trachoma (9%), age-related macula degeneration (9%), and diabetic retinopathy (5%) (Figure 1).

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These new estimates of global blindness are approximately 15 million less than those projected.<sup>4</sup> It may be that this can be partly explained by differences in the analysis of data, with current figures being based on



**Figure 1** Causes of global blindness in millions of people, 2002.

more survey data and a more robust epidemiological method, resulting in more accurate estimates. However, it is also evident that there has been a genuine improvement in eye care resulting in less blindness from avoidable causes. Comparison of the 1990 and 2002 figures by cause shows that there has been a reduction in blindness from ocular infections—trachoma (5.9 to 1.3 million) and onchocerciasis, and that the numbers blind from cataract have not increased as much as predicted, 15.9 million in 1990 to 17.6 million in 2002, despite a 30% increase in the global age group of 50 year and above age old population.

Since the launch of the Vision 2020 initiative in 1999 there have been some notable achievements in the prevention and management of avoidable blindness.<sup>9</sup> Vision 2020 has brought increased public awareness, professional and political commitment to prevention of blindness. Coordination among the NGOs has increased and a partnership between UN agencies, governments, NGOs, and the corporate sector has begun to develop with the common goal to eliminate avoidable blindness. There has been an improvement in the control of infectious causes of blindness (trachoma and onchocerciasis) and an increase in both the quantity and quality of cataract surgery particularly due to the availability of low-cost intraocular lenses. Certain countries have demonstrated impressive achievements in eye care provision for example Morocco, Nepal, Sri Lanka, Thailand. In The Gambia the prevalence of blindness has shown an approximate 40% decrease between 1986 and 1996,<sup>10</sup> and the number of blind people in India has fallen from 8.9 million in 1990 to 6.7 million in 2002, a 25% decrease.<sup>8</sup>

Despite these achievements there is no room for complacency. There are over 17 million people bilaterally blind from cataract, and blinding trachoma and onchocerciasis remain a major problem in some countries, most notably in Africa.

### Vision 2020 aim and strategy

The aim of Vision 2020 is the elimination of avoidable blindness. The strategy consists of:

1. Creating professional, public and political awareness of:
  - a. the magnitude of blindness and visual impairment;
  - b. the fact that at least 75% can be prevented or cured using existing knowledge and technology;
  - c. that existing interventions for cataract, refractive errors, vitamin A deficiency, onchocerciasis, and trachoma, are some of the most cost-effective in healthcare.
2. More efficient use of existing resources and mobilising new resources for the development of eye care services. These resources come from a variety of sources including Ministries of Health, NGOs, private, and corporate sectors of society.
3. Implementing comprehensive eye care services at the 'district' level (population varies from 100 000 to 1 million) involving human resource development (eye care teams with different cadres of staff), and infrastructure development (facilities, equipment, and consumables). These services should be sustainable and equitable.
4. Prioritising available resources on control of the avoidable causes of blindness and visual impairment in that community. This will vary from country to country and even from district to district in some countries.

### Future priorities

As Vision 2020 enters its second 5-year phase there is a need to maintain the momentum and build on the achievements so far. The priorities for Vision 2020 in terms of control of blinding diseases over the next 5 years include:

1. Ensure that blindness from onchocerciasis, vitamin A deficiency and trachoma are eliminated everywhere—this requires improvement in eye care for the poorest communities.
2. Continue to improve quantity and quality of cataract services with emphasis on populations with a low cataract surgical rate.
3. Improve human resource development (particularly ophthalmologists and ophthalmic assistants) for eye care in Africa, where it is particularly lacking.
4. Improve services for refractive errors especially for people with presbyopia and in school age children.
5. Develop good tertiary child eye care services, including provision of low vision services, to reduce visual loss in children with a focus on cataract and retinopathy of prematurity.

6. Develop services for the long-term management of chronic eye diseases (diabetic retinopathy, glaucoma, and ARMD) and if appropriate consider screening strategies for early identification of these conditions, with emphasis on emerging and good income populations.

### Conclusion

Recent figures suggest for the first time there has been a decrease in global blindness. It is likely that the Vision 2020 initiative has contributed to this improvement in eye care. However, there is still much to be done, and in particular 17 million people are blind from treatable cataract.

The aim and strategy of Vision 2020 is of relevance to all countries, and all UN member states at the WHO Assembly in May 2003 signed the Resolution to implement Vision 2020.

There is an ongoing need, country by country to identify the priorities to reduce blindness and visual impairment and to mobilise human and financial resources to implement Vision 2020—comprehensive eye care appropriate to needs and resources.

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