

# National Programme for Control of Blindness

AVTAR SINGH DUA

## Magnitude of the problem

In earlier days, trachoma was the leading cause of blindness. With socioeconomic development and increased longevity, cataract was the leading cause of blindness in 1986–89. According to surveys on the magnitude and causes of blindness, and surgical outcomes of cataract carried out in 1999–2002 and in 2003, the estimated prevalence of blindness was found to be 1.1% in the major States and 1.38% in the north-eastern States. Females were found to have a higher prevalence of blindness as compared to men, and rural respondents as compared to urban respondents. Cataract was the commonest cause of blindness (62.6%) followed by uncorrected refractive errors (19.7%); 16.6% individuals went blind after cataract surgery. Visual outcomes after cataract surgery were poorer among females, rural residents and those who underwent surgery at an older age (more than 70 years). An analysis of data from Sentinel Surveillance Units (SSUs) for the year 2002–03 showed that nearly 39% of patients treated were bilaterally blind, about half the beneficiaries were SC/ST/OBC and most SSUs reported a higher number of female beneficiaries.

## National Programme for Control of Blindness

The National Programme for Control of Blindness (NPCB), launched in 1976, was a 100% centrally-sponsored Programme. In 1983, the National Health Policy of India reiterated that blindness was an important public health problem and set a target to reduce the blindness prevalence rate from 1.4% to 0.3% (Government of India 1983). The 1986–89 survey showed that cataract was the major cause of blindness in the country. The Government of India has now laid down a target for reduction in the prevalence of blindness to 0.8% by the end of the Tenth Five-Year Plan (Ministry of Health and Family Welfare 2004 (Government of India 2004b) and to 0.5% by 2010 (Government of India 2002c).

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Member, National Commission on Macroeconomics and Health, Government of India, New Delhi  
e-mail: avtarsinghdua@yahoo.co.in

In the early 1990s there was a considerable backlog of clients needing cataract surgery because the number of cataract surgeries performed was not sufficient to compensate for the increase in incident cases and targets were allocated on the basis of previous performance, not on the basis of the prevalence of cataract blindness or capacity of the surgical services (Limburg *et al.* 1996). The World Bank-financed Cataract Blindness Control Project came into effect from 31 January 1995 and covered 7 States—Andhra Pradesh, Madhya Pradesh, Maharashtra, Orissa, Rajasthan, Tamil Nadu and Uttar Pradesh—which accounted for over 70% of cataract blindness in India. The seven-year Project sought to reduce the prevalence of blindness by more than 50% in these States by conducting 110.3 lakh cataract surgeries and eliminating the backlog. It included four components:

- Enhancing the quality of care and expanding service delivery through regularizing of camps, involvement of NGOs and the private sector, and strengthening service capacity and improving efficiency;
- Developing human resources for eye care through the training of ophthalmologists, OT personnel, ophthalmic assistants, and management training;
- Promoting outreach activities and public awareness through outreach and screening camps organized by NGOs and government teams, facilitating transportation and compensation to patients from remote areas, and enabling promotion through schools by creating awareness among teachers and students;
- Building institutional capacity for eye management at the Central, State and district levels, and improving cooperation between the government and private/voluntary sectors.

A National Programme Management Cell (NPMC) was made responsible for designing and communicating programme strategies and for the overall implementation of the Programme. About 278 District Blindness Control Societies were created, covering all the Project districts. State Blindness Control Societies were also set up to decentralize monitoring and ensure the smooth flow of funds. New operation theatres and eye wards were constructed under

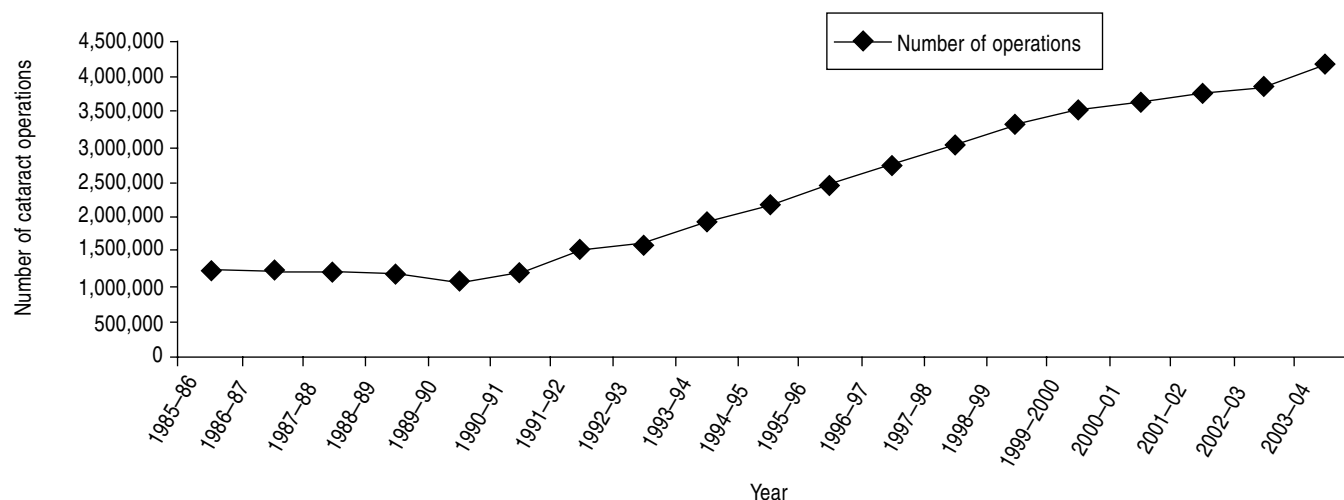


Fig. 1 Progress in cataract surgeries

the project and high-quality goods and equipment were supplied including operating microscopes, slit-lamps, A-scans, keratometers, YAG lasers, intraocular lenses (IOLs) and ophthalmic sutures.

Against a target of 110 lakh operations during the Project period, 153.5 lakh cataract surgeries (139%) were performed (Ministry of Health and Family Welfare 2002b). However, the performance was far less than desired in Orissa and Rajasthan, where 73% and 91% of the targeted cataract operations were performed. The number of cataract operations performed has steadily increased from 15.11 lakh operations in 1991-92 to 42.0 lakh operations in 2003-04 (Fig. 1). The State-wise performance of cataract operations conducted is given in Table 1. The proportion of patients getting operated before the age of 50 years increased from 10% to 17%. In 2003-04, the proportion of cataract surgeries with IOL implants had increased to 83%; in two States it was quite low—Rajasthan (63%) and Uttar Pradesh (57%). Consequently, surgical outcomes improved—postoperative visual acuity improved to 82% following intracapsular cataract extraction (ICCE) surgery compared with 75% before 1994, and in the case of IOL implants it improved to 95% compared with the earlier 84%. Initially, about 40% of cataract operations were being performed in camps while at the end of the Project more than 90% of them are being conducted in institutions, which have been strengthened.

NGOs have been actively involved in the implementation of the NPCB. In a study on the cost-benefit analysis of the World Bank-assisted Cataract Blindness Control Project, it was found that NGO-organized screening camps supplemented by surgery of screened persons at base hospitals was the most cost-effective method for conducting cataract operations (Rs 1128 per operation). This was low compared to that in private hospitals (Rs 5331 per operation), NGO hospitals (Rs 4977 per operation) or in government camps (Rs 2143 per operation) (MoHFW 2002).

As a result of interventions and better management of

the NPCB, the prevalence of blindness in India has come down from 1.49% in 1986-89 to 1.1% in 2001-03. The State-wise prevalence of blindness is given in Table 2. The prevalence of visual disability/handicap in the population was found to be 1.06% in the 2001 Census, which compares well with 1.1% found in the sample survey conducted during 2001-03. It was earlier thought that the prevalence of blindness would start declining once a figure of about 40 lakh cataract operations per year was achieved and sustained. However, over 40 lakh operations per year could be performed only for the first time in 2003-04, but 2001-03 surveys showed a decline in the prevalence of blindness in the general population. The probable reason for this might be that the incidence of cataract in India (and also other tropical countries) is lower than that in temperate areas. Another factor that could possibly explain this phenomenon to some extent is that not all private practitioners might be reporting cataract operations under the Programme.

A disturbing observation, however, is that against a target of 13.20 lakh operations for the Project period for Andhra Pradesh, 24.0 lakh operations (182%) were performed. Yet, according to the latest survey, the prevalence of blindness in AP reduced only marginally from 1.50% in 1986-89 to 1.42% in 2001-03. This could be due to the poor quality of cataract operations resulting in no improvement in visual acuity in many cases. Thus, while increasing the number of operations for cataract is important, the quality of services also needs to be continuously monitored.

Since cataract was the major cause of blindness according to the 1986-89 survey, the focus of the NPCB in the initial years was on promotion and rationalization of targets for cataract operations. Having achieved substantial progress in this area, attention was then given to the second most important cause of blindness—refractory errors, primarily in schoolchildren. Schoolteachers were involved in screening schoolchildren for refractive errors and corrective glasses were provided to children to improve their visual acuity.

**Table 1.** State-wise performance of cataract surgeries from 1996 to 2004

State	1996–1997		1997–1998		1998–1999		1999–2000		2000–2001		2001–2002		2002–2003		2003–2004		
	Target	Achv.	Target	Achv.	Target	Achv.	Target	Achv.	Target	Achv.	Target	Achv.	Target	Achv.	Target	Achv.	
Andhra Pradesh	220,000	275,163	246,400	295,735	271,050	343,680	296,000	337,980	320,000	358,799	350,000	371,949	350,000	404,002	350,000	443,091	
Bihar	175,000	127,450	175,000	124,586	192,500	110,121	210,000	138,277	170,000	90,430	140,000	81,104	140,000	63,927	140,000	87,876	
Chhattisgarh									76,000	51,961	80,000	52,224	80,000	56,451	80,000	64,196	
Goa	5,000	4,093	5,600	4,767	6,150	4,472	6,500	4,743	6,700	2,982	7,000	5,044	7,000	5,294	7,000	5,497	
Gujarat	168,000	248,681	229,160	274,243	252,000	291,030	290,000	414,580	300,000	405,386	400,000	414,580	400,000	436,740	400,000	449,234	
Haryana	80,000	70,063	89,600	78,505	98,600	87,757	100,000	89,000	110,000	91,515	110,000	102,171	110,000	90,665	110,000	89,706	
Himachal Pradesh	10,000	9,813	11,200	13,075	12,300	12,652	14,500	14,213	15,000	14,172	16,000	16,843	16,000	16,226	16,000	18,343	
Jammu and Kashmir	9,000	6,332	10,080	7,109	11,100	10,646	12,500	8,314	13,000	10,092	13,000	10,503	13,000	11,553	13,000	10,412	
Jharkhand									40,000	32,552	70,000	29,510	70,000	295,44	70,000	28,054	
Karnataka	150,000	134,553	168,000	165,000	184,800	172,569	200,000	164,033	210,000	164,693	220,000	202,851	220,000	244,699	220,000	263,613	
Kerala	55,000	50,140	61,600	59,358	67,800	65,728	80,000	79,446	80,000	72,169	90,000	69,028	90,000	83,345	90,000	79,696	
Madhya Pradesh	250,000	212,954	280,000	254,138	308,000	287,201	300,000	275,108	244,000	241,314	240,000	234,527	240,000	224,049	240,000	233,870	
Maharashtra	300,000	357,407	336,000	389,701	369,600	404,738	400,000	381,929	420,000	459,721	420,000	473,145	420,000	480,356	420,000	519,561	
Orissa	100,000	60,641	112,000	74,713	123,200	79,271	125,000	63,391	130,000	84,231	130,000	86,386	130,000	81,619	130,000	82,652	
Punjab	120,000	119,354	134,400	126,182	147,850	144,885	150,000	108,240	160,000	140,735	160,000	120,504	160,000	122,670	160,000	133,376	
Rajasthan	160,000	136,103	179,200	157,243	197,200	176,955	194,000	188,417	210,000	185,036	220,000	196,835	220,000	188,747	220,000	226,829	
Tamil Nadu	275,000	296,847	308,000	329,773	338,800	373,690	350,000	356,953	375,000	364,597	400,000	373,058	400,000	371,559	400,000	452,650	
Uttar Pradesh	350,000	371,251	392,000	419,865	431,200	473,528	435,000	557,326	445,223	564,135	450,000	536,647	450,000	551,516	450,000	567,718	
Uttaranchal										28,234	27,628	31,056	27,544	100,000	34,703	100,000	37,105
West Bengal	150,000	144,000	168,000	146,405	184,800	169,397	200,000	205,790	210,000	176,473	220,000	229,665	220,000	233,382	220,000	249,895	
Total	2,577,000	2,624,845	2,906,240	2,920,398	3,196,950	3,208,320	3,363,500	3,387,740	3,563,157	3,538,621	3,767,056	3,634,118	3,836,000	3,731,047	3,836,000	4,043,374	

## Funding for the NPCB

The allocation of funds for the NPCB increased with the

**Table 2.** Prevalence of blindness in the 50+ population in 15 major States and in north-eastern States

State/Union Territory	Bilateral blind (%)
Andhra Pradesh	10.9
Chhattisgarh	12.4
Madhya Pradesh	8.9
Maharashtra	7.3
Orissa	10.8
Rajasthan	11.9
Tamil Nadu	6.0
Uttar Pradesh	7.2
Bihar	6.0
Gujarat	8.2
Himachal Pradesh	5.4
Karnataka	13.7
Kerala	4.3
Punjab	7.8
West Bengal	9.2
Arunachal Pradesh	17.56
Assam	23.48
Manipur	10.66
Meghalaya	5.72
Mizoram	6.03
Nagaland	8.09
Sikkim	4.99
Tripura	5.96
All India	8.5

Note: Extrapolating the results of the survey to the general population, it is estimated that 1.1% of the general population is blind (1.38% in the north-eastern region)

start of the World Bank-financed Project in 1995. The total outlay for the NPCB in the Ninth Five-Year Plan was Rs 480 crore. In 2001–02, the outlay was Rs 127.57 crore, of which the major contribution came from the World Bank (75.7%) and 16.4% from the Government of India. After the end of the World Bank-financed Project in 2001–02, the NPCB is being sustained mainly through the domestic budget for which an allocation of Rs 445 crore has been made in the Tenth Five-Year Plan. The Government of India contributed 84.6% of the Rs 85.59 crore for the Programme in 2002–03 and 90.5% of the Rs 86.96 crore in 2003–04; the remaining funds come from Danish assistance (Table 3).

In 2001–02, 17.5% of the total expenditure was on capital expenses (10.6% on medical equipment and 6.9% on civil works/furniture), and 82.5% on recurring costs (32% on medical supplies/consumables for cataract operations and 26.9% on salaries) (Table 4). The Government of India purchased and supplied medical equipment to the States, which had the twin benefits of lowered procurement costs as well as assured delivery to the facilities. Earlier experience showed that funds released to the States for procurement of equipment would be diverted to other areas such as payment of salaries. Of the expenditure, 18.2% was incurred through NGOs which were provided grants-in-aid for performing free cataract surgery. The Government of India also released non-recurring grants-in-aid to NGOs to strengthen/expand eye care services in rural areas.

The major part of the funding went to the districts (87.52%), thereby indicating that a large quantum of the earmarked funds go directly for patient care. Of the funds utilized at the Central and State levels, the major part is spent on information, education and communication (IEC) activities, training, review, monitoring and evaluation.

**Table 3.** Abstract summary of funding of NPCB for the years 2001–02, 2002–03 and 2003–04 (Rs in lakh)

Year		Domestic budget	From external agencies			Total
			World Bank	WHO	DANIDA	
2001–02	In cash	2078.09	9601	80.06	998.23	12757.38
	In kind	0	0	0	0	0
	Grants-in-aid to societies/NGOs	0	0	0	0	0
	Total	2078.09 (16.4%)	9601 (75.7%)	80.06 (.63%)	998.23 (7.9%)	12677.32
	Grant/loan	Not applicable	Loan	Grant	Grant	
2002–03	In cash	7237.62	0	96.3	1224.73	8558.65
	In kind	0	0	0	0	0
	Grants-in-aid to societies/NGOs	0	0	0	0	0
	Total	7237.62 (84.6%)	0 (0%)	96.3 (1.1%)	1224.73 (14.3%)	8558.65
	Grant/loan	Not applicable	Not applicable	Grant	Grant	
2003–04	In cash	7870	0	96.3	730	8696.3
	In kind	0	0	0	0	0
	Grants-in-aid to societies/NGOs	0	0	0	0	0
	Total	7870 (90.5%)	0	96.3 (1.1%)	730 (8.4%)	8696.3
	Grant/loan	Not applicable	Not applicable	Grant	Grant	

WHO: World Health Organization; DANIDA: Danish International Development Agency

**Table 4.** Expenditure (by level of utilization) under the National Programme for Control of Blindness, 2001–02 (Rs in lakh)

Expenditure head	Centre	States* (DBCS/NGOs)	Districts	Total	%
<i>Recurrent expenditure</i>					
01. Salaries	24.38	123.6	3,115.68	3,263.66	27.7
1 Regular staff	20.78	123.6	2,953	3,097.38	26.2
2 Contractual staff	3.12	0	162.68	165.8	1.4
3 Daily wages	0.48 <sup>†</sup>	0	0	0.48	0.0
02. Maintenance	3.45	3.5	120.2	127.15	1.1
1 Of medical equipment	0	0	120.2	120.2	1.0
2 Of office equipment	0.23	3.5	0	3.73	0.0
3 Civil works	3.22	0	0	3.22	0.0
03. Medical supplies/consumables	0	0	3,886.42	3,886.42	32.9
1 IOLs	0	0	1,554.71	1,554.71	13.2
2 Sutures	0	0	899.53	899.53	7.6
3 Drugs and medicines	0	0	1,002.5	1,002.5	8.5
4 Spectacles	0	0	429.68	429.68	3.6
04. Office expenses	9.75	14.95	552.43	552.43	4.7
1 Stationery	0.6	3.5	0	4.1	0.0
2 POL	1.31 <sup>†</sup>	0	186.32	187.63	1.6
3 TA	7.84	11.45	0	19.29	0.2
4 Others (contingencies)	0	0	366.11 <sup>‡</sup>	366.11	3.1
05. Training	202.28	158.5	45.58	406.36	3.4
06. IEC	379.74	304	274.52	958.26	8.1
07. Review and monitoring	98.05	11.45	0	109.5	0.9
08. Research	138.49	0	0	138.49	1.2
<i>Total</i>	856.14	616	8,263.82	9,735.96	82.5
<i>Capital expenditure</i>					
10. Civil works	0.42	0	818.2	818.62	6.9
1 New construction	0	0	488.5	488.5	4.1
2 Furniture	0.42	0	329.7	330.12	2.8
11. Equipment	0.8	0	1,246.85	1,247.65	10.6
1 Medical equipment	0	0	1,246.85	1,246.85	10.6
2 Office equipment	0.8	0	0	0.8	0.0
12. Vehicle	0	0	0	0	0.0
<i>Total</i>	1.22	0	2,065.05	2,066.27	17.5
<i>Grand total</i>	857.36	616	10,328.87	11,802.23	100.0
%	7.26	5.22	87.52	100	

\*Based on allocation, detailed expenditure not available

<sup>†</sup>Extrabudgetary support from WHO

<sup>‡</sup>Including maintenance of vehicles

Expenditure under the NPCB could be disaggregated into administration costs (comprising salaries of Programme Managers and contractual staff for management of the Programme at Central, State and district levels, office expenses, office equipment and its maintenance, purchase of furniture/civil works), patient care costs (comprising salaries of ophthalmic surgeons, paramedical ophthalmic assistants, medical equipment/consumables used during cataract operations, maintenance of medical equipment), development costs (comprising IEC activities and training)

and assessment costs (comprising review, monitoring and evaluation and research studies). In 2001–02, under the Programme, Rs 8.96 crore (7.6%) were spent on administration, Rs 90.25 crore (76.5%) on patient care, Rs 13.65 crore (11.6%) on IEC activities and training, and Rs 2.48 crore (2.1%) on assessment of the Programme.

### Sustainability

Since 2001–02, the NPCB is being funded primarily through

the domestic budget, with Rs 445 crore being provided for the Programme in the Tenth Five-Year Plan. However, it needs to be kept in mind that for strengthening the institutional capacity to manage the Programme, funds were provided under the NPCB for the salaries of Programme Managers at the State level. Similarly, posts of District Programme Managers in District Blindness Control Societies were filled on a contractual basis. However, with the ending of the World Bank-financed Project, services of District Programme Managers hired on contract are no longer available, and the responsibility of managing the Programme at the district level has been given to a Deputy CMO who is provided an honorarium equivalent to 20% of the basic salary (subject to a maximum of Rs 2000 per month). In many States there are vacancies at the district level and the effectiveness of this strategy will be clear only after some time.

Similarly, under the NPCB, the States created posts of ophthalmic surgeons in the Eighth and Ninth Five-Year Plans and their salaries were provided from Project funds. The salaries of paramedical ophthalmic assistants were also paid from Project funds. In the subsequent Plans, however, central support for the salaries of these categories of personnel was stopped and the States were asked to meet

these expenses. With most of the States reeling under a financial crisis, it might be difficult to provide the salaries of these categories of health personnel. In that case, it might be difficult for the States to maintain the pace of cataract operations in the coming years, let alone scale up cataract operations.

### **Recommendations**

It would be desirable if the Centre would continue to support the States in the payment of salaries not only to maintain the current level of services but also to up-scale them. Increasing attention needs to be given for improving the quality of cataract surgery services because, for example, in Andhra Pradesh, against the set target of cataract operations, 182% operations were performed and yet the prevalence of blindness reduced only marginally, indicating that the restoration of sight following surgery was probably not good. The scope of eye care surgeries under the NPCB needs to be increased beyond cataract surgeries and correction of refractive errors to address other causes of blindness as well. Since corneal opacities also account for a significant proportion of blindness, eye banking services need to be provided an impetus.