Research Article

National blindness control programme in district Gandhinagar, Gujarat

Shilpa Bhatt[1*], Pina Soni[2], Alok Chaurasia[3]

[1]Assistant Professor, Department of Ophthalmology, GMERS, Gandhinagar, Gujrat, INDIA.
[2]Assistant Professor, Department of Ophthalmology, GMERS, GMERS, Sola, Ahmadabad, Gujrat, INDIA.
[3]Shyam Institute, Bhopal, Madhya Pradesh, INDIA.
Email: dbcsgandhinagar@gmail.com

Abstract

This paper presents a comprehensive picture of the activities carried out by the eye care unit of district Gandhinagar, Gujarat to successfully implement the National Programme for Control of Blindness in the district. The paper reveals that the proactive approach adopted by the eye care unit of the district has been effective in realizing the goals and objectives of the National Programme for Control of Blindness in the district. District Gandhinagar has been able to achieve the goal of reduction in the prevalence of blindness as laid down in the National Programme.

Keywords: blindness control programme, Gujarat.

[*]**Address for Correspondence:**
Dr. Shilpa Bhatt, Assistant Professor, Department of Ophthalmology, GMERS, Gandhinagar, Gujrat, INDIA.
Email: dbcsgandhinagar@gmail.com
Received Date: 08/04/2015 Revised Date: 22/04/2015 Accepted Date: 25/04/2015

Access this article online

Quick Response Code:

Website: www.statperson.com

DOI: 26 April 2015

INTRODUCTION

India was the first country in world to launch the National Programme for the Control of Blindness (NPCB) in the year 1976. The goal of the programme was to reduce the prevalence of blindness from 1.4 per cent to 0.3 per cent (Government of India, 1976). Blindness is defined by the NPCB as:

Simple Definition: Inability of a person to count fingers from a distance of 6 meters or 20 feet.

Technical Definition: Vision 6/60 or less with the best possible spectacle correction OR Diminution of field vision to 20 degrees or less in better eye.

A survey carried out during 2001-02 revealed that the prevalence of blindness had decreased to 1.1 per cent while another survey carried out in 2006-07 revealed that the prevalence decreased further to 1 per cent (Rapid Survey on Avoidable Blindness conducted under NPCB during 2006-07). It is also estimated that the national prevalence of childhood blindness/low vision is around 0.80 per 1000 child population. Main causes of blindness in India are:

- Cataract,
- Refractive Error,
- Corneal Blindness And
- Glaucoma.

Other causes of blindness include surgical complications, posterior capsular opacification, posterior segment disorder, etc.

NPCB addresses these causes through

1. Reduction in the backlog of blindness through identification and treatment of blind;
2. Developing eye care facilities in every district of the county;
3. Human resources development for providing eye care services;
4. Improving the quality of eye care services; and
5. Involvement of voluntary organizations in the delivery of eye care services.

With the launch of the National Rural Health Mission in the year 2005 (Government of India, 2005), NPCB has now been integrated in the framework of the implementation of the Mission. India is also the signatory of the global initiative for the elimination of avoidable blindness "Vision 2020: The Right to Sight" launched by

How to site this article: Shilpa Bhatt, Pina Soni, Alok Chaurasia. National blindness control programme in district Gandhinagar, Gujarat. *International Journal of Recent Trends in Science and Technology* April 2015; 14(3): 716-721 http://www.statperson.com (accessed 28 April 2015).

the World Health Organization in 1999 in collaboration with a number of international non-governmental organizations. The objective of this initiative is to facilitate reduction of blindness worldwide by bringing together the resources needed to do so (WHO Declaration, 1999). NCPB translates this global initiative into practical action at the community level in India through developing appropriate national plan to eliminate avoidable blindness and monitoring the implementation of the national plan right up to the district level. An important component of NPCB has been developing and strengthening eye care facilities in every district of the country through creating necessary infrastructure and facilities and providing training to the staff. **Core functions of the district level eye care facility include**

1. Cataract operation;
2. Screening of rural population for visual impairments through the organization of village based population surveys;
3. School based screening activities directed towards the identification and redress of visual impairments in school going children; and
4. Outpatient services in the district hospital and sub-district and other hospitals within the district.

Over the years, the district eye care facilities have evolved as the mainstay of the efforts under NPCB to achieve its goals and objectives as well as the goals laid down in the global initiative "Vision 2020: The Right to Sight".

OBJECTIVE

This paper presents the performance of NPCB in district Gandhinagar, in the State of Gujarat, India. Gujarat is a State in the western part of India with a population of more than 60 million at the 2011 population census (Government of India, 2011). It is one of the better developed States of the country with third highest per capital income at fixed process among the major States of India – States with a population of at least 20 million at the 2011 population census. The prevalence of blindness in Gujarat is reported to be 0.95% per cent according to a survey carried out in the year 2006 (Rapid Blindness assessment survey carried out in four Districts - Banaskantha, Jamnagar, and Kheda and Valsad). District Gandhinagar had a population of 13,87,478 in the 2011 population census of which *43.16* percent live in urban regions of district and *56.84* percent in the rural areas. The State capital of Gandhinagar is located in the district. The paper is organized as follows. The next section of the paper summarises the findings based on the annual survey of rural population that has been carried out in the district during the five-year period under reference. This survey provides the information about the sex ratio of the blind persons identified during the survey and eye diseases prevalent in the population surveyed. The third section of the paper summarises the findings of the school-based screening programme in the district. This screening programme provides, among others, the proportion of students having squint, cataract and refractive error. The school-based screening programme for blindness control is one of the key components of NPCB. The fourth section of the paper presents the progress of NCPB in the district in terms of the services provided in the context of blindness control. An important component of services delivery under the NCPB is cataract operations. The fifth and the last section of the paper summarises the progress made under NCPB in district Gandhinagar and puts forward some recommendations for improving the efficiency and effectiveness of the implementation of NCPB at the district level in the effort to achieve national goals and objectives of blindness control in India.

DATA SOURCE

The paper is based on the reported data related to the progress of NPCB in the district Gandhinagar maintained by the district eye care facility located in the Government Hospital, Gandhinagar for the five-year period 2008-09 through 2012-13. As per the guidelines laid down for the implementation of NCPB, the district eye care facility has also been entrusted with the responsibility of collecting information about the programme performance from different public and private agencies within the district including non-government organizations and maintaining the database of all eye care activities carried out in the district under the Programme. This database has been used for analyzing the progress of implementation of NCPB in district Gandhinagar.

Blindness Survey (Rural)

An important component of the implementation of NCPB at the district level is active screening of blindness diseases in the rural population through the organization of screening camps in the rural areas. An important advantage of active screening approach is that it contributes to building awareness and knowledge in the community about the blindness diseases. The Gandhinagar district eye care unit has been very proactive in organizing village based active screening activities to identify blindness cases and to build community awareness about blindness diseases as may be seen from table 1.

Table 1: Findings of the village level survey of blindness in district Gandhinagar, Gujarat, India: 2008-09 to 2012-13

Particulars	2008-09	2009-10	2010-11	2011-12	2012-13
Total number of villages	337	339	339	339	339
Villages surveyed	141	156	146	148	150
Proportion of villages surveyed (%)	41.8	46.0	43.1	43.7	44.2
Estimated rural population	1371642	1404166	1404166	1404166	1404166
Population surveyed	559965	489928	524899	354726	427277
Proportion of population surveyed (%)	40.8	34.9	37.4	25.3	30.4
Number of blind persons identified	877	591	340	212	118
Prevalence of blindness (%)	1.57	1.21	0.65	0.60	0.28
Distribution of blind persons					
Male	398	280	164	102	59
Female	463	302	161	105	59
Children (Below__ years)	15	8	8	6	0
Blind person sex ratio (F/M)	116	108	98	102	100
Classification of blindness					
Cataract	687	431	200	42	12
PC Opacification	32	41	29	11	8
Refractive error	29	23	27	32	26
Corneal opacity	58	39	60	63	33
Injury	10	15	21	21	10
Glaucoma	19	17	27	32	9
Others	40	23	19	11	9

Perhaps the most remarkable observation of table 1 is that there has been a very significant decrease in the prevalence of blindness from around 1.6 per 1000 population during 2008-09 to just around 0.28 per 1000 population during 2012-13 which suggests that NCPB goal has been achieved in the district. This very steep reduction in the prevalence of blindness in a short period of only 5 years has been possible because of the very pro-active approach followed by the Gandhinagar district eye care unit, especially, in terms of cataract operations as will be discussed later in the paper. As a result, the proportion of cataract cases that constituted more than 78 per cent of the total blindness cases during 2008-09 (Chart 1) reduced to only around 11 per cent during 2012-13 (Chart 2). This has been possible because of successfully wiping out the backlog of cataract operations in the district. Cataract accounted for more than 78 per cent of the total blindness cases identified in the year 2008-09. This proportion has reduced to only around 11 per cent in the year 202-13 primarily because the district eye care unit made all possible efforts to operate as much cataract cases as possible. As a result of the efforts organized by the district eye care unit, cataract is no longer the leading cause of blindness in district Gandhinagar.

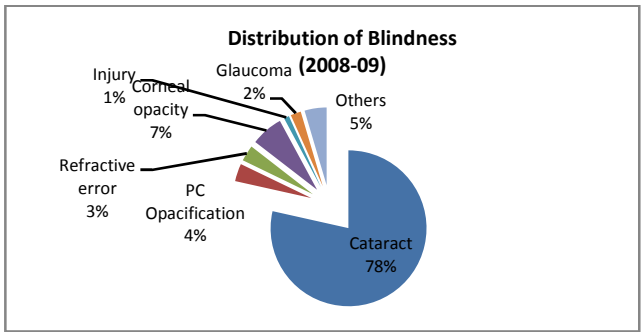


Figure 1:

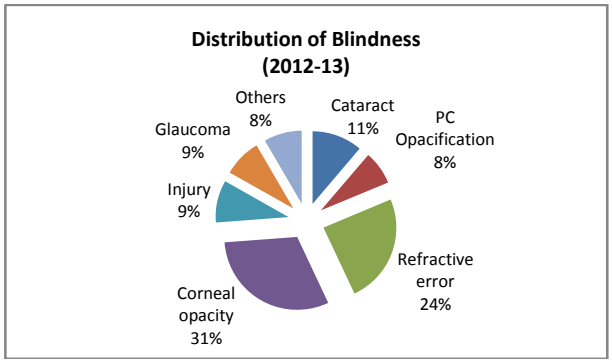


Figure 2:

These statistics are important because cataract is a key cause of avoidable blindness, and timely and efficient treatment can cause significant improvement in the lives of such people. In 2012-13, the cataract surgery rate (CSR) of the state was **1309** per one lakh population (Socio-economic review 2013-14, Gujarat state), while

the CSR achieved in Gandhinagar district was **1741** (No. of cataract surgeries-24167 divided by population in lacs-13.87). The leading causes of blindness in the district now are corneal opacity and refractive error. These two causes of blindness accounted for more than half of the total blindness cases that were identified in the district during the year 2012-13.

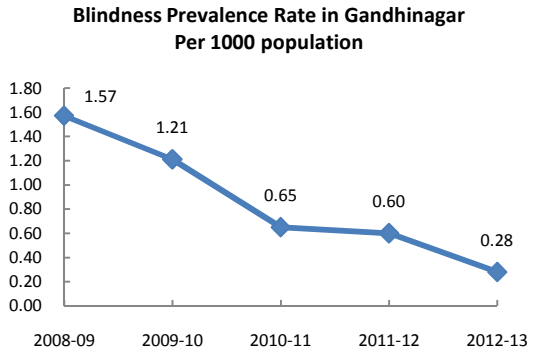


Figure 3:

Another important observation of table 1 is that there has been a significant reduction in the sex ratio of blind persons. During 2008-09, there were around 116 blind females for every 100 blind males in the district. This ratio now stands 100 blind females for every 100 blind males. (figure 3)

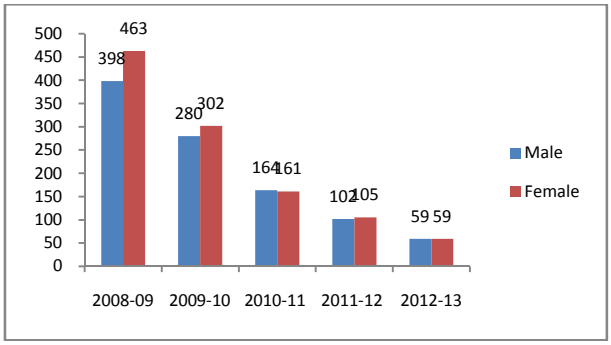


Figure 4: Gender-wise distribution of blindness

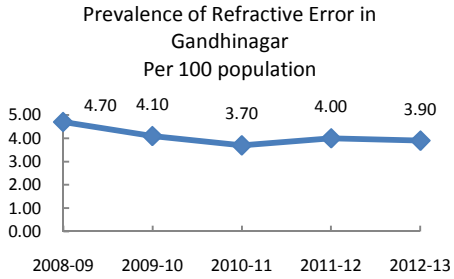
It appears that, in the past, females living in the rural areas of the district were not coming forward at their own for availing blindness control services because of a host of social and cultural factors as well as because of poor awareness in the community about blindness diseases and their control. However, the proactive approach adopted by the Gandhinagar district eye care unit has been successful in eliminating the male-female gap in the prevalence of blindness in the district. The Gandhinagar district eye care unit has not only been successful in reducing the prevalence of blindness in the district but has also been successful in eliminating the male female inequality in the prevalence through a proactive approach which ensured that more and more females got benefitted from the services made available under the NCPB. Obviously, the Gandhinagar district eye care unit has been successful in achieving the goals and objectives of NCPB in district Gandhinagar.

SCHOOL-BASED SCREENING

School-based screening for blindness diseases is another important activity under NCPB. This activity is directed towards school going children. The Gandhinagar district eye care unit has been very proactive in organizing school-based screening activities for the identification of blindness cases in the school going children of the district as may be seen from table 2. The proactive approach followed by the Gandhinagar district eye care unit has ensured near universal screening of school going children in the district. During the year 2012-13, the Gandhinagar district eye care unit has been able to screen more than 97 per cent school going children by covering all the schools in the district. School-based screening of children for blindness diseases appeared to have also contributed very significantly towards building community awareness about blindness diseases. The school-based screening of children suggests that there has been some decrease in the prevalence of refractive error in children. During 2008-09, around 4.7 per cent of the children screened were having refractive error – they were either wearing glasses or they were found to be having refractive error at the time of screening. This proportion has come down to around 3.9 per cent during the period 2012-13. Similarly, the prevalence of squint in the children screened appears to have come down from around 0.53 per 1000 school going children during 2008-09 to around 0.27 per 1000 school going children in 2012-13 whereas the prevalence of cataract among school going children appears to have decreased from around 0.08 per 1000 school going children in 2008-09 to around 0.03 per 1000 school going children in 2012-13. It is also evident from the table that there has been asymmetric variation in the new cases of refractive error detection rate. This rate was the highest during the period 2011-12 (more than 2.9 per cent of the total number of children screened) but decreased sharply to around 1.9 per cent during the period 2012-13.

Table 2: Progress of school-based screening of blindness in district Gandhinagar, Gujarat, India 2008-09 through 2012-13

Particulars	2008 -09	2009 -10	2010 -11	2011 -12	2012 -13
Total number of schools	986	1180	1166	1179	1166
Schools covered	925	932	1166	1177	1166
Proportion of schools covered (%)	93.8	78.9	100.0	99.8	100.0
Total number of students	254039	325786	325786	325786	325786
Students screened	235171	273256	319235	312234	316165
Proportion of students screened (%)	92.6	83.9	98.0	95.8	97.0
Students with glasses	5270	5767	4548	3207	6026
New students with refractive error	5765	5475	7263	9188	6273
Total student with refractive error	11035	11242	11811	12395	12299
Prevalence of refractive error (%)					
Number of students having squint	124	145	127	81	74
Number of students having cataract	19	18	24	4	9
Vitamin 'A' deficiency	142	120	135	109	120



The school-based screening of children also shows that there has been a very significant decrease in Vitamin 'A' deficiency in school going children. In 2008-09, around 6 children were found to be having Vitamin 'A' deficiency for every 10 thousand children screened. This proportion decreased to less than 4 children for every 10 thousand children screened in 2012-13. A decrease in the prevalence of Vitamin 'A' deficiency in the school going children is an indication of an improvement in the living conditions of the people of the district.

SERVICES DELIVERED

In addition to the above discussed field-based activities organized by the Gandhinagar district eye care unit, an idea about the organizational efficiency and administrative capacity of the unit can also be made in terms of the delivery of hospital-based services such as cataract operation and outpatient department. There has been a substantial increase in the patients attending the outpatient department for their blindness related diseases and other complications. This shows the increasing popularity of Gandhinagar district eye care facility. Moreover, every year, around 25 thousand cataract operations have been carried out in the district primarily through non-government organizations and private health care institutions as a result of the initiative and efforts of the Gandhinagar eye care unit (Table 3). This shows that the unit has been able to mobilise resources and institutions for the cause of the control of blindness in the district. The Gandhinagar district eye care unit has also been able to organize around 150 camps every year or around 12 camps every month to organize outreach services to the people. These observations amply reflect the administrative capacity and organizational efficiency of the Gandhinagar district eye care unit in the context of the implementation of NCPB in the district.

Table 3: Services delivered by the Gandhinagar district eye care unit, Gujarat, India 2008-09 through 2012-13

Particulars	2008-09	2009-10	2010-11	2011-12	2012-13
Cases seen in outpatient department	72433	72361	86342	79782	80556
Spectacles prescribed	39199	39296	45546	44062	40347
Proportion spectacles prescribed (%)	54.1	54.3	52.8	55.2	50.1
Eye collection	211	156	146	124	69
Cataract operations	25215	25230	27509	24333	24167
a. Government institutions	2500	2728	2415	2028	2041
b. Non-government institutions	11848	11323	11912	10416	9734
c. Private institutions	10867	11179	13182	11889	12392
Camps organized	141	156	146	148	150

CONCLUSIONS

The successful implementation of NCPB in district Gandhinagar of Gujarat is very much evident from the foregoing discussions. The proactive approach followed by Gandhinagar district eye care unit has largely been responsible for this success. The Unit has also been highly effective in mobilizing non-government organizations and private hospitals in performing cataract operations so that the backlog of cataract operations could be wiped out leading to a very significant reduction in the prevalence of cataract and hence the prevalence of blindness in the district. Some of the salient features of the proactive approach followed by Gandhinagar district eye care can be seen from the *Revised NPCB PIP 2011-12* as under: In the district wise performance – Up to September – 2010

Cataract Operations

Gandhinagar district had the 4th highest target completion (52.18%) behind the districts of Surat (62.40%), Kheda (57.82%) and Surendranagar (53.5%) against the state average of 45.53%

School health program

Gandhinagar district had the second highest number of free spectacles provided to school going children (1507 pair of glasses) behind the district of Amreli (1967 pair of glasses). The number of children detected with refractive error was 1507 – which was the 6th highest in the state. Thus every child with an refractive error received free spectacles in Gandhinagar district.

Eye donation activity

Gujarat district had the 9th highest collection of donated eyes as per the report.

REFERENCES

1. Government of India (1976) National Programme for the Control of Blindness. New Delhi, Ministry of Health and Family Welfare.
2. Government of India (2005) National Rural Health Mission: 2005-2012. New Delhi, Ministry of Health and Family Welfare.
3. Government of India (2007) Rapid Assessment of Avoidable Blindness India. New Delhi, National Programme for Control of Blindness, Ministry of Health and Family Welfare.
4. Government of India (2011) Census of India 2011: Provisional Population Totals. New Delhi, Registrar General and Census Commissioner. Paper 1 of 2011.
5. Murthy GVS, Gupta SK, Bachani D, Jose R, John N (2005) Current estimates of blindness in India. British Journal of Ophthalmology 89: 257-260.
6. Sareen IB (2001) National programme for control of blindness. Health and Population: Perspective and Issues 24(2):99-108.

Source of Support: None Declared
Conflict of Interest: None Declared