

**OVERVIEW OF PREVENTING VISUAL IMPAIRMENT
BY FIGHTING AGAINST AVOIDABLE
BLINDNESS IN CHINA**

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ABSTRACT

From 1999, an unprecedented coalition of many international non-governmental organizations (NGOs) have been providing support to the prevention of blindness in China. Since the launch of this national campaign six years ago the future holds promise of achievement and opportunities. This article gives an overview of preventing visual impairment by fighting against avoidable blindness in China.

INTRODUCTION

In February 1999, the global campaign “Vision 2020: The Right to Sight”, was officially launched in Geneva by Dr. Gro Harlem Brundtland, the Director General of WHO. This represents the Global Initiative for the Elimination of Avoidable Blindness by the year 2020 (1). Seven months later, the International Agency for the Prevention of Blindness (IAPB) General Assembly was held in Beijing. During the IAPB General Assembly, the Chinese Ministry of Health, and China Disabled Person’s Federation together with WHO launched the first national campaign “Vision 2020: The Right to Sight”, in China (2).

**PREVALENCE, INCIDENCE, MAGNITUDE
AND MAIN CAUSES OF BLINDNESS**

Reliable epidemiological data on overall blindness and visual impairment in the entire country are still difficult to obtain, but based upon the national sampling survey of persons with disability for the disabled in 1987 and the epidemiological surveys in some provinces in 1980s, the rate of bilateral blindness in China is 0.43-0.45% nationwide (2,3). However, China is a country with great difference between provinces and prefectures; showing 0.43% in Shanghai, 0.57% in Yunnan, 0.40% in Sichuan, 0.56% in Shunyi County and 0.12% in Ninghe County

(4). In some areas, the rate of blindness is 2 or 3 times higher than the national average. One of the examples is Tibet; the rate of blindness is over 1.00% (5,6). Based on these prevalence data, China has at least 5 million bilateral blindness. In other words, about 18% of the world's blind population is in China. In absolute terms, China's ever-increasing blind population has already surpassed the total population in countries such as Denmark, Finland or Norway (1). Up to 80% of cases of blindness are avoidable, either resulting from preventable conditions or being treatable (1,2,7). An average 50% of the blindness in China is cataract blindness (1,7). Thus, the cataract backlog in China is 2.50 million. Among Tibetan persons aged 40 years and over, the prevalence of age-related cataract is 11.8% (6). Other common causes of blindness in China are corneal disease, trachoma and glaucoma. Eye injury is becoming a major occupational hazard in some mining areas.

In addition to the bilateral blindness, there is a considerable number of unilateral cataract blindness and low vision cases. According to WHO calculation, an average of 3.4 (2.4-5.5) people have low vision for each blind person (8). Therefore, the total number of people with low vision in China should be at least 17.0 million persons.

According to a WHO estimate, the annual incidence of blindness in China is 450,000, of whom 400,000 are due to cataract (1). This means that in China, one person becomes blind every minute. From 2000 to 2020, the population aged 60 years and above in China will increase by 90% (9,10). This will further increase the incidence of age-related cataract.

AVAILABLE HUMAN RESOURCES AND CATARACT SURGICAL OUTPUT

The number of ophthalmologists in China was 23,606 in 2004, showing an increase of 7.3% from 1999 (11). The ratio of ophthalmologist to population in China is 1 : 55,000. Over the past 6 years, since launching the global campaign "Vision 2020: The Right to Sight", the annual number of cataract surgeries in China is gradually increasing, but the current number of cataract surgeries is still far below the numbers required to clear the existing backlog. During the past 17 years, 5.50 million cataract operations were performed (12,13). The remaining backlog is calculated as: 2.5 million + (400,000/year x 17 years) – 5.50 million = 3.80 million.

In 2004, the number of cataract surgeries performed in China was 569,408 (14). If the current number remains unchanged, at least 7 years are required to clear the existing backlog.

However, it is only recently that there has been an increase in the annual average. Till 1994, the annual cataract surgeries performed was about 140,000; the Cataract Surgical Rate

(CSR) is only about 136 (15). The CSR increased to 446 nationwide in 2004. The differences between provinces are indicated in Table 1.

Table 1. Population, number of cataract surgeries and cataract surgical rate (CSR) in 2004

Province	Population (In million)	No. of cataract surgeries	Cataract surgical rate (CSR)
Beijing	14.23	17,028	1,197
Tianjin	10.07	5,800	576
Hebei	67.35	25,097	373
Shanxi	32.94	13,623	414
Inner Mongolia	23.79	8,136	342
Liaoning	42.03	25,793	614
Jilin	26.99	12,199	452
Heilongjiang	38.13	10,033	263
Shanghai	16.25	25,159	1,548
Jiangsu	73.81	30,689	416
Zhejiang	46.47	25,217	543
Anhui	63.38	25,367	400
Fujian	34.66	16,482	476
Jiangxi	42.22	16,405	389
Shandong	90.82	44,625	491
Henan	96.13	49,763	518
Hubei	59.88	24,302	406
Hunan	66.29	15,970	241
Guangdong	78.59	48,101	612
Guangxi	48.22	20,326	422
Hainan	8.03	35,00	436
Chongqing	31.07	67,18	216
Sichuan	86.73	26,869	310
Guizhou	38.37	7,538	196
Yunnan	43.33	19,710	455
Tibet	2.67	2,500	936
Shaanxi	36.74	13,834	377
Gansu	25.93	9,000	347
Qinghai	5.29	3,217	608
Ningxia	5.72	2,334	408
Xinjiang	19.05	10,199	535
Total	1,284.53	569,408	446

Given the number of ophthalmologists and the number of cataract surgeries performed, on an average, one ophthalmologist conducts only 24 cataract surgeries during one year.

CATARACT SURGICAL OUTCOME

In addition to the number of surgeries, the outcome of surgery needs to be considered. There is still lack of nation-wide, reliable epidemiological data on overall quality of the surgeries. Based on the report by China Disabled Person's Federation (CDPF), the immediate outcome of the cataract operations performed during the past 10 years shows 97-98.1% of the operated patients have had a visual acuity equal or better than 0.05 for the best corrected vision (12). Clearly, this figure has not come from an epidemiological survey and may only represent an immediate outcome of the surgical operations.

However, population-based studies have demonstrated poor results, with rates of less than 6/60 acuity in the operated eye of 35.7-53% as documented in Table 2. There were two cross sectional surveys to evaluate the operated clients at Shunyi County of Beijing and Doumen County of Guangdong in 1996 and in 1997 respectively (16,17). In 2000, another cross sectional study was carried out in Tibet at Tibet Eye Care Assessment (TECA), to investigate the cataract clients operated from the past 10 years ago to the last one month (18). The study was jointly conducted by the Seva Foundation, Tibetan Health Bureau and Tibet Development Funds.

Table 2: Data on cataract surgical outcome from TECA and compared with the findings in Shunyi and Zhongshan

Prefectures and counties	Visual acuity (Presenting vision, not best corrected) of the eyes after cataract surgical operation (Aphakic and pseudophakic)				
	Vision			Percentage of aphakic	Percentage of pseudophakic
	Good (>6/18)	Poor (6/24-6/60)	Blind (<6/60)		
Lokha	9 (22.5%)	7 (17.5%)	24 (60.0%)	21 (52.0%)	19 (48.0%)
Nakchu	22 (57.9%)	6 (15.8%)	10 (26.3%)	25 (65.8%)	13 (34.2%)
Lingzhi	24 (64.9%)	6 (16.2%)	7 (18.9%)	23 (62.2%)	14 (37.8%)
Total	55 (47.8%)	19 (16.5)	41 (35.7%)	69 (60.0%)	46 (40.0%)
Zhongshan			53%	94%	6%
Shunyi			45%	61%	39%

Of course, it is not possible to determine whether the cataract surgeries in Tibet were performed by Chinese ophthalmologists, by Tibetan or by foreign teams. There is lack of information on pre-operative vision or surgical complications. Moreover, these findings are outcomes of surgeries performed a long time ago and therefore may not represent outcomes of current surgeries.

Fifteen or twenty years ago, Intra Occular Lens (IOL) was not commonly used in China. Lack of appropriate spectacles among the aphakic population is the major reason for the less than acceptable visual acuity outcomes among the cataract-operated population. In addition, inappropriate selection of cases, less than competent surgical technique, and inadequate follow-up may also contribute to the poor outcomes. Along with local production of IOLs and other sophisticated equipment, better results are becoming increasingly possible for cataract surgeries.

CATARACT SURGICAL COVERAGE

Cataract surgical coverage (CSC) is defined as the ratio of people who have had a cataract surgical operation from among the people with cataract vision less than 6/60. CSC reflects the number of treatment services available, access to those services and utilisation of those services by the population. Theoretically, previous CSC should be derived from the cataract surgeries at a certain point of time and the cataract blind people at the same time. Unfortunately, it is very hard to match these components and difficult to determine how many cataract blind people died each year. By using the number of cataract backlog in 1980's, the CSC in China from 2001 to 2004 is shown in Table 3.

Table 3. The Number of cataract surgeries and cataract surgical coverage in China (12,13,14)

Item	2001	2002	2003	2004
No. of cataract surgeries	491,000	513,000	574,000	569,408
Percentage of pseudophakic (%)	78.3	83.0	88.0	88.4
Cataract surgical coverage (%)	18.9	17.1	16.9	15.0

It is increasingly apparent that CSC can be improved by an active blindness prevention programme. This is particularly so in those areas with long-term intervention, where the CSCs are much higher than the national level. For example, CSC in Shunyi is 48%, 40% in Zhongshan and 50% in the sample areas of TECA.

Available data suggest that CSC of women is usually lower than that in men within the same area (18). This may reflect an influence of social rejection of women in those areas and/or higher life expectancy of women.

BARRIERS TO IMPROVE CATARACT SURGICAL RATE (CSR)

There are several factors contributing to the low volume of cataract surgery in China.

1. Cost of the surgery

Most of the farmers in rural China have to pay for their own medical expenses. The cost of a cataract operation in China varies widely, but the average cost is around 2,500-8,000 Yuan per eye. However, the average annual income of the poor farmers in China is less than 2,000 Yuan (9,19). Thus, the surgical cost alone equals 2-4 years of their annual income. Not surprisingly they cannot afford to access the service.

2. Distance to the service centre

Most cataract affected blind people live in rural areas while most ophthalmologists work in urban areas. Within a county, the distance between a village and the county town varies from 15 to 200 kilometers; and transport connectivity is quite poor in some places. There is no official data on what is the percentage of counties that have the capacity to perform cataract surgeries; but the data from a national survey on eye care resources in 1997, showed that only 39-42% of the county hospitals have ophthalmoscopes, 57-63% have a slit lamp, 19-36% have an operational microscope, 59-63% have a tonometer, 54-58% have trial lens sets and 27-40% have a perimeter (20,21). This means that less than 30% of the county hospitals are able to perform modern cataract operations. Patients accompanied by an escort have to travel over hundreds of kilometers to a city for the service. Clearly, this is more than what poor people, with little or no disposable income, can afford.

3. Quality of the service

It is increasingly apparent that poor outcome of surgery is a major barrier to community acceptance (22). The national survey on eye care resources revealed that only 28.74% of the ophthalmologists nationwide, graduated from a recognised university; 53.81% have the expertise to perform cataract surgeries (20,21). In county hospitals, the lack of qualified cataract surgeons is even more pronounced.

4. Community awareness

11.63% (6.43% for male and 16.92% for female) of the population aged 15 years and over are illiterate (19). The affected persons may not come for services even if surgery is available as they do not know cataract is treatable. Blindness may be accepted as part of the ageing process.

LESSONS LEARNED AND SUGGESTIONS

During the IAPB General Assembly held in Beijing in 1999, the international society suggested, that in order to reduce the cataract backlog and “operable” cataract, it is necessary to operate each year, on at least as many eyes that develop cataract. In China, the number should be higher than that due to a rapidly ageing population. Based upon the practice during the past two decades, the lessons learned and suggestions for the future are:

- In the past, much attention has been paid to train cataract surgeons. However, increasing the number of cataract surgeons and surgical services is not adequate enough to improve CSC and CSR. Community-based efforts are needed to identify, educate and encourage patients to accept the surgery.
- While successfully operated ex-patients are the best promotion for cataract surgeries, poor outcomes will have a strong negative influence in the community. Fear of a poor outcome may be a legitimate reason for people to refuse the surgery. Therefore, the quality of surgery needs to be improved through better training and quality assurance programmes. Training activities should be carried out with an emphasis on those counties without a cataract surgeon.
- There is no direct linkage between increase of expensive equipment and cataract surgical output, but it has a negative impact for people to access the service due to the far more increased cost. It has been suggested that the major type of cataract surgical operation in rural areas is still ECCE + IOL, and not by phacoemulsifier (23).
- Government attention should be concentrated on increasing efficiency and providing affordable, accessible and appropriate eye care.

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Signs of Development in Deaf South & South-West Asia: histories, cultural identities, resistance to cultural imperialism

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The revised article offers evidence and hypotheses for a short cultural history of deaf people, culture and sign language in South Asia and South West Asia, using documents from antiquity through 2005. The past five years have seen some remarkable progress of deaf people, sign language and education in this vast region.

A further new bibliography has been added of 110 items on “Deafness and Signing in the Arab Middle East” with some historical material and light annotation.

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