TOWARDS DEVELOPING INDIA EYE HEALTH ACTION PLAN

A BACKGROUND DOCUMENT FOR NATIONAL CONSULTATION

29-30 October 2015

This document provides the contextual and situational analysis of Blindness Control Activities in India till date and serves as a background to develop and implement the country's' initiative of Universal Eye Health plan synchronising with the WHO Global Action Plan 2014-2019.

Supported by World Health Organization

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Abbreviations and Acronyms

CBM	-	Christian Blind Mission/ Christoffel-Blinden mission
CBR	-	Community Based Rehabilitation
CHC	-	Community Health Centre
Danida	-	Danish International Development Agency
DFID	-	Department for International Development
DH	-	District Hospital
DMU	-	District Mobile Unit
GAP	-	Global Action Plan
GoI	-	Government of India
ILFS	-	Infrastructure Leasing & Financial Services
IOL	-	Intra Ocular Lens
IT	-	Information Technology
MLP	-	Mild Level Personnel
MoHFW	-	Ministry of Health and Family Welfare
NCD	-	Non-communicable disease
NGO	-	Non Governmental Organisation
NHM	-	National Health Mission
NICU	-	Neonatal intensive-care unit
NPCB	-	National Program for the Control of Blindness
NPHCE	-	National Program for the Health Care of Elderly
OEU	-	Operation Eyesight Universal
OT	-	Operation Theatre
PHC	-	Primary Health Centre
PMOA	-	Paramedical Ophthalmic Assistant
PPP	-	Public Private Partnership
PVA	-	Presenting Visual Acuity
RBSK	-	Rashtriya Bal Swasthya Karyakram
RCH	-	Reproductive and Child Health
RIO	-	Regional Eye Institute
ROP	-	Retinopathy of prematurity
TB	-	Tuberculosis
UHC	-	Universal Health Coverage
UN	-	United Nation
UT	-	Union Territory
VF	-	Visual Function
WHO	-	World Health Organization

Executive Summary

VISION 2020: The Right to Sight India in close collaboration with the Ministry of Health and Family Welfare (MoHFW), Government of India (GoI), World Health Organisation-India office, International Agency for the Prevention of Blindness (IAPB) and other key stakeholders is organizing a national consultation on 29-30 October 2015 for adopting the WHO Global Action Plan for Universal Eye Care, 2014- 2019 in the country context.

The multi - stakeholder participatory consultation across all major service delivery sectors for eye care in the country aims at developing a country action plan for implementation and adaptation of Universal Eye Health: A WHO global action plan 2014-2019 as was endorsed in 66 Wold Health Assembly (66.4 Resolution).

The consultation proposes to deliberate and discuss on the below mentioned objectives of the WHO global action plan for Universal Eye Health. It is hoped that these objectives adapted to the country context will drive current strategies for eye health, vision impairment and rehabilitation and efforts to establish the services required to bring eye health to the most marginalised and poorest groups in society. Important though the new Action Plan is, it will only add value if it is now taken up at country level and national governments take responsibility for implementing the GAP in their country.

1. **Objective 1:** Generating evidence on the magnitude and causes of visual impairment and use it to advocate increased commitment from countries - both political and financial.
2. **Objective 2:** Integrated national eye health policies, plans and programs to enhance universal eye health.
3. **Objective 3:** Multi-sectoral engagement and effective partnerships to strengthen eye health.

The document is organized to align the country efforts of blindness and visual impairment control activities in line with the WHO Global action plan for Universal Eye Health. This consultation hopes to provide MoHFW with a framework and possible inputs to strengthen the Blindness control initiatives in the country in accordance with the WHO Global Eye Health Action Plan. It is also hoped that there will be leads to propose inputs into the upcoming 13th five year plan for blindness control activities in India.

The purpose of the document is to flag areas and issues that would benefit from more discussions and deliberations in the 2-day consultation to align the country strategy in line with the WHO Global Action Plan for Universal Eye Health.

Objective 1: India comprises of 29 states and 7 centrally administered union territories. There are wide variations amongst the states, which were constituted on linguistic basis, with varied size, level of economic development and cultures. It is estimated that there are between 15 - 18.6 million people with blindness in India using the Indian definition and the visual field as a criteria (PVA less than 6/60 and VF less than 20% around the central point of fixation), which amounts to about one fourth of the world's blind population. India houses highest percentage of cataract population of the world as well as high cataract prevalence rate. Blindness in India is known to increase rapidly after

50 years of age. Nearly half of the world's micronutrient deficient people may be found in India. Due to demographic and epidemiological transition, causes of blindness and visual impairment due to diabetes and other ageing conditions are emerging. Infective causes are reducing but injuries have increased as well as an easily recognisable and correctable cause of visual impairment – refractive errors. Although the eye donation movement has evolved well there is still a need to standardize eye banks and increase capacity and facilities for tackling corneal blindness through corneal grafting surgeries.

In most of the surveys conducted in or after the year 2004, the prevalence of blindness ranged from 1.10% to 8.6%. In the National Survey done in India in the year 2007, the prevalence of blindness was found to be 3.6% (WHO 3/60 M), 8% (Indian Std<6/60M). This is significantly lower than the prevalence reported in a national survey over the period 1999–2001 where a detailed eye examination was undertaken (5.3%; 95% CI: 5.1–5.6) and a rapid assessment in 1998 which covered most of the highly populated states in India (5.24%; 95% CI: 4.98–5.62). However the present estimates in India are much higher than what has been reported in China, East Africa and Bangladesh.

This is despite WHO's conclusions that there has been a 25% reduction in the prevalence of blindness in India. The sudden increase in the population above 50 years due to significant increases in life expectancy in India may be the most important reason for the much higher prevalence of blindness in the Indian sub-continent compared to other countries which share similar geographical and topographical characteristics, even though the augmented service delivery networks in the country have helped in reducing the prevalence of blindness but have not kept pace with the increase in the blindness. Gender disparities and poorer access to services in the rural areas are still a challenge in India as has been documented in literature. Renewed efforts will be needed in this direction. Cataract continues to be the commonest cause of blindness in India with three out of every four blind above the age of 50 years being blind due to cataract but the incidence of new causes of blindness and visual impairment is increasing.

Summary of the current status of eye care service delivery in India

- About 65% of surgical performance in the country; mostly cataract surgery; is performed in the private and voluntary sector and only 35% is within the government sector.
- About 11,000 ophthalmologists and an equal number of trained and recognized mild level personnel (MLP) exist as opposed to the ratio of having at least 4-5 MLP for each ophthalmologist. An estimated 40-50% of the ophthalmologists may be surgically inactive within the country.
- The ophthalmologist to population ratio in urban India is 1:25,000 but in rural India it is about 1:250,000.
- Rapid Assessment surveys in 14 districts in the country have pegged the coverage for eye care services at around 70%.
- Proportion of IOL surgery has gone up to nearly 95% at the end of 2012-13
- Population based studies cut a very sorry picture on the results of the outcomes after cataract surgery. Poor outcome is an average of 40% following conventional cataract surgery whereas poor outcome is around 10% after IOL surgeries.

Objective 2: In 1976 India became the first country in the world to start a National Program for Control of Blindness. Prevention and control of blindness is one of the India's compelling development challenges with a goal of reducing the prevalence of blindness. India has developed a strong infrastructure for eye-care. The country presently has about 120,000 health Sub-centers manned by two health workers (for every 5000- 6000 population), 22,000 Primary health centers with a doctor and other paramedical staff (for every 30,000-40,000 population), 6000 Community health centers/first level Referral centers (for every 100,000- 120,000 population) and over 500 District and sub-district hospitals. Health services in India are available in both the public and private sector, the latter absorbing about 75% of all health expenditure, public and private.

The critical challenges that persist are:
Cataract- geographical coverage, quality outcomes, gender parity and reaching the last mile.
Refractive errors – recognition, refraction and referral and provision of corrective spectacles and reaching the out of school children..
Childhood blindness – evidence, infrastructure, technology, human resources and early interventions.
Corneal blindness – awareness, primary eye care, eye donation and facilities for surgery and eye banking.
Low vision - capacity in terms of train human resource, establish a reliable and affordable supply chain for low vision devices and have a mechanism in place, which can actively identify those who can benefit from low vision services.
Diabetic retinopathy - The need is to develop the capacity for treatment as well as mechanisms that can screen the diabetics at the first level and at the second level those who have developed diabetic retinopathy.
Glaucoma – opportunistic screening with customized management.
Human Resources for Eye Care - Instead of an across-the-board increase in ophthalmologists and eye beds, regions which are deficient will need to be prioritized and concerted action initiated to achieve an equitable distribution of the available resources. Speciality services human resources needs to be spread to other areas of the country as it is concentrated and clustered in the south of the country.
Infrastructure and Appropriate Technology - . Emphasis be made to develop infrastructure at various levels to provide eye care. Technological advances like IT and communications has not been harnessed for eye care although they are available.
Development of the standardized Management Information System for eye health is an immediate requirement to aid program management.

Objective 3: A World Bank Assisted Cataract Blindness Control Project was launched in 7 states over 7 years in 1994; a first for World Bank; to help improve the National Program for the Control of Blindness' (NPCB's) quality of service and expand its treatment capacity. Over the time, various multilateral and bilateral development agencies such as WHO, World Bank, Danida, DFID and international NGOs such as ORBIS International, Sightsavers International, OEU, CBM, Lion's International have extended adequate support to strengthen the blindness prevention initiatives. The national program development in India for the prevention and control of blindness have served as a blueprint for many other countries including its unique decentralised approach and excellent public private partnership since the last 25 years.

About Universal Health Coverage: WHO defines universal health coverage (UHC) as "ensuring that all people have access to needed promotive, preventive, curative and rehabilitative health services, of sufficient quality to be effective, while also ensuring that people do not suffer financial hardship when paying for these services". This means all people should enjoy access to the best quality health care without risk of impoverishment. To achieve UHC, mainstream services must be designed to overcome access barriers, and special measures, such as outreach programs, must be taken to reach the poor and marginalised. Health financing has a significant impact on access; social protection programs, health insurance schemes and free point-of-care services are ways to reduce out-of-pocket health shocks.

Global Action Plan for Universal Eye Health (2014-2019): In May 2013, 'Towards Universal Eye Health: A Global Action Plan 2014-2019 was unanimously adopted by member states at the World Health Assembly in Geneva. By doing so, 194 countries have acknowledged the importance of universal eye health and have committed to reducing the prevalence of avoidable visual impairment and securing access to rehabilitation services for the visually impaired. While this is a remarkable development, formidable challenges remain. Advancing towards universal eye health will require political will and co-ordinated action by stakeholders.

Initiatives for Universal Eye Health in India:

Objective 1: The NPCB has recently commissioned more evidence generating initiatives as well as looking at how the program has performed through the Epidemiological Study of Blindness and Visual Impairment in more than 30 districts in the country between now and 2018. This is in addition to many studies that have been done and referenced in order to help in program planning.

Objective 2: National Health Mission (NHM) is the flagship program of the Government of India and is synergistic with the determinants of good health. The last decade looked at the revitalization of health systems with the goal of availability of & access to quality health care to people, especially for those residing in rural areas, the poor, women & children.

It provides a great platform for leverage for the Universal Eye Health plan in India with the under mentioned key objectives:

- Increasing public expenditure to health care;
- Reducing regional imbalances;
- Pooling resources;
- Integration of organizational structures;
- Optimization of Health Workforce;
- Decentralization & District Management;
- Community monitoring & asset ownership;
- Instituting quality standards.

The proposed Universal Health Coverage system focuses on reduction of the disease burden facing communities along with early disease detection and prevention. The emphasis is on investing in primary care networks and holding providers responsible for wellness outcomes at the population level. It provides for 70% of all health care expenditures to be on primary health care. The submission to the planning commission would be considered by the Government in its budget

allocation. While the roll out of essential medicines and access to technology has been rolled out, the integrated approach for other components are in the pipeline.

To become a reality the Universal Eye Health plan would require

- Eye Health Financing & Financial Protection;
- Eye Health Service Norms;
- Eye Health Human Resources;
- Community Participation & Citizen Engagement;
- Access to Medicines, Vaccines & Technologies for eye health care;
- Management, Institutional & Governance Reforms

This would ensure that every citizen is entitled to essential primary, secondary and tertiary eye health care services that will be guaranteed by the Central & Federal Government entities.

To achieve and sustain Universal Eye Health Coverage it is important to address:

- Social determinants of health;
- Gender & Health – access, strengthen women's central role, capacity of health system, support & empower girls, health rights etc

The outlay of the 12 the five year plan and the catalytic role of the National Health Mission is another major facilitator for the Universal Eye Health Plan.

Objective 3: This can be achieved by working with and across many departments and ministries as well as other national health and development programs.

- The NPCDCS program provides an opportunity to address the issues related to eye problems arising out of diabetes or hypertension.
- The RCH program provides the opportunity to address the issues related to blindness in children and vitamin A deficiency.
- The National Program for the Health Care of Elderly is the perfect foil for the age related eye diseases mandate - The NPHCE is an articulation of the International and national commitments of the Government as envisaged under the UN Convention on the Rights of Persons with Disabilities, National Policy on Older Persons adopted by the Government of India in 1999 and Section 20 of "The Maintenance and Welfare of Parents and Senior Citizens Act, 2007" dealing with provisions for medical care of Senior Citizen. The Vision of the NPHCE are: (1) To provide accessible, affordable, and high-quality long-term, comprehensive and dedicated care services to an ageing population; (2) Creating a new "architecture" for Ageing; (3) To build a framework to create an enabling environment for "a Society for all Ages;" (4) To promote the concept of Active and Healthy Ageing.

The role of federal states: India being a federal republic implies that implementation of health related programs occur at the state level although some of them may be funded by the central government. With 29 states and 7 Union Territories, there are issues with prioritization for diseases control due to lack of evidence, human resources for eye care, infrastructure and technology for eye care as well as community participation in some states where awareness and civil situation does not

permit easy implementation and access to communities. Professional management and systems are still catching up. The role of civil society and partnerships have made southern and western parts of the country especially the states perform much better than their other counterparts. Aggregated data at the district, state or national level does not really help in program implementation plans. Wide variation in infrastructure and other systems for program delivery make it more challenging across the states. It is essential that efforts have to be made to at least develop the basic minimum systems to delivery universal eye care.

To summarise, the main issues that needs deliberations and discussions to achieve Universal Eye Health are:

1. Developing comprehensive eye care services that is seen to be offering a breadth of services covering the range of causes of vision impairment, from promotion, prevention to rehabilitation and care.
2. Integrating eye health into health systems through the health systems approach, attending to the six building blocks according to WHO: leadership &governance, health financing, service delivery, human resources, medicines and technologies, and information
3. Ensuring access for everyone, including the poor, minorities, the disabled including vision impaired and people in rural areas. This requires adequate health outreach and promotion including appropriate technologies and formats, and ensuring mainstream and targeted programs address barriers
4. Affordability at the point-of-care of service so that it should not prevent access due to costs being a barrier and ensuring that it should be free for the poorest.

Introduction and Purpose

According to WHO report, India contributes to 21.9% of visually impaired people in the world (second largest contribution) with prevalence of low vision 4.6% and blindness as 0.6%. In India about 91.8% of blindness among the 50+ is avoidable (refractive errors, cataract, surgical complications, aphakia, trachoma and corneal scars, diabetic retinopathy)[1]. The adoption of the Global Eye Health Action Plan by the 66th World Health Assembly offers a new opportunity to Member States to progress with their efforts to prevent visual impairment and strengthen rehabilitation of the blind in their communities. The global target as per Global Action Plan 2014-2019 is reduction of prevalence of avoidable visual impairment by 25% by2019.

Government of India is currently implementing the National Programme for Control of Blindness (NPCB) with goal of reducing blindness to 0.3% till 2020 and has incorporated strategies to achieve through 12th Five Year Plan as part of greater political and financial commitment. Great strides have been made in the country with the involvement of multiple stakeholders and partners in the government and non-governmental sectors. More than 60% of target cataract surgeries are done through NGOs and private hospitals as multi-sectoral engagement. School eye screening programme, training of eye surgeons, free distribution of spectacles coverage of 40 years, promoting the eye donation movement, grant-in-aid for NGOs for management of diabetic retinopathy, glaucoma are new initiatives in NPCB.

VISION2020: The Right to Sight is a global initiative for the elimination of avoidable blindness, a joint programme of WHO and International Agency for Prevention of Blindness with an international membership of NGOs, professional associations, eye care institutions and corporations. One of the objectives of VISION2020 is to facilitate the planning, development and implementation of Eye Health Programs in all countries.

Purpose of the document:

VISION 2020: The Right to Sight India in close collaboration with the Ministry of Health and Family Welfare (MoHFW) and other key stakeholders is organizing a national consultation on29-30 October 2015 for adopting the WHO Global Action Plan for Universal Eye Care, 2014-2019 in the country context. The consultation is expected to have participation of around 50 experts from different parts of the country. The consultation aims at developing a country action plan for implementation/adaptation of Universal Eye Health: A global action plan 2014-2019.

MoHFW has shown interest to take forward the recommendations finalized during the consultation to strengthen the Blindness control initiatives in the country in accordance with the WHO Global Eye Health Action Plan.

Objective:

- Use the paper in the deliberations meant for developing the way forward to align the national plan in accordance with the Global Eye Health Action Plan

[1] Rapid assessment of blindness in India- RAAB iIndia study group http://www.plosone.org/article/info:doi/10.1371/journal.pone.0002867

Global response to tackling blindness- Global Action Plan

WHO defines universal health coverage (UHC) as "ensuring that all people have access to needed promotive, preventive, curative and rehabilitative health services, of sufficient quality to be effective, while also ensuring that people do not suffer financial hardship when paying for these services". This means all people should enjoy access to the best quality health care without risk of impoverishment. To achieve UHC, mainstream services must be designed to overcome access barriers, and special measures, such as outreach programs, must be taken to reach the poor and marginalised. Health financing has a significant impact on access; social protection programs, health insurance schemes and free point-of-care services are ways to reduce out-of-pocket health shocks. In May 2013, 'Towards Universal Eye Health: A Global Action Plan 2014-2019' was unanimously adopted by member states at the World Health Assembly in Geneva. By doing so, 194 countries have acknowledged the importance of universal eye health and have committed to reducing the prevalence of avoidable visual impairment and securing access to rehabilitation services for the visually impaired. While this is a remarkable development, formidable challenges remain. Advancing towards universal eye health will require political will and co-ordinated action by stakeholders.

Towards universal eye health: a global action plan 2014–2019 was endorsed at the Sixty-sixth World Health Assembly by adopting resolution WHA66.4

Under this action plan, actions for Member States, international partners and the Secretariat are structured around three objectives:

- **Objective 1** addresses the need for generating evidence on the magnitude and causes of visual impairment and eye care services and using it to monitor progress, identify priorities and advocate for greater political and financial commitment by Member States to eye health;
- **Objective 2** encourages the development and implementation of integrated national eye health policies, plans and programs to enhance universal eye health with activities in line with WHO's framework for action for strengthening health systems to improve health outcomes;
- **Objective 3** addresses multi-sectoral engagement and effective partnerships to strengthen eye health.

The global eye health action plan is based on five principles and approaches which underpin the plan: universal access and equity, human rights, evidence-based practice, a life course approach, and empowerment of people with visual impairment.

Eye Care Scenario in India[2,3,4]

India is the second most populous and seventh largest country in the world. It comprises 29 states and 7 centrally administered union territories. There are wide variations amongst the states, which were constituted on linguistic basis, with varied size, level of economic development and cultures. The population of the country slowed down from 2.15% to 1.76% between 2001 and 2011. It is estimated that there are between 15 - 18.6 million people with blindness in India using the Indian definition and the visual field as a criteria (PVA less than 6/60 and VF less than 20% around the central point of fixation), which amounts to about one fourth of the world's blind population.

Evidence Generation

India houses highest percentage of cataract population of the world as well as high cataract prevalence rate. It was estimated that in India 3.8 million people become blind from cataract each year in the early nineties.[5] Blindness in India is known to increase rapidly after 50 years of age. Nearly half of the world's micronutrient deficient people may be found in India. For example, of the 20-40 million children worldwide who are estimated to have at least mild vitamin A deficiency (VAD), half reside in India. VAD causes an estimated 60,000 children in India to go blind each year.

As per the National Survey records, the States like Madhya Pradesh, Rajasthan and Jammu & Kashmir have high blindness prevalence (2% and above). The prevalence of blindness is higher among population having lower socio-economic status. Females are found to have a higher preponderance of blindness as compared to males. The prevalence is significantly higher in rural and backward areas.

A World Bank Assisted Cataract Blindness Control Project[6]was launched in 7 states over 7 years in 1994; a first for World Bank; to help improve the National Program for the Control of Blindness' (NPCB's) quality of service and expand its treatment capacity. This was done by: (a) enhancing quality of care and expanding service delivery through new strategies, policies, technical and operational norms; increased use of modern surgical techniques; and expanded coverage of rural and isolated populations with extensive Non-Governmental Organization (NGO) and private sector involvement; (b) developing human resources for eye care delivery by strengthening selected training institutions, upgrading the skills of ophthalmic and health personnel, and providing management training for Central, State and District project managers; (c) promoting outreach activities and public awareness by supporting NGO's and community involvement, and raising awareness about cataract blindness through mass and traditional folk media, and interpersonal communications; and (d) developing institutional capacity at the Central, State and District levels, developing collaborative mechanisms with the non-government sectors, introducing measurable monitoring mechanisms, and conducting operations research.

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[2]Murthy GVS, Gupta S, Bachani. D. The principles and practice of Community Ophthalmology, National programme for control of blindness, Government of India, New Delhi, 2002, Power printers, 2/8-A New Delhi.
[3]Present status of the National Program for Control of Blindness. Ophthalmology Section. DGHS, MOHFW, GOI, 1993
[4]National Program for Control of Blindness in India 2001, GOI
[5] D C Minassian and V Mehra. 3.8 million blinded by cataract each year: projections from the first epidemiological study of incidence of cataract blindness in India. Br J Ophthalmol. 1990 June; 74(6): 341–343.
[6] Jose R, Bachani D. World bank-assisted cataract blindness control project. Indian J Ophthalmol 1995;43:35-43

Between 2001 and 2002, a **National Survey on Blindness and Visual Outcomes after Cataract Surgery**[7]was undertaken in population aged 50+ years across almost all states of the country. As opposed to the results of the 1986-89 survey that estimated 8% of individuals aged 50+ suffered from cataract blindness, in 2001-2002 there seems to be a significant change in this trend which showed that the prevalence of cataract blindness (as per the NPCB criteria) was only 5.32% (prevalence of blindness as per NPCB criteria was 8.5% and cataract was responsible for 62.6% of blindness as defined by NPCB). It was also observed that even in the high prevalence States, the prevalence of cataract blindness was 6.02% now (prevalence of blindness as per NPCB criteria- 9.3%; cataract as a cause of bilateral blindness-64.7%). Therefore the World Bank assisted Cataract Blindness Control Project has been able to reduce the prevalence of cataract blindness significantly. It was also evident that adequate attention to the other causes of blindness, in addition to cataract was urgently needed if the situation has to be completely redressed. The survey also suggested a need for setting up of an effective MIS to effectively monitor the changing trends and ring warning bells as and when the need arises. A finding of immense importance from the survey was that in spite of the improved infrastructure, follow up services were /have not been augmented. This was evident in the poor visual outcomes after cataract surgery. Many of the operated individuals who could have benefited tremendously with an appropriate pair of spectacles did not have access to them. Also of great significance is the fact that more than a quarter of the population paid for services suggesting cost recovery mechanisms working for eye care. The reduced number of surgeries at peripheral eye camps was also a trend worth mentioning as it means that more and more surgeons are moving to the confines of a safe and sterile operating room rather than compromise with less sterile or less ideal conditions.

In most of the surveys conducted in or after the year 2004, the prevalence of blindness ranged from 1.10% to 8.6%. In the National Survey done in India in the year 2007[8], the prevalence of blindness was found to be 3.6% (WHO <20/400), 8% (Indian Std<20/200). The prevalence of blindness (vision<3/60 in the better eye-presenting vision) among those aged 50 years and over was 3.6%. This is significantly lower than the prevalence reported in a national survey over the period 1999–2001 where a detailed eye examination was undertaken (5.3%; 95% CI: 5.1–5.6) and a rapid assessment in 1998 which covered most of the highly populated states in India (5.24%; 95% CI: 4.98–5.62). However the present estimates in India are much higher than what has been reported in China, East Africa and Bangladesh. This is despite WHO's conclusions that there has been a 25% reduction in the prevalence of blindness in India. There is ample evidence in India that there is a demographic and epidemiological transition leading to increase in life expectancy and consequently the elderly populations in India.

Summary of the current status eye care service delivery in India

About 65% of surgical performance in the country; mostly cataract surgery; is performed in the private and voluntary sector and only 35% is within the government sector.

[7]National Survey on Blindness and Visual Outcomes after Cataract Surgery, 2001-2002, Ophthalmology Section, DGHS, MOHFW, GOI,2002

[8](Neena J, Rachel J, Praveen V, Murthy GVS (2008) Rapid Assessment of Avoidable Blindness in India. PLoS ONE 3(8): e2867.)

About 11,000 ophthalmologists and an equal number of trained and recognized mild level personnel (MLP) exist as opposed to the ratio of having at least 4-5 MLP for each ophthalmologist. An estimated 40-50% of the ophthalmologists may be surgically inactive within the country.
The ophthalmologist to population ratio in urban India is 1:25,000 but in rural India it is about 1:250,000.
Rapid Assessment surveys in 14 districts in the country have pegged the coverage for eye care services at around 70%.[9]
Proportion of IOL surgery has gone up to nearly 95% at the end of 2012-13
Population based studies cut a very sorry picture on the results of the outcomes after cataract surgery. Poor outcome is an average of 40% following conventional cataract surgery whereas poor outcome is around 10% after IOL surgeries.

Main Causes of Blindness in this population are as follows[10]

A	Cataract	62.6%
B	Refractive Error	19.7%
C	Corneal Blindness	0.90%
D	Glaucoma	5.80%
E	Surgical Complication	1.20%
F	Posterior Capsular Opacification	0.90%
G	Posterior Segment Disorder	4.70%
H	Others	4.19%

Disease Control Status

Cataract

Cataract continues to be the major cause of blindness. However the strong focus under the NPCB on cataract seems to have made significant impact. The cataract surgical rate quadrupled within a span of 15-16 years to 5,246 catops/per year/million. Currently around 6.6 million cataract surgeries are being performed in the country. Some of the recent surveys showed that cataract as a cause of blindness is now less than 65% level as opposed to 80% level in the survey done in the mid 80's. The proportion of IOL surgery has increased to more than 90% across the country. In spite of the success in cataract intervention the following issues remain:

The northern region has a much lower percentage of IOL surgery compared to the southern states which have switched completely to IOL surgery.

The quality of cataract surgery has to be measured by long-term post-operative visual acuity, which requires significant improvement. Much of this would be addressed by switching over to the IOL surgery there by reducing the need for refractive correction if the proper IOL power for insertion and the technique is mastered. There is also a need for reducing post-operative complications and increasing the overall quality.

[9] (Neena J, Rachel J, Praveen V, Murthy GVS (2008) Rapid Assessment of Avoidable Blindness in India. PLoS ONE 3(8): e2867.)
[10] http://npcb.nic.in/index2.asp?slid=112&sublinkid=52&langid=1

Geographic Coverage: This has very wide variation within the country between various states. There is almost 10-fold difference with Gujarat performing over 13,000 surgeries per million populations while the rate in Bihar is less than a 2,600.

Socio-economic: There is a bias for the urban, literate population getting a better coverage of cataract services than the others. Lack of escort, fatalistic attitude and fear in spite of increased awareness and waiting for decision making to undergo surgery within the Indian household are important barriers.

Gender Issues: Several studies have shown that the burden of cataract among the female is about 40% more than the male. Against this the actual service delivery is either equal or in some states is in favor of men getting more cataract services more due to the social situation in favor of men. To achieve gender equity there is a need to ensure 60% of all cataract surgeries for women.

Cornea

The main area of concern is corneal infections arising out of trauma or other infectious reasons. For more advanced corneal diseases requiring corneal grafts, it is reported that the number of eyes collected in the year 200115-12 was 49,410 pairs. Hospital corneal retrieval for eye donation has seen good growth over the last few years. Eye donation fortnights to advocate as well generate awareness happens every year in the months of August – September in the country. Gujarat, Tamil Nadu, Andhra Pradesh and Maharashtra who are also good performing states for cataract blindness seem to be doing well in corneal/eye donation as well but of course less than 50% tissue are viable and used.

The issues in corneal causes of blindness and visual impairment relate to both ensuring that the patient engage in right health behavior when in need as well as to ensure that the providers have both the skills for making the right diagnosis and the required infrastructure. A. The institutions that provide eye care facilities are also not all equipped with the basic laboratory facilities to identify the organism causing the infection for starting effective medication. Thus, there is a need to work both at the community and the institutional level for awareness generation.

It would be an important step to establish such a base line data both in terms of current backlog as well as the annual new cases that would require corneal transplant. Such a data can drive the eye banking process in India in a more rational and effective manner. At the current level of cornea collection, it is supposed to be 1/10th of the need and if the tissue usage is considered it may even be less.

Childhood blindness[11]

Childhood Blindness is an important public health problem in developing countries due to its social and economic implications. Though prevalence of childhood blindness is comparatively low as compared to blindness in the aged, it assumes significance due to large number of disability years of every child remaining blind. It is a dilemma that nearly half of the childhood blindness can either be

[11] National programme for control of blindness, Prevention and control of childhood blindness in India, Plan of action: 2002-2007, Ophthalmology/blindness control section, Ministry of health & family welfare , Nirmanbhavan, New Delhi

prevented or easily corrected. While efforts have been mainly directed to control blindness due to cataract in developing countries including India, childhood blindness has not been given adequate attention. Though no population based nationwide survey has been undertaken on the prevalence of childhood blindness in India, data is available from some pockets- Andhra Pradesh (0.61/1000), West Bengal (0.51/1000) and Delhi (1/1000) and more recently from Maharashtra confirming the above numbers. A figure of 0.8/1000 children has been used for India using the co-relation between under five mortality rates and prevalence. Currently, there are an estimated 270,000 – 320,000 blind children in India, and larger number has visual disorders leading to impairment. Approximate figures for the country are estimated to be as follows:

- Approx. 60,000 – 70,000 blind children due to posterior segment problems;
- Ocular trauma responsible for 20-40% of one eye blindness;
- 9.2 million Children have vision < 6/18 in the better eye due to refractive errors;

The following table summarizes the major cause of blindness from various studies done in India.

Major anatomical cause of CB in various studies from different parts in India

Study Year	Place/State	Population	Congenital Globe Anomalies	Retinal Diseases	Optic Nerve Diseases	Cataract and Lens Related	Corneal Problems
1995	South India[12]	Schools for the blind in Tamil Nadu	NA	22.6%	NA	7.4%	38.4%
1995	9 states*[13]	22 Schools for the blind	20.7%	19.3%	5.9%	12.3%	26.4%
1998	Coastal Andhra Pradesh[14]	Population based study	25%	22.2%	16.7%	15.3%	11.1%
2000	Andhra Pradesh[15]	6 schools for the blind across the state	20.2%	31.1%	4.9%	7.9%	24.3%
2003	North India[16]	13 schools for the blind	27.4%	15.1%	NA	10.9%	21.7%
2007	Maharashtra[17]	35 schools for the blind	41.3%	11.2%	4.6%	6%	22.2%
2008	Rural Karnataka (Around Bangalore)[18]	House to house survey	28.6%	14.3%	7.1%	42.9%	NA
2008	North-East region (Assam, Manipur, Tripura and Mizoram)[19]	Schools for the blind in 4 states	36.1%	5.8%	5.3%	10.9%	36.7%
2009	Karnataka[20]	24 residential schools for the blind	41.4%	20.3%	4.4%	14.1%	13.7%
2012	Coastal Andhra Pradesh[21]	6 schools for the blind	41.4%	18.9%	6.3%	9.7%	7.1%

*Gujarat, Madhya Pradesh (MP), Haryana, Uttar Pradesh (UP), West Bengal (WB), Maharashtra, Karnataka, Kerala and Tamil Nadu (TN); NA = Not Available

[12]Gilbert C, Canovas R, Hagan M, Rao S, Foster A. Causes of childhood blindness: Result from West Africa, South India, Chile. *Eye* 1995;9:545-50.

[13]Rahi JS, Sripathi S, Gilbert CE, Foster A. Childhood blindness in India: causes in 1318 blind school students in nine states. *Eye* 1995;9:545-50.

[14]Dandona L, Williams JD, Willliams BC, Rao GN. Population based assessment of childhood blindness in southern India. *Arch Ophthalmol* 1998;116:545-46.

[15] Hornby SJ, Adolph S, Gothwal VK, Gilbert CE, Dandona L, Foster A. Evaluation of children in six blind schools of Andhra Pradesh. *Indian J Ophthalmol* 2000 Sep;48(3):195-200.

[16]Titiyal JS, Pal N, Murthy GV, Gupta SK, Tandon R, Vajpayee RB, Gilbert CE. Causes and temporal trends of blindness and severe visual impairment in children in schools for blind in North India. *Br J Ophthamol*2003 Aug;87(8):941-5.

[17]Gogate P, Deshpande M, Sudrik S, Taras S, Kishore H, Gilbert C. Changing pattern of childhood blindness in Maharashtra, India. Br J Ophthalmol. 2007 Jan;91(1):8-12.

[18]Dorairaj SK, Bandrakalli P, Shetty C, R V, Misquith D, Ritch R. Childhood blindness in a rural population of southern India: prevalence and etiology. Ophthalmic Epidemiol. 2008 May-Jun;15(3):176-82.

[19]Bhattacharjee H, Das K, Borah RR, Guha K, Gogate P, Purukayastha S, Gilbert C. Causes of childhood blindness in the northeastern states of India. Indian J Ophthalmol. 2008 Nov-Dec;56(6):495-9.

[20] Gogate P, Kishore H, Dole K, Shetty J, Gilbert C, Ranade S, Kumar M, Srihari, Deshpande M. The pattern of childhood blindness in Karnataka, South India. Ophthalmic Epidemiol. 2009 Jul-Aug;16(4):212-7.

[21]Krishnaiah S, Subba Rao B, Lakshmi Narasamma K, Amit G. A survey of severe visual impairment in children attending schools for the blind in a coastal district of Andhra Pradesh in South India. Eye (Lond). 2012 May 11.

The studies suggest that about 30-40% of the children suffer from easily preventable and treatable causes of blindness, mainly corneal diseases and lens related disorders. The rest were due to relatively unavoidable causes like congenital anomalies and genetic diseases. However, due to regional variations in causes and differences between urban and rural areas, strategies should be customized to each region rather than having a generic strategy for the entire country. The only limitation of these surveys is that they are not representative of the population and that they exclude children with special disabilities and pre-school children (including those who die before they are of school going age).

Apart from the above mentioned causes, uncorrected refractive error is a major cause of VI and blindness in children. In India, approximately 3-10% of children (including school going children) will have VI due to uncorrected refractive error.

This is an area, which has not developed well in India. Only in the last few years few centers in the country that offer both the services to children as well as training to ophthalmologists in this discipline have been developed. While the capacity is an issue, the other one that will emerge soon will be in establishing an effective service delivery mechanism for children not only to cover the blinding conditions but also to take care of all eye care needs in that age group. Constraints for developing services under childhood blindness include:

- Specific infrastructure for detection and management of childhood blindness is not available at primary and secondary health care system of the country.
- At the tertiary level, very few centers (both Govt. and NGO) are equipped to manage childhood blindness.
- Inadequate general anaesthesia facilities in the country, especially for ocular injuries where urgency of the situation is often not recognized.
- Posterior segment disease detection is presently not possible at the primary and even some secondary centres.
- Human Resources are inadequate at the level of PHC/CHC; no trained personnel are available. Posterior segment care is grossly inadequate. Approximately, 150 ophthalmologists (including govt. and private sector) are trained to deal with posterior segment disorders.
- Because of inadequate trained ophthalmic human resources, many conditions like ocular injuries are treated by non-ophthalmologists like general surgeons or physicians in most places.

Refractive Errors

Refractive errors, though very simple condition to rectify, has not had sufficient importance till now. Some of the recent studies are started showing that 60–70% of the vision impairment can be addressed by providing glasses. Children between 10-15 years and adults over the age of 40+ as well as those who have had cataract surgery are the principal target groups for service provision. Based on evidence, there are between 1 & 2 children for every 1000 children in the 10-15 years age group that are blind just because of uncorrected refractive errors. The prevalence of refractive errors (Presenting vision of <6/12 in any eye) was in the range of 2.7% to 6.4% in this age group. Myopia {< (-) 0.5 D sphere} ranged from 1.2% to 7.4% and more in the urban areas, while hypermetropia {> (+) 2.0 D sphere} was in the range of 0.8% - 7.7%. Children between 10-15 years have 5-10% as the

prevalence of refractive errors that needs services. Another 5% in the age group 16-39 years has refractive errors. Based on recent evidence the prevalence of refractive errors goes up to 50% in the age group 40+ years and above. Presbyopia or difficulty in near work is the main reason for this increase in prevalence. It is estimated that 0.4 million people would require refractive error services in an average district population of 2 million in the country of which 0.05 million would be in 10-15 years group, 0.1 million in the 16-39 years age group and 0.25 million in the 40+ years age group. Close to 180-190 million inhabitants in the country would need refractive error services all refractive problems inclusive.

Formal human resources that were available to correct refractive errors was about 15/ 2 million population (0.77/100,000 people) and there is misdistribution of resources of these.

The National Plan of Action under the NPCB for the period 2002-2007 set out the following objectives for refractive errors:

- To provide eye glasses to about 1.5 million children having significant refractive errors assuming that at least 5% of children below 15 years of age will need glasses to correct their refractive errors. This translates for the Xth Plan (2002-2007) to free glasses for 10% children with refractive errors, which is to cater to 1.5 million children. The average cost of a pair of glasses is estimated to be Rs. 150/-. (USD 3.5)
- Besides school eye screening Program that is undertaken under National Program for Control of Blindness, PHCs and NGOs should be involved in community based refraction services.
- There should be mechanisms to identify refractive errors is out-of-school children also.
- Dilatation of pupils should be must before confirmation of refractive errors as per the guidelines.
- Vision centers in rural areas at PHCs and NGO screening centers should be developed.
- Glasses should be distributed through the PHCs and where the PHC is not functioning, they could be distributed through the Panchayats

However, some of the challenges in this are trained human resources, availability of glasses and provision of services with accessibility, availability, acceptability and affordability. The potential for refractive services to subsidize eye care programs is yet to be utilized to its fullest possible extent.

Low Vision

Low vision is defined as permanent visual impairment that is not correctable with refractive error correction or surgical intervention. Those with best-corrected distance visual acuity <6/18 to perception of light or central visual field <10 degrees because of an untreatable cause in both eyes are considered as having low vision. Low vision prevalence in India is estimated to be about 1.05% with most frequent causes of low vision being retinal diseases, amblyopia, optic atrophy, glaucoma, and corneal diseases. Increasing age, and a trend for higher prevalence with decreasing socioeconomic status is also reported. If we extrapolate these data to the estimated population of India now, 11 million people would have low vision.

Significant barriers ranging from both the providers and beneficiary side exist with respect to low vision. There is a significant burden of low vision in this population, suggesting the need for low

vision services. There are few centers that provide low vision services in the country. The capacity is less than the potential demand. There is a need to create capacity in terms of train human resource, establish a reliable and affordable supply chain for low vision devices and have a mechanism in place, which can actively identify those who can benefit from low vision services. There is also a need to advocate for low vision and address knowledge gaps among eye care professionals with respect to low vision which are key barriers to service delivery as well.

Diabetic Retinopathy

The WHO has estimated that within the next three decades, India is likely to have a prevalence of diabetics at 6% of the rural population and as high as 15-20% in urban areas. It is estimated that 25% of these patients would have diabetic retinopathy and a significant proportion of this would require active treatment for this condition. This is an emerging problem and is likely to get compounded by changing life styles and ageing of the population. The need is to develop the capacity for treatment as well as mechanisms that can screen the diabetics at the first level and at the second level those who have developed diabetic retinopathy. The Queen Elizabeth Diamond Jubilee Trust has awarded a grant to Public Health Foundation of India to establish sustainable and scalable services for the prevention, detection and treatment of diabetic retinopathy, which will be integrated into the Government of India's health systems at every level. This new approach will serve as a model for other governments and partners in the Commonwealth and beyond to follow.

Glaucoma

The Glaucoma affects a significant number of people and is probably the leading cause of permanent blindness. However, as of date there are no reliable screening mechanisms that can be carried out in the community. The treatment regimen has also to be customized to each individual requiring a very high level of patient compliance. One of the immediate steps that can be taken is to ensure that all the eye care providers are encouraged to have in place a process to examine all the patients who come into the system (either in the hospital or in camps) for glaucoma and initiate necessary treatment. This can help prepare community to become more aware of the disease and the treatment options.

Interventions

India has developed a strong infrastructure for eye-care. The country presently has about 120,000 health Sub-centers manned by two health workers (for every 5000- 6000 population), 22,000 Primary health centers with a doctor and other paramedical staff (for every 30,000-40,000 population), 6000 Community health centers/first level Referral centers (for every 100,000- 120,000 population) and over 500 District and sub-district hospitals. Health services in India are available in both the public and private sector, the latter absorbing about 75% of all health expenditure, public and private.

India, the second most populous country in the world, is home to 23.5% of the world's blind population. In 1976 India became the first country in the world to start a national program for control of blindness. All surveys in the country have shown that cataract is the most common cause of blindness and all prevention of blindness programs have been "cataract-oriented." However, it has recently been recognized that the visual outcome of the cataract surgeries as well as the training of ophthalmologists has been less than ideal. There is now increasing emphasis on high-quality

surgery and up-gradation of skills among ophthalmologists. Other important causes of blindness are refractive errors, childhood blindness, corneal blindness, diabetic retinopathy, and glaucoma that need to be addressed.

Prevention and control of blindness is one of the India's compelling development challenges. Recognizing the massive scale of blinding situation, Government of India launched the National Program for Control of Blindness (NPCB), with a goal of reducing the prevalence of blindness. Over the time, various multilateral and bilateral development agencies such as WHO, World Bank, Danida, DFID and international NGOs such as ORBIS International, Sightsavers International, OEU, CBM, Lion's International have extended adequate support to strengthen the blindness prevention initiatives. The national program developments in India for the prevention and control of blindness have served as a blueprint for many other countries.

Human Resources in Eye Care[22, 23]

India has a CSR of 5,246 per million per year, one of the highest in the world, approximately 11,000 ophthalmic surgeons achieve this. Currently there are a variety of paramedical personnel in eye care. Some common categories include: paramedical ophthalmic assistants, opticians, ophthalmic nurses, refractionists, orthoptists, and ophthalmic technicians. The estimated number of personnel in these categories is about 15,000. However, another 15,000-20,000 persons are working in eye care facilities without acquiring any formal training or qualification.

Approximately 80 institutions are currently training the MLOPs in India, with a combined admission capacity of approximately 1300 each year. Among the various medical education programs within the country, fellowship training in anterior segment diseases for ophthalmologists are undertaken in 9 institutions, glaucoma and uvea in 6 locations, orbit, plastics and oncology in 4 institutions, pediatric ophthalmology in 3 institutions, retina and vitreous in 13 institutions, and general or comprehensive ophthalmology in 9 institutions. Various short-term fellowships of up to 3 months and observership of 1-2 weeks in the above-mentioned specialties are also available in these institutions. Few of these institutions also help in conversion training from ICCE to ECCE + IOL and to phaco-emulsification training as well. Currently "manual small incision cataract surgery (MSICS)" training, recognized to be the appropriate technology for the country has also been offered.

Training for MLOP, in optometry, ophthalmic techniques, instrument maintenance, opticians and supporting services have also been offered by these institutions. Community outreach, management and low vision and rehabilitation training has also been offered by a few institutions in the country. Focused training on indirect ophthalmoscopy and lasers in diabetic retinopathy training has also been offered and so to contact lens courses in capsules of 1-week. Training programs in some institutions are recognized by bodies like the Berkeley school of Optometry, Joint Commission for Allied Health Personnel in Ophthalmology (JCAHPO), USA and ICCE Australia.

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[22] Murthy GV, Gupta SK, Bachani D, Tewari HK, John N. Human resources and infrastructure for eye care in India: current status.Natl Med J India. 2004 May-Jun;17(3):128-34.

[23] " Vision 2020: The Right to Sight – India" Plan of Action, DGHS, MOHFW, GOI, 2001

Human resources for India	Current	2005	2010	2015	2020
Ophthalmologists	11,000	15,000	18,000	21,000	25,000
Mid Level Personnel	24,000	40,000	51,000	62,000	73,000
Eye Care Managers	200	500	1,000	1,500	2,000
Community Eye Health Specialists	20	50	100	150	200

An ophthalmic workforce and infrastructure planning survey was undertaken recently to provide a valid evidence base for human resource and infrastructure requirements for elimination of avoidable blindness.

More recently ORBIS International sponsored study on the human resources and facilities for control of childhood blindness, low vision and corneal blindness was undertaken in India. Conclusions from the study report corroborated the earlier study quoted and only a 1/3rd of the human resources and facilities offered these specialty services. Human resources for low vision seemed woefully inadequate from what was reported. Few selected institutions and states have done well with respect to corneal blindness and eye banking.

Infrastructure and Appropriate Technology

Most of the causes of blindness are amenable for prevention and control. Risk factors that are non-modifiable like aging as well as modifiable ones like human behaviour and social factors are equally responsible for increased prevalence. Non-communicable or lifestyle related disorders like diabetes also contribute to increased prevalence of unavoidable blindness. Emphasis has therefore, been made to develop infrastructure at various levels to provide eye care. Efforts were made to enhance capacities for eye care through: -

- Construction of dedicated eye operation theatres and eye wards at secondary level in public sector. 307 such units have been developed in Government sector since 1997;
- Supply of ophthalmic equipment for diagnosis and treatment of common eye disorders, particularly for IOL implantation in district hospitals;
- Training of Eye Surgeons in IOL surgery and nurses/ophthalmic assistants in ophthalmic techniques. This training is imparted at centres of excellence in India both in Government and Non-Government sector;
- Assistance to NGOs for setting up/expanding eye care facilities. 30 such units have been funded since 1996.
- India has embraced the infrastructure pyramid proposed and recommended by WHO starting from the community upwards to centres of excellence covering units of population with primary, secondary, tertiary and advanced tertiary eye care as appropriate. Towards working towards such a structure by the year 2020, following inputs will be required:
- Dedicated eye operation theatre and eye wards located at service centres for each 5,00,000-10,00,000 population. This will ensure reach-in approach universally. Service centres may, preferably, be located in towns with population above 50,000 so that the catchment ocular morbidity patterns supports the infrastructure set up for eye care.
- Strengthening of Medical Schools will be necessary to enhance their capacity to provide services as well as training. Provision of lasers, fluorescin angiography, automated

perimeters, and equipment for setting up pediatric ophthalmology units and low vision centres should be made.

- Provision of operating microscope, slit lamps, direct ophthalmoscopes and gonioscopes should be made at District level hospitals;
- Goals recommended for infrastructure development by the year 2020 for issues discussed above are as follows: -
  a) To set up 10 centres of excellence from the existing 15 by 2010, 20 by 2015 and consolidate the 20 by 2020.
  b) With respect to the training centres, to increase from the 50 to 100 by 2010, 150 by 2015 and 200 by 2020.
  c) The targets for service centres being 750 by 2005, 1000 by 2010, 1500 by 2015 and 2000 by 2020.
  d) For the vision centres it is to increase the numbers from current levels to have atleast 20,000 by the year 2020.
  e) 200 pediatric ophthalmology units and 100 accredited eye banks are also proposed to be developed by the year 2020.
  f) IOL surgery will be the norm unless medically contraindicated and more and more surgeries will be done by the manual small incision cataract surgery modality (MSICS).

Infrastructure for training in specialty services is inadequate and there is a need to augment them. Technological advances like IT and communications has not been harnessed for eye care although they are available. Academics and research to further clinical care in ophthalmology and for policy making needs to be catalyzed. Libraries and resource centres are other aspects related to infrastructure and technology for ophthalmology that needs to be organized.

Monitoring and Evaluation including levels of planning

NPCB has the following tools for effective monitoring of the program:

1. Standard prototypes for reporting of performance and expenditure by district blindness control societies; standard cataract surgery records and patients discharge cards; standard referral cards for children having refractive errors. Specific software to facilitate computerized MIS at various levels
2. Sentinel Surveillance Units (25) have been set-up in the departments of Ophthalmology and preventive and social medicine in Medical colleges for assessment of beneficiary profile, visual outcomes based on cataract surgical records and follow-up of a sub-sample of operated cases to assess visual outcomes. Ocular Morbidity data are also collected to assess patterns and trends of eye diseases
3. Independent studies to evaluate the program activities. These include: communication needs assessment, Beneficiaries assessment; Evaluation of trained eye surgeons; Rapid assessment of prevalence, coverage and outcome; Epidemiological survey on Blindness in 50+ populations in 15 districts.

For more efficient management and monitoring of the programme, MIS needs to be developed at all levels. To begin with, it is proposed to take up following steps :

- Proper completion of Surgical Records for cataract surgery and other services needs to be maintained with complete, correct and reliable information;

- Standard referral cards from primary to secondary/tertiary level of care;
- Development of Management Information Systems at various levels so as to plan, monitor and evaluate the programme in an efficient manner;
- Network of Sentinel Surveillance Units to be established to study profile of beneficiaries and outcome of interventions;
- Independent evaluation on various programme activities and outcomes with standard protocols comparable with other nations.

National Programme for Control of Blindness

NPCB was launched in the year 1976 as a 100 percent centrally sponsored program. That program was declared a national priority by the late Prime Minister H. E. Indira Gandhi in the 1980s, particularly for a focus on cataract and childhood blindness. Various activities of the program include establishment of Regional Institute of Ophthalmology, upgradation of medical colleges and district hospitals and block level Primary Health Centers, development of mobile units, and recruitment of required ophthalmic manpower in eye care units for provision of various ophthalmic services. The program also extends assistance to voluntary organizations for providing eye care services including cataract operations and eye banking. The goal was to reduce the prevalence of blindness from 1.4% to 0.3% by 2000 A.D. Voluntary organizations are playing an important role in this program. District Blindness Control Societies (DBCS) for decentralized program management have been established throughout the country under the Chairmanship of District Collector/ Deputy Commissioner.

Achievements (Personal communication with NPCB)

Development of Infrastructure	***Nos***
Regional Institute of Ophthalmology	11
Upgraded Medical Colleges	82
Paramedical Ophthalmic Assistants Training Centres	39
Eye Banks	166
District hospitals equipped	445
District Blindness Control Society	520
Central Mobile Units	80
District Mobile Units	341
Primary Health Centers Upgraded	5,633
Para Medical ophthalmic Assistants posted	4,881

Increase in Cataract Operation

From 1.2 million Cataract operations in 1985-86 to 6 million in 2011-12, a five - fold increase in last 20 years.

Cataract Surgical Rate (CSR) per million population (2011-2012)

CSR/million	States
> 7500	Andhra Pradesh, Gujarat, Haryana, Punjab, Tamil Nadu, Chandigarh, Dadra & N H & Pondicherry
5000 - 7499	Goa, Karnataka, Madhya Pradesh, Maharashtra, Uttaranchal & Delhi
3000 – 4999	Chhattisgarh, Himachal Pradesh, Kerala, Rajasthan, Uttar Pradesh, West Bengal
Less than 3000	Bihar, J & K , Jharkhand, Orissa, NE states & Andaman & Nicobar

School Eye Screening Programme

Year	Teachers Trained	School Children Screened	Children Detected with Refractive Errors	Poor Children provided free glasses
2002-03	35,267	97,36,805	5,06,663	98,697
2003-04	88,317	1,92,60,984	5,52,963	1,84,305
2004-05	97,310	2,68,62,932	5,72,691	2,83,070
2005-06	1,24,981	2,94,73,371	7,26,803	3,50,048
2007-08	1,93,629	2,75,64,806	11,21,721	5,10,497
2008-09	1,43,005	2,99,42,040	77,913	4,94,913
2009-10	1,09,189	3,08,92,012	10,15,695	5,05,843
2010-11	1,40,353	3,15,57,838	10,43,054	6,26,839
2011-12	1,85,156	2,97,22,448	9,85,475	6,58,061
2012-13				7,08,861
2013-14				6,24,942
2014-15				7,32,120

Donated Eyes Collected

Year	Total No. of Eyes Collected
2003-04	23,741
2004-05	23,553
2005-06	25,978
2007-08	38,646
2008-09	41,780
2009-10	46,589

2010-11	44,926
2011-12	49,410
2012-13	53,543
2013-14	57,944
2014-15	57,250

Commodity Assistance: Consumable items like sutures and intraocular lenses are procured centrally and being distributed to States and DBCS. Equipments, vehicles and other supplies are also procured centrally. 30 NGOs have been granted non-recurring Grant in Aid (GIA) to set up or expand eye care facilities in addition to GIA to NGO's for undertaking service delivery.
Program support: Government of Denmark through the Danish Assistance to NPCB (DANPCB) and a World Bank Assisted Cataract Blindness Control Project support in 7 states have supported the NPCB since its inception. The World Bank supported Cataract blindness control project improved cataract service delivery and reduced blindness over a seven year period in 7 states of the country.

Within the organizational structure of the national program, policy level decisions are undertaken at the central level, whereas strategy level planning is carried out at the state level. Implementation level planning and decision making is carried out at the district and performing unit level. Appropriate advocacy and engagement opportunities exist for private sector, INGO/NGO's at each of this level through their own compatible organizational structures.

Support to Voluntary Organisations: Voluntary organizations play an important role in implementing various activities under the programme. District Blindness Control Societies (DBCS) have been established throughout the country under the chairmanship of District Collector/Deputy Commissioner. Till date, 590 DBCS have been established. Under the scheme if non-recurring grant a maximum of Rs.25.00 lakhs was granted for expansion/up gradation if Eye Care Units for tribal and backward rural area. So far, 54 NGOs have been assisted under this scheme since 1996-97. Till date 24 eye banks in voluntary sector were assisted to promote collection if donated eyes.

Decentralized Approach: India is a vast country having 28 states and 7 union territories with 600 districts with an average population of nearly 2 million per district. The programme implementation has been decentralized up to the state and district level where State Blindness Control Societies (SBCS) and District Blindness Control Societies (DBCS) have been set up as the nodal agencies. Members of the SBCS and DBCS include officials from State and District Administration, Health, Education and Social Welfare Departments, Media, Community Leaders and NGOs/Private Sectors involved in Eye Care etc. The concept is to establish a bottom up approach in dealing with blindness through multi-sectoral and coordinated efforts. These societies in the district are responsible for identifying the blind in every village; organizing diagnostic screening camps at suitable locations; arranging transportation of patients to the designated facilities and ensure follow up etc.

India Vision 2020 plan

The overall objective of Global Vision 2020 is to assist Member Countries in building their national capacity for prevention and control of blindness, specifically to assist them to eliminate

avoidable blindness from major causes (cataract, xerophthalmia and other causes of childhood blindness, refractive errors and low vision, trachoma and other causes of corneal blindness) by the year 2020. While targets will necessarily vary according to the specific country situation and must be determined by the countries themselves, it is aimed that no country in the region will have a blindness prevalence rate higher than 0.5 per cent. This global initiative requires that each member country develops a national plan and strategy to achieve the goals of the plan. The following were the priorities for the country

I. Disease Control includes Cataract, Diabetic Retinopathy, Glaucoma, Corneal Infections Childhood Blindness and Refractive Errors & Low Vision
II. Human Resource Development
III. Infrastructure – Eye Care Facilities
IV. Technologies, Supplies & Eye Care Delivery Systems
V. Strategies for Effective Implementation that includes Situation Analysis, Structure, Coordination amongst all providers, Monitoring and Information Systems will be pursued

12th Five year Plan and blindness control

The following are the recommendations made for the 12th Five year plan for Blindness control in India:

- To reduce the backlog of blindness through identification and treatment of blind atprimary, secondary and tertiary levels based on assessment of the overall burdenof visual impairment in the country.
- Develop and strengthen the strategy of NPCB for "Eye Health" and prevention ofvisual impairment; through provision of comprehensive eye care services andquality service delivery.
- Strengthening and up gradation of RlOs to become centre of excellence in varioussub-specialities of ophthalmology
- Strengthening the existing and developing additional human resources andinfrastructure facilities for providing high quality comprehensive Eye Care in allDistricts of the country;
- To enhance community awareness on eye care and lay stress on preventivemeasures;
- Increase and expand research for prevention of blindness and visual impairment
- To secure participation of Voluntary Organizations/Private Practitioners in eyeCare.

The Programme objectives are to be achieved by adopting the followingstrategies:

- Decentralized implementation of the scheme through District Health Societies(NPCB);
- Reduction in the backlog of blind persons by active screening of population above50 years, organizing screening eye camps and transporting operable cases to eye care facilities;
- Development of eye care services and improvement in quality of eye care bytraining of personnel, supply of high-tech ophthalmic equipment, strengtheningfollow up services and regular monitoring of services;
- Screening of school age group (Primary &Secondary) children for identificationand treatment of Refractive Errors, with special attention in under-served areas;
- Public awareness about prevention and timely treatment of eye ailments;
- Special focus on illiterate women in rural areas. For this purpose, there should beconvergence with various ongoing schemes for development of women andchildren;

- To make eye care comprehensive, besides cataract surgery, provision of assistancefor other eye diseases like Diabetic Retinopathy, Glaucoma Management, LaserTechniques, Corneal Transplantation, Vitreoretinal Surgery, Treatment ofChildhood Blindness etc.;
- Construction of dedicated Eye Wards and Eye OTs in District Hospitals in NE States and few other States as per need;
- Development of Mobile Ophthalmic Units [renamed as Multipurpose DistrictMobile Ophthalmic Units (MDMOU)] in the district level for patient screening &transportation of patients;
- Continuing emphasis on Primary Healthcare (eye care) by establishing Vision centers in all PHCs with a PMOA in position.
- Participation of community and Panchayat Raj institutions in organizing servicesin rural areas;
- Involvement of Private Practitioners in the programme.

Targets for the 12th Plan:

During the 12th Plan, the scheme would consolidate gains in controlling cataractblindness and also initiate activities to prevent and control blindness due to other causes.This would be done by further increasing cataract surgery rate, increasing coverage,providing assistance for treatment of other eye diseases, strengthening of existing eyecare infrastructure and developing new eye care infrastructure and human resources,involvement of community including panchayats and voluntary organizations, etc. Thescheme would be uniformly implemented throughout the country. Funds forimplementation of the scheme would be utilized on the following activities:

a) Performing 3.3 crore cataract operations with above 95% being IOLimplantation;
b) Assistance to NGOs for management of other eye diseases (other thanCataract) like Diabetic Retinopathy, Glaucoma Management, LaserTechniques, Corneal Transplantation, Vitreoretinal Surgery, Treatment ofChildhood Blindness etc.;
c) Screening of school age group children for detection of refractive errors andproviding 44 lakh free spectacles to poor school age group children;
d) Spectacles for near work (Presbyopia) to 10 lakh old persons.
e) Setting up 5000 Vision Centres @ Rs.l lakh with basic screeningequipment catering 50,000 population per centre;
f) Enhancing capacities for eye care services in public sector by providingassistance to hospitals at various levels;
g) Training of other medical personal including Nurses in ophthalmictechniques, Ophthalmic Assistants etc.;
h) Collection of 2.50 lac donated eyes (after death) for transplantation inpersons with corneal blindness;
i) Providing non-recurring assistance to 20 Voluntary Organizations @ Rs.40lakh for setting up/expanding eye care services for semi urban/ruralpopulation;
j) Strengthening of Existing 20 Eye Banks @ Rs.25 lakh and 100 Eye Donation Centres @ Rs. 1 lakh to facilitate collection and processing ofdonated eyes;
k) Construction of 25 dedicated Eye Wards and Eye OTs renamed asdedicated Eye Unit in District Hospitals in States as per need;
l) Utilizing ophthalmic manpower such as - Eye Surgeons, OphthalmicAssistants, Eye Donation Counsellors, outside Government sector on contractual basis;
m) Intensive use of IEC to promote awareness among masses about eye care;

n) Setting up of 400 Multipurpose District Mobile Ophthalmic Units as per theneed; Involvement of Private Practitioners in the programme;
o) Maintenance of Ophthalmic Equipment supplied to Regional Institutes ofOphthalmology, Medical Colleges, District/Sub-District Hospitals,PHC/Vision Centres;
p) Strengthening of training activities for eye care personnel to get theknowledge of modem eye care techniques and ultimately its utilization for the benefits of the public;
q) Regular monitoring and evaluation through Management Information System to ensure more transparency in funds utilization and access of real time data as well as release of funds on the basis of data entry in MIS (NPCB) by NGOs/private sector

Multi-sector partnership, Stakeholder mapping and financing options

International Non-Government Organisations (INGOs)

(1) ORBIS International: ORBIS is a non-aligned, non-profit, global development organization whose mission is to preserve and restore sight by strengthening the capacity of local partners in their efforts to treat and prevent blindness. With its head office based in New York, it has affiliates in UK, Canada, France and Hong Kong.

ORBIS's interventions are concentrated in the countries with a high incidence of avoidable blindness like India, China, Bangladesh, Ethiopia and Vietnam. As a founding member of "Vision 2020 The Right to Sight" program, ORBIS supports the goal of eliminating the main causes of blindness in order to give all people in the world, particularly the millions who are needlessly blind, the right to sight by the year 2020.

(2) CBM: An International Christian development organization, dedicated to serving eye patients, blind and otherwise persons with disabilities in developing countries, regardless of nationality, race, sex or religion.

The major project-types supported by CBM are eye hospitals/mobile eye clinics, education for visually impaired, hearing impaired, rehabilitation programs, and orthopedic clinics, Mental health CBR programs and other CBR projects across the India with main focus disability inclusive programs. CBM supports these projects financially and by seconding qualified employees such as eye doctors, nurses and experts in special education whose foremost task is to train national specialists.

(3) Sight Savers International: In the early years, Sightsavers used to sponsor eye camps and later started supporting eye hospitals by paying subsidy for each case of cataract, glaucoma and other minor surgeries done on camp patients either at the campsite or in the base hospital. In the early 80's Sightsavers launched a program to reduce blinding malnutrition through xerophthalmia project.

Under this project several nutrition rehabilitation centers were established across the country. From the late 80's there was an emphasis to develop the organizational capacity and long-term sustainability of the eye hospitals supported by Sightsavers International. This took the form of training both in clinical areas as well as management areas. In order to do this Sightsavers

collaborated closely with national institutions like Aravind Eye Care System, L. V. Prasad Eye Institute etc.

(4) Operation Eyesight Universal (OEU): OEU is a Canadian charitable organization preventing blindness around the world. OEU has been involved in sight restoration and blindness prevention programs since 1963. The mission of OEU is to encourage, develop, and fund effective and sustainable blindness prevention and sight restoration programs directed to people in the greatest need. People are treated without regard to gender, caste, creed or religion. The vision of OEU is: All may enjoy the gift of sight.

Currently OEU works in partnership with eye hospitals in developing nations. Indigenous medical teams who receive resources, equipment and training funded by OEU perform all of its overseas work. OEU works with about 21 eye hospitals and programs in India.

(5) Rotary International: Rotary International is one of the important INGOs, promoting eye care in India. It has formed the Avoidable Blindness Task Force (ABTF) to distribute information on avoidable blindness and facilitate linkages between those with project needs and those with available resources. Rotary in India has been involved through local clubs in infrastructure development for eye care service delivery through a network of hospitals. They have also lately supported activities in eye banking in South and North India through setting up of eye banks, supplying equipment, training of staff and generating community awareness and participation. The Rotary Foundation, USA has taken up one lakh cataract surgeries with IOL in India as a Rotary Centennial year project.

(6) International Eye Foundation: The International Eye Foundation has been helping people see since 1961. In more than 60 countries around the world, IEF's staff and volunteers have restored the gift of sight for hundreds of thousands of people in the developing world. The International Eye Foundation is dedicated to helping people see by:

- Expanding eye care services for those in need.
- Supporting programs targeting avoidable blindness - cataract, trachoma, river blindness, and Childhood blindness.
- Providing affordable ophthalmic supplies, equipment, and medicines.
- Enhancing financial self-sufficiency of eye care providers to reduce dependence on aid. IEF has a focus on making eye clinics financially self-sufficient.
- IEF's achievements include developing eye health services, training ophthalmologists and para-medicals, and fighting vitamin A deficiency, trachoma and river blindness. IEF is now strengthening the management, quality of service, and income generating activities so that eye clinics are less dependent on outside donors and government funds.

(7) Lions Clubs International Foundation: The LCIF has a long tradition of being involved with eye care activities. In 1990 the Lions International decided to make a very significant contribution in reducing blindness and launched their global program called Lions Sight First Program. They set a target of raising US $140 million from new sources and to spend the same on eye care activities globally. Recently Lions have given a grant of USD 3 million to the World Health Organization for work in Childhood Blindness. Similarly they made grants to other organizations for control of

trachoma, onchocerciasis and for work in China where there are no Lions Clubs organization. Their grant for eye care activities covers a wide spectrum. They pay for subsidy for each cataract surgery in some countries, they have funded the construction of several eye hospitals, funded the equipment as well and supported for capacity building through management training. The main focus has been on Cataract, River Blindness, Trachoma, Diabetic Retinopathy, Glaucoma, and Preventable Childhood Blindness. Sight First policy in India emphasises upgrading existing Lions Eye Hospitals to increase the quality and quantity of their output. The other initiatives in eye care in India have included Avoidable Childhood Blindness Project & Diabetic Retinopathy Control projects.

(8) HelpAge India: HelpAge India has been working for the cause and care of Older Persons, with the ultimate aim of empowering them to take decisions pertaining to their own lives. In more than the 24 years of its existence, it has implemented 2100 projects at a cost of Rs.180 crore, and made a difference in the lives of over 6 million persons. These programs focus on improved access to health and eye care services, community-based services, income-generating activities and training.

In the field of eye care, HelpAge concentrates on cataract operations for needy older persons through its eye camps.

(9) Seva Foundation: Seva Builds Partnerships to Respond to Locally Defined Problems with Culturally Sustainable Solutions. In the vision that inspires Seva's work in the world, health is not simply the elimination of disease; it is a condition of Wellness and freedom of being. Seva seeks to serve an evolving vision that integrates the ancient and the modern in ways that promote health and human harmony. It is a vision that has us working with modern surgeons and traditional healers, sharing the technology for surgically implanted lenses and supporting herbal remedies used by Mayan midwives

(10) United Nations International Children's Education Fund (UNICEF): UNICEF in India has contributed to the alleviation of nutrition-related blindness through the support to the central and state governments by vitamin A supplementation and immunization interventions. UNICEF has also been supporting NPCB in association with the World Bank.

(11) Danish Development Assistance Agency (DANIDA): The development assistance from Government of Denmark focused on: blindness, leprosy, tuberculosis, the primary health service and polio. One of the major interventions in the field of India Eye Care is Danish Assistance to the National Program for Control of Blindness (DANPCB). In 1978, an agreement was signed between the Government of India and the Government of Denmark to provide support for development of services under NPCB including supply of equipment, manpower development, and establishment of management and monitoring and evaluation systems, preparation of educational material, teaching and information aids and training.

(12) Department for International Development (DFID): DFID's work priorities in India include strengthening the capacity of government to develop and implement pro-poor policies; promoting increased investment in education, health and clean water and supporting programs, which help poor people improve their own livelihoods (with special emphasis on women). In the field of eye

care, British council and DFID extended support for training, service delivery and research to 3 major regional institutes from 1993 – 2001. These institutes were:

1. All India Institute of Medical Sciences, New Delhi,
2. SD Eye Hospital and Regional Institute of Ophthalmology, Hyderabad and
3. Regional Institute of Ophthalmology, Kolkata.

(13) United States Agency for International Development (USAID): USAID has played an important role in India's development successes. India has benefited from more than $13 billion for food aid, technology and scientific transfer, participant training, health and population programs, and agricultural innovations. USAID has supported several research studies on the supply and demand of micronutrients in India and on approaches to increasing access to micronutrients. The USAID is also supporting a Child Eye Health Grant Program that offers organizational and program grants for eye care service providers focused on child eye care services.

NPCB Grand-in-aid to States/UTs for the year 2013-14[24]

	Recurring GIA	Non Recurring GIA	Contractual Manpower	Total
A&N Island	8.47	45.00	7.20	60.67
Andhra Pradesh	1181.07	146.00	102.36	1429.43
Arunachal	36.74	22.00	46.56	105.30
Assam	892.15	110.00	43.20	1045.35
Bihar	986.42	50.00	286.98	1323.40
Chandigrah	45.90	0.00	33.36	79.26
Chhatisgarh	283.08	251.00	43.92	578.00
D&N Haveli	20.83	91.00	12.24	124.07
Dama& Diu	21.00	3.00	12.84	36.84
Delhi	113.18	6.00	45.27	164.45
Goa	84.60	100.00	52.20	236.80
Gujarat	955.25	91.00	183.60	1229.85
Haryana	238.00	91.00	54.00	383.00
Himachal	80.28	61.00	18.72	160.00
J&K	229.24	92.00	121.92	443.16
Jharkhand	514.56	131.00	100.44	746.00
Karnataka	996.21	221.00	53.64	1270.85
Kerala	317.76	90.00	96.24	504.00
Lakshadeep	18.08	28.00	13.92	60.00
Madhya Pradesh	1171.60	91.00	161.40	1424.00
Maharashtra	1198.80	261.00	235.20	1695.00
Manipur	70.20	171.00	58.80	300.00
Meghalaya	104.75	100.00	49.92	254.67
Mizoram	68.16	71.00	60.84	200.00
Nagaland	36.22	191.00	42.37	269.59
odhisha	633.40	15.00	174.60	823.00
Puducherry	53.56	62.00	25.56	141.12
Punjab	350.84	160.00	53.16	564.00
Rajasthan	1068.52	91.00	186.48	1346.00
Sikkim	39.13	94.00	48.96	182.09
Tamilnadu	1331.16	110.00	27.84	1469.00
Tripura	66.56	60.00	79.44	206.00
Uttar Pradesh	2317.50	151.00	75.60	2544.10
Uttarkhand	175.95	40.00	13.05	229.00
West Bengal	1059.40	117.00	201.60	1378.00
Grand Total	**16768.57**	**3414.00**	**2823.43**	**23006.00**

[24] http://npcb.nic.in/writereaddata/mainlinkfile/File301.zip

Comparison of NPCB and GAP for avoidable Blindness and ways of aligning the two

Objective 1 addresses the need for generating evidence on the magnitude and causes of visual impairment and eye care services and using it to monitor progress, identify priorities and advocate for greater political and financial commitment by Member States to eye health;

The NPCB has recently commissioned more evidence generating initiatives as well as looking at how the programme has performed trough the Epidemiological Study of Blindness and Visual Impairment in more than 30 districts in the country between now and 2018. This is in addition to many studies that have been done and referenced in order to help in program planning.

The outlay of the 12 the five year plan and the catalytic role of the National Health Mission is another major facilitator for the Universal Eye Health Plan.

Objective 2 encourages the development and implementation of integrated national eye health policies, plans and programs to enhance universal eye health with activities in line with WHO's framework for action for strengthening health systems to improve health outcomes

National Health Mission (NRHM) is the flagship program of the Government of India and is synergistic with the determinants of good health. The last decade looked at the revitalization of health systems with the goal of availability of & access to quality health care to people, especially for those residing in rural areas, the poor, women & children.

It provides a great platform for leverage for the Universal Eye Health plan in India with the under mentioned key objectives:

- Increasing public expenditure to health care;
- Reducing regional imbalances;
- Pooling resources;
- Integration of organizational structures;
- Optimization of Health Workforce;
- Decentralization & District Management;
- Community monitoring & asset ownership;
- Instituting quality standards.

The proposed Universal Health Coverage system focuses on reduction of the disease burden facing communities along with early disease detection and prevention. The emphasis is on investing in primary care networks and holding providers responsible for wellness outcomes at the population level. It provides for 70% of all health care expenditures to be on primary health care. The submission to the planning commission would be considered by the Government in its budget allocation. While the roll out of essential medicines and access to technology has been rolled out, the integrated approach for other components are in the pipeline.

To become a reality the Universal Eye Health plan would require

- Eye Health Financing & Financial Protection;
- Eye Health Service Norms;
- Eye Health Human Resources;
- Community Participation & Citizen engagement;
- Access to Medicines, Vaccines & Technologies for eye health care;
- Management, Institutional & Governance Reforms

This would ensure that every citizen is entitled to essential primary, secondary and tertiary eye health care services that will be guaranteed by the Central & Federal Government entities.

Objective 3 addresses multi-sectoral engagement and effective partnerships to strengthen eye health universal access and equity, human rights, evidence-based practice, a life course approach, and empowerment of people with visual impairment

To achieve and sustain Universal Eye Health Coverage it is important to address:

- Social determinants of health;
- Gender & Health – access, strengthen women's central role, capacity of health system, support & empower girls, health rights etc

This can be achieved by working with and across many department and ministries as well as other national health and development programs.

- The NPCDCS program provides an opportunity to address the issues related to eye problems arising out of diabetes or hypertension.
- The RCH program provides the opportunity to address the issues related to blindness in children and vitamin A deficiency.
- The National Program for the Health Care of Elderly is the perfect foil for the age related eye diseases mandate - The NPHCE is an articulation of the International and national commitments of the Government as envisaged under the UN Convention on the Rights of Persons with Disabilities, National Policy on Older Persons adopted by the Government of India in 1999 and Section 20 of "The Maintenance and Welfare of Parents and Senior Citizens Act, 2007" dealing with provisions for medical care of Senior Citizen. The Vision of the NPHCE are: (1) To provide accessible, affordable, and high-quality long-term, comprehensive and dedicated care services to an ageing population; (2) Creating a new "architecture" for Ageing; (3) To build a framework to create an enabling environment for "a Society for all Ages;" (4) To promote the concept of Active and Healthy Ageing.

  A classic example that maybe the reason for Trachoma to cease being a public health problem in India is the water supply and sanitation program emphasis since the late 70's.

Points from the Key stakeholder discussions for the India Action Plan for Universal Eye Health Coverage

- The World Health Organization (WHO) has enhanced its efforts to focus on blindness control program in India through a multi-sectoral approach which is closely linked to the Non Communicable Diseases control as well as Ageing programs
- Global Action Plan is a priority program of the WHO globally and there are resolutions from the members' states which also includes India to translate the key components locally.
- The role of WHO India is to provide technical support and a facilitating environment for the National Program for Control of Blindness for key implementation of the action plan.
- The Country Co-operation Strategy of the WHO and its extensive recent work on multi sectoral linkages would aid in the support to the NPCB in its implementation of the country action plan.
- WHO India and global recognises that one of the best health programs in the country is the NPCB and hence translation of the global action plan to the local situation has a strong background.
- India was the first country through WHO efforts to develop a multi-sectoral action plan for NCDs. This provides a framework to NPCB for catalysing its efforts on the same lines. The effort was to bring together officials from national (including ministries other than health) and subnational levels, research institutes, academia, civil society, media and development partners on one platform to define the roles of various stakeholders and discuss the next steps in implementing the action plan for prevention and control of NCDs. The initiative was able to outline activities, appropriate stakeholders and timelines under each of the proposed thematic areas to support the implementation of the endorsed strategies in the context of India.
- WHO India has facilitated efforts by the MoHFW under National Health Mission to reach 350 districts by 2014 for screening of Diabetes with TB and vice versa as well as piggybacking Rheumatic fever with NCDs through the Rashtriya Bal SwasthyaKaryakram (RBSK).
- The proposed deliberations it is hoped will provide a clear list of priorities under NPCB to implement a multi sectoral approach going forward. It was also hoped that inputs into the 13th five year plan for NPCB would start evolving from the deliberations.
- The aim and objectives of the NPCB is to reach every nook and corner of the country and provide quality services for all types of eye ailments in a comprehensive and universal manner without discrimination.
- NPCB wants to sustain the progress made in terms of service delivery especially for cataract but also wants to look at other priorities.
- The goal of bringing down the blindness prevalence rate to 0.3% by 2020 is definitely possible it was felt if efforts are sustained.
- Efficiency; allocative and technical; through reaching more volumes, management reforms, adapting technology and reducing costs are central to its mission.
- NPCB current challenges include human resources for eye care across all cadres and geographical reach primarily. Critical evidence for micro planning and workload estimation as well as lack of standardized quality care is another big challenge. Technology, access to medicines and supplies and awareness generation for conditions like eye problems due to diabetes, glaucoma, eye donation are other challenges.
- NPCB has proposed a matrix for capacity building at each of the 650 districts for new initiatives where matching infrastructure and technology and disease control is matched.

- A good primary eye care master plan is also proposed which works closely with other programs so that there is no duplication of resources and efforts.
- The thrust areas for the NPCB include the following:
    - Cataract
    - Refractive Errors
    - Corneal blindness requiring keratoplasty
    - Diabetic Retinopathy
    - Glaucoma
    - Retinopathy of Prematurity
    - Squint for early correction
    - Other Childhood and Vitreo retinal conditions
- Financing of eye care through the National Health Mission although conceptually good has proven to be more cumbersome at the unit level for reimbursement and backlog is increasing of non-reimbursements.
- NPCB wishes to prioritize and focus on Diabetic Retinopathy, Refractive errors and childhood blindness in addition to cataract in the near future.
- A workable co-ordination model has emerged with RBSK undertaking the screening of school children for refractive error and NPCB providing the spectacles.
- There is a need to develop a good nurse based model for ROP screening at NICUs and also learn lessons from the KIDROP experience of Karnataka state.
- With the RCH also bringing adolescents under its fold, the NPCB hopes for a life course approach for implementing eye care activities.
- NPCB feels that duplication of efforts needs to be avoided but proper targeting of services has to be ensured.
- A great opportunity of working with the NCD control program (NPCPDCS) is the way forward for NPCB it was opined.
- Institutionalization of best practices as well as good experiences across sectors are key to reach universal eye care it was felt – ROP in Mumbai, Tele-ophthalmology in Tripura through a PPP approach with ILFS, etc
- Investing into appropriate and cost effective technology is vital to the way forward for NPCB.
- Eye Banking Movement needs a fillip and all RIOs need to be strengthened to achieve a good service delivery approach for corneal blindness.
- Explore a coordination mechanism across all National flagship programs that contribute to the alleviation of blindness and visual impairment to focus and target and provide services and resources appropriately. An operational research study can be commissioned to identify which programs provide services relevant to eye care in the country.
- Although the last 3 years has seen budgetary constraints across the health program the efficiency in resource utilization and adopting best models can undercut the contraction it was felt.

A summary of implementation of the NPCB at the state level across India

Andaman & Nicobar: The Union Territory has a population of 3.97 Lakhs and 3 administrative districts. The prevalence of blindness study has not been done recently. In the year 2013-14, the UT had performed 728 cataract surgeries, of which 552 was from Government sector and 176 from private sector. Under the school screening program, 27080 children were screened and 420 spectacles were distributed. In the year 2014-15, the number of cataract surgeries marginally had risen to a total of 877 with 553 from Government sector and 324 from private sector. In the same year, 33,899 children were screened through the school screening program and 606 spectacles were distributed. As on October 2015, the UT has 23 vision centres and 3 district hospitals. Of which, only one district hospital has an eye surgeon and a dedicated eye OT.

Andhra Pradesh: The state has a population of 498,61,184 and 13 administrative districts. The state has 225 CHNCs, 1075 PHCs, 7899 sub centers and 130 vision centers. The prevalence of blindness in the state is 0.65%. The state has 11 district hospitals, each with dedicated eye OT. The state has one tele-ophthalmic unit connected to the Government Regional Eye Hospital in Visakhapatnam. In the year 2013-14 the state had performed 491,491 cataract surgeries (before bifurcation). Under the school screening program, 15,59,709 children were screened, 105,609 children were identified with refractive errors and 46,400 spectacles were distributed. A total of 9,019 cornea were collected during the same year. In the year 2014-15, 304,834 cataract surgeries was done (AP only) of this 30,218 was done by medical colleges, 9995 by district hospitals and DMUs and 41,028 by NGOs. 12,81,404 children benefitted through school screening programs, 11,734 children were identified with refractive errors and 41,633 spectacles were distributed. 2628 corneas were collected. The state has 81 ophthalmologists and 239 PMOAs.

Arunachal Pradesh: The state has a population of 13,82,611 and 21 administrative districts. The state has 54 CHCs, 127 PHCs, 472 sub centers and 36 vision centers. The prevalence of blindness in the state is 2.28 % (sample survey, 2003). 5 district hospitals with dedicated eye OT function in the state. In the year 2013-14, the state had performed 1651 cataract surgeries. Under the school screening program 25,300 children benefitted and 369 spectacles were distributed. In the year 2014-15, a total of 1511 cataract surgeries were done, of which 870 surgeries were done by government district hospitals and 641 by NGOs. Under the school screening program 18,966 children were screened, 3061 children were identified with refractive errors and 67 spectacles were distributed. Other eye surgeries were 153. The state has 11 ophthalmologists and 36 PMOAs.

Assam: The state has a population of 312,05,576 and 27 administrative districts. The state has 151 CHCs, 1014 PHCs, 4621 sub centers and 188 vision centers. The prevalence of blindness in the state is 0.58 %. The state has 36 hospitals with dedicated eye OT. The state has tele-ophthalmic units connected to Sri SankardevaNethralaya, Guwahati. In the year 2013-14, the state had performed 72,499 cataract surgeries. In the year 2014-15, a total of 73,081 cataract surgeries were done, of which 3880 was done by medical colleges, 21,567 by district hospitals and 45,422 by NGOs. Under the school screening program 20,61,391 children were screened and 43,465 spectacles were distributed. The state has 121 ophthalmologists and 211 PMOAs

Bihar: The state has a population of 103,804,637 and 38 administrative districts. The state has 534 PHCs and 108 vision centers. The prevalence of blindness in the state is 0.78 %. The state has 7 district hospitals with dedicated eye OT and 11 district hospitals with shared OT. 7 district hospitals does not have eye surgeons. In the year 2013-14, the state had performed 273,392 cataract surgeries, of which 10,250 was from Government sector, 183,879 from NGO sector and 85502 from private sector. Under the school screening program 311,952 children benefitted, 9,874 children were identified with refractive errors and 1786 spectacles were distributed. In the year 2014-15, a total of 285,060 cataract surgeries were done, of which 11,919 was done by government sector, 121,945 by NGO sector and 151446 by private sector. Under the school screening program 192,578 children were screened, 8,338 children were identified with refractive error and 1528 spectacles were distributed. Under the presbyopic glass for poor & elderly, 10,149 glasses were distributed. 24 corneas were collected. The state has 66 ophthalmologists, 173 PMOAs and 7 PMOA training school.

Chandigarh: The Union Teritory has a population of 10,54,686. The UT has 2 CHCs and 5 vision centers. The one district hospital has dedicated eye OT. In the year 2014-15, a total of 1489 cataract surgeries were done, of which 1489 was done by medical college, 751 by district hospital and 13 by NGOs. Under the school screening program 6,488 children were identified with refractive error and 1661 spectacles were distributed. The UT has 8 ophthalmologists and 8 PMOAs.

Chhattisgarh: The state has a population of 259,12,905 and 27 administrative districts. The state has 155 CHCs, 792 PHCs, 5180 sub centers and 218 vision centers. The prevalence of blindness in the state is 1.08 %. The state has 22 district hospitals and 8 CHCs with dedicated eye OT. The state has tele-ophthalmic units connected to district hospital, Sarguja.In the year 2013-14, the state had performed 83,926 cataract surgeries. In the year 2014-15, a total of 76,050 cataract surgeries were done, of which 4,554 surgeries were done by medical colleges, 11,636 by district hospitals, 17,221 by NGO hospitals and 42,639 by private sector. Under the school screening program 12,13,780 children were screened, 31,629 children were identified with refractive error and 24,882 spectacles were distributed. 238 corneas were collected. The state has 49 ophthalmologists and 530 PMOAs.

Goa: The state has a population of 14,58,545 and 2 administrative districts. The state has 4 CHCs, 21 PHCs, 208 sub centers and 17 vision centers. The prevalence of blindness study has not been done recently. Both the district hospitals in the state has dedicated eye OT. In the year 2013-14, the state had performed 9,634 cataract surgeries. In the year 2014-15, a total of 10,535 cataract surgeries were done, of which 2358 was done the medical college and 1,977 by district hospitals. Under the school screening program 47,813 children were screened, 1,568 children were identified with refractive error and 31 spectacles were distributed. 8 corneas were collected. The state has 16 ophthalmologists and 25 PMOAs.

Gujarat: The state has a population of 603,83,628 and 33 administrative districts. The state has 319 CHCs, 1300 PHCs, 9156 sub centers and 96 vision centers. The prevalence of blindness in the state is 0.73 % (as per 2014 survey). All the 33 district hospitals in the state have dedicated eye OT. In the year 2013-14, the state had performed 780,133 cataract surgeries. In the year 2014-15, a total of 791,480 cataract surgeries were done, of which 9,548 was done by the medical colleges, 19,992 by district hospitals, 22,041 by sub district hospitals, 317,107 by NGO hospitals and 422,792 by private hospitals. Under the school screening program 75,76,024 children were screened, 180,068 children

were identified with refractive error and 150,887 spectacles were distributed. 5730 corneas were collected. The state has 43 ophthalmologists and 263 PMOAs.

Haryana: The state has a population of 253,53,081 and 21 administrative districts. The state has 110 CHCs, 466 PHCs, 2630 sub centers and 83 vision centers. The prevalence of blindness in the state is 1.1 %. The state has 13 district hospitals with dedicated eye OT. In the year 2013-14, the state had performed 135,471 cataract surgeries. In the year 2014-15, a total of 124,069 cataract surgeries were done. Under the school screening program 562,798 children were screened, 239,918 children with refractive errors were identified and 8,985 spectacles were distributed. 2542 corneas were collected. The state has 66 ophthalmologists and 143 PMOAs.

Jammu & Kashmir: The state has a population of 78,38,424 and 12 administrative districts. The state has 49 CHCs, 272 PHCs, 1622 sub centers and 13 vision centers. The prevalence of blindness in the state is 1 %. The state has 3 district hospitals with dedicated eye OT. In the year 2013-14, the state had performed 13,397 cataract surgeries. In the year 2014-15, a total of 12,989 cataract surgeries were done. Under the school screening program 7,066 children were screened, 3,836 children with refractive errors were identified and 702 spectacles were distributed. The state has 15 ophthalmologists and 54 PMOAs.

Karnataka: The state has a population of 611,30,704 and 30 administrative districts. The state has 206 CHCs, 2207 PHCs, 8871 sub centers and 200 vision centers. The prevalence of blindness in the state is 1 %. The state has 19 district hospitals with dedicated eye OT. In the year 2013-14, the state had performed 336,212 cataract surgeries. In the year 2014-15, a total of 366,079 cataract surgeries were done, of which 27,391 was done by the medical colleges, 26,597,992 by district hospitals & DMU, 154,872 by NGO hospitals and 157,219 by private hospitals. Under the school screening program 33,45,898 children were screened, 49,333 children with refractive errors were identified and 38,524 spectacles were distributed. 3,986 corneas were collected. The state has 98 ophthalmologists and 425 PMOAs.

Kerala: The state has a population of 333,87,677 and 14 administrative districts. The state has 230 CHCs, 852 PHCs, 5403 sub centers and 51 vision centers. The prevalence of blindness in the state is 0.43 %. The state has 15 district hospitals with dedicated eye OT. The state has 3 tele-ophthalmic units connected to RIO, Trivandrum, DH, Palakkad and MCH, Kottayam. In the year 2013-14, the state had performed 124,830 cataract surgeries. In the year 2014-15, a total of 143,765 cataract surgeries were done, of which 10,050 was done by the medical colleges, 20,511 by district hospitals, 59,250 by NGO hospitals and 53954 by private hospitals. Under the school screening program 11,79,824 children were screened, 88,655 children with refractive errors were identified and 11,718 spectacles were distributed. 2,143 corneas were collected. The state has 83 ophthalmologists and 354 PMOAs.

Maharashtra: The state has a population of 11.24 Crores and 35 administrative districts. The state has 360 CHCs, 1818 PHCs, 10,580 sub centers and 965 vision centers. The prevalence of blindness in the state is 0.98 %. The state has 23 district hospitals with dedicated eye OT. In the year 2013-14, the state had performed 809,012 cataract surgeries. In the year 2014-15, a total of 808,535 cataract surgeries were done, of which 25,238 was done by the medical colleges, 130,600 by district

hospitals, 233,258 by NGO hospitals and 419,439 by private hospitals. Under the school screening program 31,97,366 children were screened, 82029 children with refractive errors were identified and 51,736 spectacles were distributed. The state has 91 ophthalmologists and 658 PMOAs.

Mizoram: The state has a population of 10.91 Lakhs and 8 administrative districts. The state has 12 CHCs, 57 PHCs, 370 sub centers and 20 vision centers. The prevalence of blindness in the state is 0.31 % (State survey 2012). The state has 7 district hospitals with dedicated eye OT. The state has a tele-ophthalmic unit connected to Civil Hospital, Aizawl. In the year 2013-14, the state had performed 1,898 cataract surgeries. In the year 2014-15, a total of 2,001 cataract surgeries were done, of which 1,670 was done by district hospitals and 331 by NGO hospitals. Under the school screening program 37,401 children were screened, 4,225 children with refractive errors were identified and 1,778 spectacles were distributed. 93 corneas were collected. The state has 11 ophthalmologists and 52 PMOAs.

Odisha: The state has a population of 419,74,218 Lakhs and 30 administrative districts. The state has 377 CHCs, 1220 PHCs, 6688 sub centers and 131 vision centers. The prevalence of blindness study has not been done recently. All the district hospitals in the state has dedicated eye OT. In the year 2013-14, the state had performed 110,342 cataract surgeries. In the year 2014-15, a total of 111,211 cataract surgeries were done, of which 7650 was done by medical colleges, 17,098 by district hospitals and 86,463 by NGO hospitals. Under the school screening program 445,585 children were screened, 34,527 children with refractive errors were identified and 25,176 spectacles were distributed. 832 corneas were collected. The state has 61 ophthalmologists and 179 PMOAs and 53 OAs.

Puducherry: The Union Territory has a population of 12,44.464 and 4 administrative districts. The state has 4 CHCs, 39 PHCs, 78 sub centers and 30 vision centers. The prevalence of blindness study has not been done recently. The state has 3 district hospitals with dedicated eye OT. In the year 2013-14, the UT had performed 15,201 cataract surgeries. In the year 2014-15, a total of 15,284 cataract surgeries were done, of which 2,847 was done by medical colleges, 6,871 by district hospitals and 5,566 by NGO hospitals. In the same year, 23,523 children were screened through the school screening program, 1,549 children were identified with refractive errors and 997 spectacles were distributed. 1232 corneas were collected. The UT has 23 ophthalmologists and 43 PMOAs.

Punjab: The state has a population of 283,00,000 and 22 administrative districts. The state has 151 CHCs, 446 PHCs and 41 sub centers. The prevalence of blindness in the state is 1 %. All the district hospitals in the state has dedicated eye OT and in addition 41 SDH and 37 CHCs have OT. In the year 2013-14, the state had performed 202,569 cataract surgeries. In the year 2014-15, a total of 194,638 cataract surgeries were done. Under the school screening program 59,926 children with refractive errors were identified and 44,702 spectacles were distributed. 876 corneas were collected. The state has 104 ophthalmologists and 218 PMOAs.

Rajasthan: The state has a population of 686,21,012 and 33 administrative districts. The state has 382 CHCs, 1528 PHCs, 11487 sub centers and 107 vision centers. The prevalence of blindness in the state is 1 %. All district hospitals & 11 SDH in the state has dedicated eye OT. In the year 2013-14, the state had performed 225,454 cataract surgeries. In the year 2014-15, a total of 230,154 cataract

surgeries were done, of which 17,314 was done by medical colleges, 27,634 by district hospitals, 103,012 by private hospitals and 82,191 by NGO hospitals. Under the school screening program 241,992 children were screened, 21,448 children with refractive errors were identified and 19860 spectacles were distributed. 1,367 corneas were collected. The state has 104 ophthalmologists and 204 PMOAs.

Tamil Nadu: The state has a population of 639,47,186 and 31 administrative districts. The state has 384 CHCs, 1,539 PHCs and 8706 sub centers. The prevalence of blindness in the state is 0.3 %. In the year 2013-14, the state had performed 594,099 cataract surgeries. In the year 2014-15, a total of 579,714 cataract surgeries were done. Under the school screening program 819,845 children were screened, 39,333 children with refractive errors were identified and 3,590 spectacles were distributed. 11,387 corneas were collected. The state has 172 ophthalmologists and 384 PMOAs.

Telangana: The state has a population of 3.81 Crores and 10 administrative districts. The state has 114 CHCs, 675 PHCs, 4,863 sub centers and 137 vision centers. The prevalence of blindness in the state is 1.1 %. The state has 25 dedicated eye OT in its district & Sub district hospitals. In the year 2013-14, the state had performed 219,855 cataract surgeries. In the year 2014-15, a total of 203,973 cataract surgeries were done, of which 28,800 was done by medical colleges, 63,348 by district hospitals, and 88,646 by NGO hospitals. Under the school screening program 544,469 children were screened, 24,947 children with refractive errors were identified and 14,575 spectacles were distributed. 4,466 corneas were collected. The state has 25 ophthalmologists and 146 PMOAs.

Uttar Pradesh: The state has a population of 19,95,81,477 and 75 administrative districts. The state has 515 CHCs, 3,692 PHCs, 20,521 sub centers and 505 vision centers. The prevalence of blindness in the state is below 1 %. 70 district hospitals in the state has dedicated eye OT. In the year 2013-14, the state had performed 792,619 cataract surgeries. In the year 2014-15, a total of 880,290 cataract surgeries were done, of which 32,785 was done by medical colleges, 132,536 by district hospitals, 484,821 by private hospitals and 230,148 by NGO hospitals. Under the school screening program 34,35,464 children were screened, 149,298 children with refractive errors were identified and 143,011 spectacles were distributed. 709 corneas were collected. The state has 398 ophthalmologists (264 operating eye surgeons) and 903 PMOAs.

Uttranchal: The state has a population of 101,16,752 and 13 administrative districts. The state has 85 CHCs, 255 PHCs,1815 sub centers and 34 vision centers. The prevalence of blindness in the state is 0.56 %. All district hospitals in the state has dedicated eye OT. In the year 2013-14, the state had performed 54,291 cataract surgeries. In the year 2014-15, a total of 51,591 cataract surgeries were done, of which 1,957 was done by medical colleges, 8983 by district hospitals, and 23,301 by NGO hospitals. Under the school screening program 110,652 children were screened, 6,094 children with refractive errors were identified and 5,422 spectacles were distributed. 223 corneas were collected. The state has 30 ophthalmologists (264 operating eye surgeons) and 112 PMOAs.

West Bengal: The state has a population of 91,347,736 and 20 administrative districts. The state has 347 CHCs, 911 PHCs, 10357 sub centers and 368 vision centers. The prevalence of blindness in the state is 0.6 %. All district hospitals in the state has dedicated eye OT. The state has 3 tele-ophthalmic units connected to RIO, Kolkata, BankuraSammilani Medical College & Hospital, Medinipure medical

College & Hospital. In the year 2013-14, the state had performed 348,473 cataract surgeries. In the year 2014-15, a total of 330,828 cataract surgeries were done, of which 25,782 was done by medical colleges, 24,252 by district hospitals, 147,419 by private hospitals and 133,375 by NGO hospitals. Under the school screening program 14,47,817 children were screened, 110,879 children with refractive errors were identified and 44,959 spectacles were distributed. 3,667 corneas were collected. 3304 neonates were screened for ROP, 516 neonates were detected with ROP and 134 received treatment. The state has 212 ophthalmologists (264 operating eye surgeons) and 461 PMOAs.

A few states and union territories have yet to provide up-to-date information at the time of compiling this paper.

Issues that are flagged to be discussed at the 29-30 October consultation

The following issues have been flagged to be discussed based on the analysis performed so far and stakeholders consultations.

The critical challenges that persist are:
Cataract- Addressing geographical disparities in service coverage, Ensuring quality outcomes along with quantities, Reaching out to ensure gender parity and reaching the last mile through primary eye care services for identification and follow up.

Refractive errors – Developing the modalities and systems for recognition, refraction and referral and provision of corrective spectacles to children and elderly. To develop modalities of reaching the out of school children. More evidence generating mechanisms to identify the problem of "significant" refractive error and impact on quality of vision and life is needed.

Childhood blindness and visual impairment – Collating evidence through population studies, CBR programs, Schools for the Blind studies and key informant and special methods to address and target the problem. Develop infrastructure, technology, human resources and early interventions including rehabilitation of the children with visual problems.

Corneal blindness – awareness, primary eye care, eye donation and facilities for surgery and eye banking.

Low vision - capacity in terms of train human resource, establish a reliable and affordable supply chain for low vision devices and have a mechanism in place, which can actively identify those who can benefit from low vision services.

Diabetic retinopathy - The need is to develop the capacity for treatment as well as mechanisms that can screen the diabetics at the first level and at the second level those who have developed diabetic retinopathy.

Glaucoma – opportunistic screening with customized management.

Human Resources for Eye Care - Instead of an across-the-board increase in ophthalmologists and eye beds, regions which are deficient will need to be prioritized and concerted action initiated to achieve an equitable distribution of the available resources. Speciality services human resources needs to be spread to other areas of the country as it is concentrated and clustered in the south of the country.

Human Resource Distribution
Two thirds of the nation's ophthalmologists work in the private sector with a few working in remote areas. It follows then that most of the paramedical personnel trained for ophthalmology stay in urban areas since they link to the ophthalmologists. This disparity has led to significant differences in services offered/sought by the public. It is estimated that about 50% qualified eye surgeons are "non-operating" surgeons. They are either practicing medical ophthalmology/refraction services

(typically in urban areas because of peer competition and reluctance to set-up facilities in rural areas where client's capacities to pay for services is limited) or are providing general medical care (typically in rural areas where they are posted at Primary Health Centres without any eye care facility).

Ophthalmic Training & Education

The quality of ophthalmology training within the country in residency programs has varied from the very good to the very poor. Residents coming out of these programs sometimes have not had exposure to even routine standards of care and surgeries due to inherent problems within the institutions training them to lack of resources to the program. The numbers of registered and certified paramedical professionals are grossly inadequate in the country. Institutions and facilities have started to train their own cadres as paramedical staff but there is absence of systems and accreditation. Other supportive services and management training are also lacking so is the capacity for community eye care. Instrument maintenance and opticians training is lacking even though the speciality of ophthalmology has embraced technology and refractive errors have emerged as a major cause of low vision in the country.

Issues in Strategic Program Management including isolated Efforts by the Private, Voluntary and Public Sectors. It also deficiencies in the Cycle of Care

Role of camps and fixed facilities

India relies heavily on screening eye camps to reach rural populations even now in spite of investments in setting up quality infrastructure till the sub district or block level. The camp approach is now being replaced by the vision center approach. The Vision center has a trained vision technician who is selected from the local community and trained to provide basic eye care services. Standardization of selection processes, training processes including curriculum, accreditation, quality assurance processes, as well as career development paths and refresher training for the vision technicians are issues to be deliberated upon.

Utilization of Existing Facilities: Most of the facilities across sectors are not optimally utilised and this calls for an capacity utilization efforts or audits before adding more infrastructure.

Socio-cultural, Logistical and Financial Issues: Among rural populations, folk beliefs and practices play an important role in decisions to seek treatment. There is also a widespread belief that treatment is possible only in the winter months.In addition some patients do not seek treatment because of logistical and economic constraints. Geographical isolation limits access to facilities posing a serious problem for women who often cannot find an escort. Other major obstacles include: transportation costs, loss of wages as a result of accompanying family members for treatment, unauthorized fees at service facilities and other related expenses.

Infrastructure and Appropriate Technology - Emphasis be made to develop infrastructure at various levels to provide eye care. Technological advances like IT and communications has not been harnessed for eye care although they are available.

Development of the standardized Management Information System for eye health is an immediate requirement to aid program management.

WHO India has facilitated efforts by the MoHFW under National Health Mission to reach 350 districts by 2014 for screening of Diabetes with TB and vice versa as well as piggybacking Rheumatic fever with NCDs through the Rashtriya Bal SwasthyaKaryakram (RBSK). The proposed deliberations it is hoped will provide a clear list of priorities under NPCB to implement a multi sectoral approach going forward. It was also hoped that inputs into the 13th five year plan for NPCB would start evolving from the deliberations.

Institutionalization of best practices as well as good experiences across sectors are key to reach universal eye care in India. Key to this would be investing into appropriate and cost effective technology.

Explore a coordination mechanism across all National flagship programs that contribute to the alleviation of blindness and visual impairment to focus and target and provide services and resources appropriately. An operational research study can be commissioned to identify which programs provide services relevant to eye care in the country.

Although the last 3 years has seen budgetary constraints across the health program the efficiency in resource utilization and adopting best models can undercut the contraction it was felt.

Summary of issues for discussion for Universal Eye Health in India

To summarise, the main issues that needs deliberations and discussions to achieve Universal Eye Health are:

1. Comprehensive eye care services: offering a breadth of services covering the range of causes of vision impairment, from promotion, prevention to rehabilitation and care
2. Eye health integrated into health systems, attending to the six building blocks of a health system according to WHO: governance, health financing, service delivery, human resources, medicines and technologies, and information
3. Access for everyone, including the poor, minorities, the disabled including vision impaired and people in rural areas. This requires adequate health outreach and promotion including in appropriate technologies and formats, and ensuring mainstream and targeted programs address barriers
4. Point-of-care payment should not prevent access: it should be free for the poorest