

## Original Article

# Is India's policy framework geared for effective action on avoidable blindness from diabetes?

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### ABSTRACT

**Background:** The growing burden of avoidable blindness caused by diabetic retinopathy (DR) needs an effective and holistic policy that reflects mechanisms for early detection and treatment of DR to reduce the risk of blindness. **Materials and Methods:** We performed a comprehensive health policy review to highlight the existing systemic issues that enable policy translation and to assess whether India's policy architecture is geared to address the mounting challenge of DR. We used a keyword-based Internet search for documents available in the last 15 years. Two reviewers independently assessed retrieved policies and extracted contextual and program-oriented information and components delineated in national policy documents. Using a "descriptive analytical" method, the results were collated and summarized as per themes to present status quo, gaps, and recommendations for the future. **Results:** Lack of focus on building sustainable synergies that require well laid out mechanisms for collaboration within and outside the health sector and poor convergence between national health programs appears to be the weakest links across policy documents. **Conclusions:** To reasonably address the issues of consistency, comprehensiveness, clarity, context, connectedness, and sustainability, policies will have to rely more strongly on evidence from operational research to support decisions. There is a need to involve multiple stakeholders from multiple sectors, recognize contributions from not-for-profit sector and private health service providers, and finally bring about a nuanced holistic perspective that has a voice with implementable multiple sector actions.

**Key words:** Chronic disease, diabetes, diabetic retinopathy, health policy, India

## INTRODUCTION

The growing prevalence of diabetes as a silent killer in the past two decades has contributed to global cognizance of its public health importance and of its complications, including diabetic retinopathy (DR).<sup>[1-3]</sup> Globally, 1.85 million people go blind due to DR,<sup>[4]</sup> and one in five persons with diabetes in India suffers from DR.<sup>[5]</sup> Currently, DR is the leading

cause of avoidable blindness in the high-income countries and by 2035, it could also be a leading cause of avoidable blindness in low- and middle-income countries, where 80% of the global diabetic population is expected to reside.<sup>[6]</sup> India is already one of the diabetes epicenters of the world, projected to have 109 million diabetics in the next 20 years.<sup>[7]</sup>

Evidence suggests that good glycemic control may arrest the progression of DR.<sup>[8]</sup> Early detection and treatment can reduce the risk of blindness from DR by 90%.<sup>[9]</sup> The big question is: Is India's national policy architecture geared to combat the mounting challenge of DR? Delving into policies may highlight

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existing systems, trajectory of approaches, and levers to advance game-changing actions to tackle blindness due to DR.

## MATERIALS AND METHODS

A desk review was conducted, which involved identification of documents from a keyword-based Internet search. Key officials at administrative Ministry/Institution(s) were consulted to broaden the scope of the review. Two reviewers independently assessed, retrieved policies, and extracted contextual and program-oriented information as per the following:

### Inclusion criteria

- Documents/monographs produced and circulars/notifications issued or ratified in the last 15 years (since 2000) when noncommunicable diseases (NCDs) received global attention from the World Health Organization (WHO)
- Provide “policy,” “strategy,” “program,” “plan,” “guidelines,” and “working group recommendations” with reference to DR
- Keywords or reference to “DR,” “diabetes complication/s,” “NCD,” “chronic disease,” “blindness,” “vitreo-retina (VR),” “medical retina,” “cardiovascular disease,” “modifiable risk factor/s,” “lifestyle,” “National Blindness Control Programme,” “National Programme on Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS),” and “5-year plan (hereafter referred to as nth plan).”

### Exclusion criteria

- Studies (journal articles and gray literature)
- Reports/operational guidelines from national and international private for-profit service providers, Non-Government Organizations (NGO) and hospitals, health clinics, or programs that provide health services
- Evaluation and audit reports (as their focus is on implementation, rather than the policy environment).

Using a “descriptive analytical” method, the results were collated and summarized as per themes to present status quo, gaps, and recommendations for the future.

## RESULTS

A total of 50 documents were reviewed (15 global; 35 national) to assess the policy environment for operationalization of quality, diabetic eye care. The following findings suggest that there is scope to strengthen India’s approach:

### Wide angle: The landscape for India’s policy vision on diabetic retinopathy

In a nutshell, national policy priorities to accelerate reduction in DR prevalence are largely reflected in the realm of NCD and blindness prevention, detection, and control.

### Early wins: Taking initiative through national programs

The WHO has led agenda setting and stewardship of global plans and programs for NCD and eye health. India has remained in-step and in some cases preempted World Health Assembly resolutions to confront the range of NCDs and diabetes and eye care [Table 1].

India was the first country in the world to launch a National Programme for Control of Blindness (NPCB) in 1976, before the WHO Programme for the Prevention of Blindness was announced.<sup>[10]</sup> The National Diabetes Control Programme was rolled out as a pilot (1985–1990) prior to global, landmark resolutions of 1989.<sup>[11,12]</sup> In 2010, an integrated NPCDCS was approved close on the heels of the WHO Action Plan for Prevention and Control of NCDs in 2008 which called on member states to establish national programs.<sup>[1]</sup>

### Principal strategies for comprehensive, diabetic eye care and management

Structures, systems, and services to tackle DR as per the current policy framework are predominantly extended via the NPCB and NPCDCS in India. The National Rural Health Mission (NRHM) subsumed the NPCB in 18 states when it came into existence.<sup>[13]</sup>

Although it was not an intense part of the original mandate, NRHM, now National Health Mission (NHM) includes the NPCDCS. NPCDCS is currently operational in 152 districts,<sup>[14]</sup> whereas NPCB is operational across all 640 districts.<sup>[11]</sup>

Services at each level of care are described below.

### Connecting the dots of primary care

At all Primary Health Centres, Vision Centres are being established and manned by Para-Medical Ophthalmic Assistants (PMOA)/Ophthalmic Officer (PMOO) to screen and maintain Diabetic Registers (trained to work with fundus photographs). Community Health Centres (CHCs) under NPCB focus on early detection through vision testing and refraction, referral, Information Education and Communication (IEC), and involving the community. In 2010–2011, sanction was provided to 7000 CHC and District Hospitals to create NCD Clinics to screen, diagnose, and manage chronic diseases, including complications.<sup>[14]</sup>

**Table 1: Areas for action on DR as reflected in policy documents at the global and national level**

Areas	Level	1970s	1980s	1990s	2000s	2010s
Health	Global	Health for all by 2000 Primary health care	Health promotion Healthy cities	Intersectoral approach Task-shifting Community participation	Health systems Healthy lifestyle Renewal of primary health care	Universal health coverage Health systems
	National		Lifestyle targets World Health Assembly resolution on NCDs	1 <sup>st</sup> World Health Report on NCDs	Minimize risk factors (2000) Life course approach to health Establish national programmes (2008)	Integrating NCD services into primary health care Health systems strengthening Surveillance and monitoring Integrated and comprehensive interventions (based on pilot results) Pandemic proportions of NCDs
Diabetes	Global	Expert meetings for treatment/technology	Establish national diabetes programmes (WHA, 1989)	Diabetes prevention, control and management World Diabetes Day established (1991)	Diabetes Action Now Your eyes and diabetes (2002) Epidemic rates	
	National		7 <sup>th</sup> plan (1985-90) - National Diabetes Control Programme as a pilot	8 <sup>th</sup> plan (1992-97)- pilot NDGP under state scheme 9 <sup>th</sup> plan (1997-2002)- diabetes is a major public health problem	10 <sup>th</sup> plan (2002-2007) - Merge the central sector scheme of pilot diabetes control programmes with central institutions	NPCDCS Operational guidelines Revise Indian Public Health Standards
Eye care (where DR is mentioned specifically)	Global	Primary eye care WHO Programme for the Prevention of Blindness initiated (1978) Establish national programmes	Detection of eye problems and referral algorithms WHA resolution on blindness	The right to sight for the elimination of avoidable blindness (Vision 2020 document underway and 1 <sup>st</sup> Action Plan, 1999)	Global Action Plan Joint provision of services with diabetic care World Sight Day (2002). <sup>[13]</sup> Scale up of Vision 2020 to include DR	Universal eye health Eye health workforce Integrating eye health into national health plans and health service delivery (2013)
	National	National Programme for Control of Blindness established (1976)	Focus on traditional eye conditions	9 <sup>th</sup> plan - Include 'other' causes of blindness	Adoption of VISION 2020 in 2001 10 <sup>th</sup> Plan (2002-2007) - NPCB included screening for DR 11 <sup>th</sup> Plan (2007-2012) - DR under 'other' eye diseases Proposed Grant-in-aid for DR (2008). <sup>[14]</sup>	12 <sup>th</sup> plan (2012-2017) - grant-in-aids, patient eligibility, for overall eye care

NCDs: Non-communicable diseases, DR: Diabetic retinopathy, NCD: Noncommunicable diseases, WHO: World Health Organization, WHA: World Health Assembly, NDGP: National Diabetes Control Programme, NPCDCS: National Programme on Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke, NPCB: National Programme for Control of Blindness

Auxiliary Nurse Midwives (ANMs) and Multi-purpose Health Workers (MPWs) are to support detection and referral for NCDs at Type B sub-centers.<sup>[15]</sup> Field health workers under NPCB, also conduct house-to-house surveys, awareness generation, and referral.<sup>[16]</sup>

### Strengthening secondary eye care

Traditionally, district hospitals, notified as base hospitals provide eye care through an out-patient department, dedicated ophthalmic operation theater, and a separate eye ward. NCD clinics have been established at identified district hospitals to provide daily emergency care, screening, counseling, and management of diabetes. District hospital upgradation has also been charted, wherein multipurpose Medical Intensive Care and Stroke Units may be built.<sup>[17,18]</sup>

The state/union territories are required to develop a referral protocol for cases from the district hospital to tertiary care.

### Transforming tertiary eye care

Twenty Regional Institutes of Ophthalmology (RIO) provide comprehensive and advanced patient eye care, research, and training at tertiary level.<sup>[19]</sup> Four RIOs specialize in VR and/or medical retina. Strengthening Government Medical colleges to provide specialized tertiary care facilities, resource centers for training and research in NCDs is an aim of the Ministry of Health, Government of India.<sup>[15]</sup>

### Critical appraisal of policies to support diabetic eye care

For clarity of purpose and to commence impactful action on DR, there is a need for elaboration of components within the health systems response, such as clinical guidelines, information systems, quality assurance, manpower planning, and public awareness generation. Only publications from the last decade included measures that address a combination of

program components. Salient features for diabetic eye care were examined across interplay of relevant program components [Table 2].

### Integrated service delivery: Shall the twain meet?

Clear treatment guidelines for DR are required. The NPCDCS provides scope for inclusion of management of DR as a complication. While the WHO-Indian Council of Medical

Research has developed guidelines for diabetes, including its complications, they have not been updated or adopted nationally.<sup>[20]</sup> Neither do they provide details for screening and referral for the treatment of DR. The Vision 2020: Right to Sight initiative in India has recently published a visually-rich manual of clinical guidelines for comprehensive management of DR in India,<sup>[21]</sup> building on International Council of Ophthalmology guidelines developed in 2008.<sup>[22]</sup> Both of these are a step in

**Table 2: Components relevant to diabetic eye care delineated in national policy documents**

Component	Number of policies	% reviewed	Comprehensiveness (in at least one policy)	Areas for strengthening	Relevant National Policy reference
Clinical guidelines	3	0.8	*	Need to be formally adopted Lack recommendations on patient education and advice, prevention, family care and longer-term management	[20-22]
Targets	1	0.03	†	DR-related targets absent in most documents (1.2 lakh cases mentioned in 2013) State and district plans lack detail	11
Human resource	10	0.3	‡	Planning, skills upgradation and training require attention (especially for NCDs)	[19,22-30]
Health Management Information Systems (HMIS)	6	20	*	Centrally-driven model, with limited feedback mechanisms on reporting formats Emphasis on computerization and standardization, less on types and volumes of information flows or 'who' requires training	[15,19,23, 24,28,31]
Monitoring and Evaluation	10	33.3	*	Implicit focus on fund and infrastructure utilization and verification of private sector/ NGO grants External evaluation by private bodies and project management require detail NCD Cells at all levels expected to plan and review, including complications	[11,15,22, 25,27-29,31-33]
Convergence	14	46.7	*	NPCDCS guidelines lack mechanisms to build convergence While partners are mentioned the exact role requires detail	[11,17-19,23,24,26-29,31,32,34,35]
Quality assurance	6	20	†	Most documents highlight problems in quality of services and medicines; need to establish procedures and step-by-step guides to operationalize the same (revision of Indian Public Health Standards) Training of PMOAs and surgeons as next steps	[11,18,23, 24, 26,27]
Equipment	6	20	*	Need to standardize what equipment for Vision Clinics and NCD Clinics may be procured to screen and RIOs for VR surgery	[11,19,22, 25,28,32]
Advocacy	0	0	†	No explicitly identified issues for advocacy, but coverage, quality of services, affordable care, convergence, health promotion, and cross-disciplinary research need to be on the agenda	
Health education	13	43	*	A clearly articulated national health promotion and communication strategy for diabetic eye care	[11,14,15, 17,22-26, 28,29,31,32,36]
Budgetary allocation	1	0.3	*	Additional allocations to support Rs. 18 cr to DR (as 8% of total blindness under recurring expenditure) and Rs. 22.5 cr for VR surgery State Health insurance plan like Aarogyasri cover Retinal procedure	[11,37]
Evidence used	5	16	†	Majority of documents cite no evidence Surveys and population-based studies of limited scale provide prevalence data on avoidable blindness and NCDs, but not diabetic eye care	[15,23,25, 28,29]
Identification of good practice	5	16.7	†	Integrated NCD services recommended to continuously monitor all diabetics at the primary level (Aravind rural primary eye care centres and LVPEI/ICARE Mudhole experience) Limited information about Kerala, Tamil Nadu and Bihar models	[17,23,24, 31,38]

\*Basic contours and mechanisms are outlined. †Mention of the word or statement of need. ‡Responsibilities for action are described. NCD: Noncommunicable diseases, NPCDCS: National Programme on Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke, DR: Diabetic retinopathy, NGO: Non-Government Organizations, PMOA: Para-Medical Ophthalmic Assistants, RIO: Regional Institutes of Ophthalmology, VR: Vitreo-retina; LVPEI: Lakshmi vara prasad eye institute, ICARE: International centre for advancement of rural eye care

the right direction, featuring assessments, equipment, patient education, specialist support, and timing of follow-up, but require to be owned by both ophthalmologists and physicians.

The goal of collaborative care remains to be fully conceptualized and detailed across the primary, secondary, and tertiary levels of care. Better coverage and follow-up rates for DR are achievable only when eye care is provided jointly with diabetic care at the same healthcare facility. However, while the same facility offers eye and NCD services in India, each package under NPCDCS and NPCB is a stand-alone package, without information-sharing or a defined intra-facility or clear inter-facility referral pathway from the ophthalmologist to the physician or the endocrinologist and vice versa. A literature-based mapping of DR-relevant service delivery points and referral linkages are presented [Figure 1].

### Human resource management

Establishing national coordinating mechanisms at health ministries and development of an eye health workforce, including paramedical professionals and community health workers has received global emphasis.<sup>[25,26]</sup> In India, adequacy and competency of overall human resources for comprehensive eye care is questionable.<sup>[27]</sup> A clear system to plan supply of human resources, particularly for NCDs is

required. While manpower guidelines prescribing minimum requirements have been articulated for contractual doctors and staff,<sup>[25,27,28]</sup> skills and competencies of various health workforce cadres are lacking.

Affixing responsibilities for DR care is required. For example, CHCs are required to facilitate intensive glycemetic control, retinopathy screening, and photocoagulation, but the “when” “how” “by whom” and “where” are not provided. NPCDCS operational guidelines bear only slightly more detail regarding staffing and roles within the NCD Cell as in the National Programme for Health Care of the Elderly.

### Capacity building

Building a cadre for primary eye care, comprising surgeons, nurses, and requiring refresher training for PMOAs/PMOOs, Medical Officers, Accredited Social Health Activist (ASHA), and integrated child development scheme (ICDS) workers and one for NCDs, comprising 32,000 district physicians, nurses, and consultants has been recommended.<sup>[15]</sup>

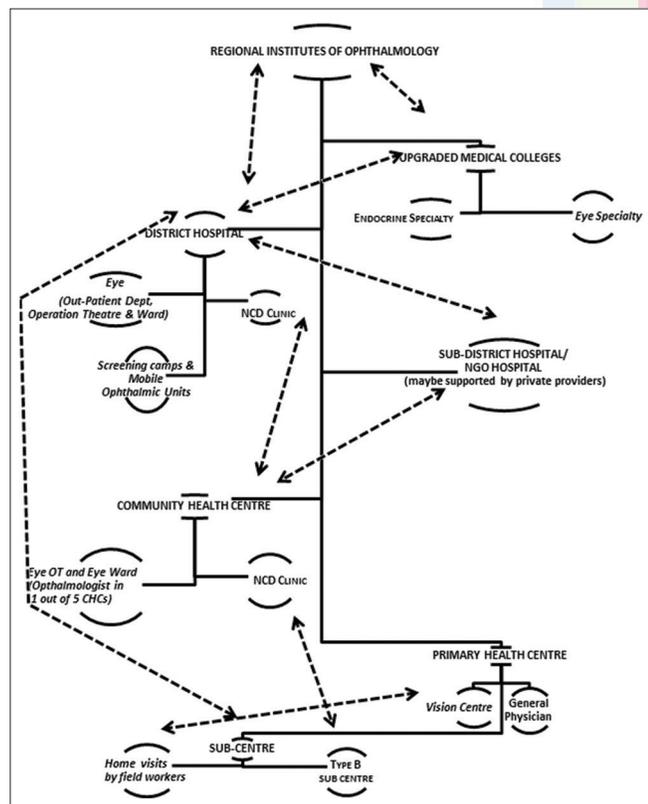
Consolidation of curricula from the NHM, NPCB, and the NPDCS is necessary to lend structure to continuing education and skills development programs relevant to DR. Health services research and strengthening existing national and local training institutions on priority (RIOs, medical colleges, and district and sub-district hospitals) may facilitate more effective training programs.

Task-shifting emerges as a strong undercurrent, with training also being suggested for counselors, social workers, practitioners of Indian Systems of Medicine, Registered Medical Practitioners, ANMs, MPWs, and other locally available human resources.<sup>[25]</sup> Since 2009, efforts to equip the ASHA as a “lay diabetes facilitator” are ongoing, but evidence has not translated into policy directions.<sup>[39-41]</sup>

### Infrastructure and equipment

There is a shortfall in equipment for the treatment of common eye diseases as well as surgical services.<sup>[16]</sup> Policy debates highlight challenges in the availability of good screening and diagnostic equipment, need for modern surgical tools and intraoperative patient care, full asepsis at all levels to prevent postoperative infection, and high quality presterilized drugs and surgical consumables.<sup>[42]</sup>

Guidelines and norms for assistance under NPCB have shown some inconsistencies. For example, fundus cameras are available at Vision Centres in the NGO sector, but there is no mention of the same under relevant documents for grants-in-aid or NRHM Programme Implementation Plan (PIP).



**Figure 1:** Eye care and diabetic care across levels of health service delivery in India

### Real-time surveillance, health management information systems and monitoring

Reliable and timely consolidation of information from NPCB and NPCDCS at national, state, and district levels may potentially strengthen planning of DR programs. Global calls to establish monitoring mechanisms and coordinating agencies date back to the World Health Assembly resolution of 2003 in eye care,<sup>[43]</sup> through the Moscow Declaration in 2011 for NCDs.<sup>[44]</sup> Risk factors, outcomes, social and economic determinants of health, and health system responses should ideally be surveyed.<sup>[45-47]</sup>

The last two 5-year plan sketch a number of disparate mechanisms, but what would be most useful is to suggest how they may work together [Table 3].

**Table 3: Monitoring and surveillance mechanisms mentioned in national policy documents**

Mechanism	Task
Integrated Surveillance Project (IDSP)	Collect risk factor and morbidity prevalence on NCDs in seven states. No information on mortality, complications or expenditure
Sentinel Surveillance Units	Monitor, survey and study ocular morbidity
NCD Cells	Gather data for an epidemiological database on NCDs
Technical Resource Group (TRG)	Provide dedicated oversight and independent evaluation
Nutrition monitoring	Identify trends and initiate interventions on diabetes
Disease Registry	Collect secondary data related to specific diagnosis, condition, or procedure
Involve medical colleges	Operational and evaluation research
Health Impact Cell	Proactively understand the health impact of policies
Community-based Monitoring Committees	By Panchayati Raj Institutions (PRI), community based organizations (CBO), voluntary organizations (VO) and NGOs

NCD: Noncommunicable diseases, NGO: Non-Government Organizations

While the NHM is designed to monitor all programs under a single administrative system, its separation of accountabilities (design of the standard formats/software and training of management information system staff at the center, analysis of performance and expenditure by states, and compilation of data and monitoring of performance at the block level) does not provide sufficient tools for information-sharing, joint planning, and coordination or concurrent monitoring.

### Promoting outreach activities and public awareness

The key messages, approaches, and arrangements for IEC are embedded in policies as an overlapping, fluid menu of options [Table 4]. Development of application-oriented strategies, that take a life course approach and tailor different approaches to varied contexts and target groups would further their utility. Vision 2020 has conducted workshops and roundtable meetings to develop an action plan in this realm.<sup>[48]</sup>

Global policies envision a leadership role for an adequately staffed and funded health promotion unit within the Ministry of Health,<sup>[1]</sup> but this is yet to be realized via the Central Health Education Bureau or a new National Institute for Health Promotion and Control of Chronic Diseases.<sup>[17]</sup> They may explore inclusion of NCD and blindness control activities into primary health care as aligned to the Moscow Declaration, potentially via Village Health Sanitation and Nutrition Committees and other avenues.

### Budgetary allocations

There is nearly a 6-fold jump in NPCB allocations since the Ninth Plan and close to a 5-fold jump in NPCDCS funding in a short span since 2010–2011 [Figure 2]. NPCDCS funding has increased on account of increasing geographical coverage. As a proportion of the total healthcare budget,

**Table 4: Salient features of health promotion relevant to DR from policy documents**

Key message/communication goal	Approaches	Intervention partners	Relevant National Policy reference
Primary and secondary prevention	Mass media	-	[28]
Early diagnosis and prompt treatment of NCDs	Learning resource materials		
-	-	Non-formal leaders	[23]
-	-	PRIs, user groups, and CBO/NGO/VO representatives	[24]
Increased physical activity	Opportunistic screening at camps	Community, school and workplace settings	[17]
Avoidance of tobacco and alcohol	Interpersonal communication (IPC)		
Stress management	Materials (posters and banners)		
Knowledge of risk factors	Mass media (radio, television, print media)		
Self-management by patients	Mid-media and locally prevalent folk media		
Prevent risk factors of NCDs and promote healthy life style habits	-	Peripheral health functionaries and NGOs to lead and PRIs and NGOs to support	[1,15,49]
Diabetic Retinopathy – symptoms and control of blood sugar levels	Posters in multiple languages World Sight Day Newsletter*	-	[1,9,50]

\*No issues available online prior to October-December 2011. NCD: Noncommunicable diseases, NGO: Non-Government organizations, PRI: Participatory research initiatives, CBO: Community based organizations, VO: Voluntary organizations

the NPCB allocations remain nearly at the same level whereas NPCDCS allocation has doubled.

The Twelfth Plan initiated bold interventions under NPCDCS up to the district level [Table 5]. This confirms the level of commitment accorded to blindness and NCD control activities. Data on the proportion of total outlay on diabetes are not available since the Eleventh Plan, after merger of pilot programs. A limited provision of INR 1500 for DR laser and INR 5000 for VR surgeries has been made. No strategies or incentive mechanisms have been devised for greater uptake of DR services at secondary care facilities. No provisions on financing for vulnerable populations were found.

Changes in the ratio of sharing between the Centre and State Government from 80:20 to 75 in the last two 5-year plan may influence fiscal planning. In addition, from 2013 to 2014, NPCB expenditure falls under the NCD flexi pool, under the recently approved NHM umbrella. The 2015 budget cuts in the health sector, attributed to large unutilized sums may impact these plans.

### Interconnectedness with other policies

Global health resolutions call for strengthening partnerships, with a view to share responsibilities, coordinate for resource

mobilization, advocacy, capacity building, and collaborative research. They highlight the importance of intersectoral policies, regulations, and appropriate measures to minimize the effect of the major risk factors of NCDs. India's plans echo this sentiment. However, the nature and extent of engagement among multiple stakeholders, especially at the state and local level remains to be fleshed out.

Many national policies from nonhealth sectors have an impact on DR, through modification of lifestyle-related risk factors, and the interplay of social determinants of health and built environment for diabetes. Opportunities to incorporate prevention of diabetes, blindness, and visual impairment in schemes for the development of women and children, nutrition, National Urban Renewal Mission, school health programs, transportation, tobacco control, poverty reduction strategies, and relevant socioeconomic policies have been initiated and show promise. Policies must move beyond the usual suspects to apply across sectors, such as agriculture and food safety, finance (pricing and taxation), trade, environment, education, disability, alcohol, youth and sports, and local governance vide Panchayati Raj Institutions, Civil Society Organizations, and self-help groups.

### The fine print: Policy commitments of direct relevance to diabetic retinopathy

Only a handful of national documents, out of the 35 reviewed, bear details for public health action on DR care and management.<sup>[11,15,19,24,25]</sup> The Ninth Plan (1997–2002), issued while “VISION 2020” was being prepared, was the first to call for inclusion of other causes of blindness. The Tenth Plan squarely stated that NPCB would tackle DR, following Vision 2020's inclusion of it as a priority eye condition.<sup>[9]</sup> The plan provided for screening of diabetics for retinopathy estimated the prevalence of DR at 20% among diabetics. Prior to the Tenth Plan, it appears that strategies for reduction in the prevalence of cancer were given greater priority vis-à-vis other NCDs.

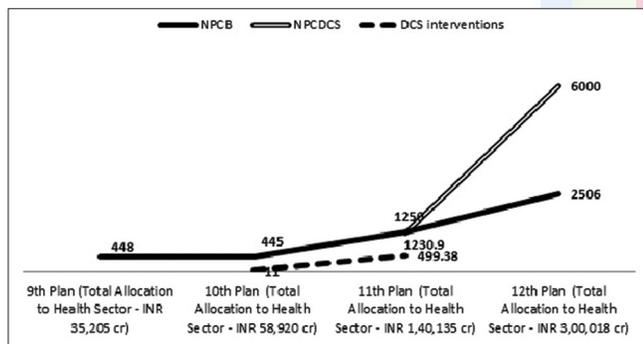


Figure 2: Outlays as per Indian 5-year plans (Indian Rupees in Crores)

Table 5: Significant budgetary initiatives relevant to DR in the Twelfth Plan

Area	Budget (in crore INR)	Remarks
Health education	12	Triple the previous amount
Target 1.2 lakh DR cases	18	Recurring expenditure (8% of total NPCB outlay @ Rs. 1,500 per case)
VR surgery for 0.45 lakh cases	22.5	Recurring expenditure (3% of total NPCB outlay @ Rs. 5,000 per case)
Assistance for RIOs	30	Five times the previous amount
Mobile Ophthalmology vans	2506	First-time investment

DR: Diabetic retinopathy, RIO: Regional Institutes of Ophthalmology, VR: Vitreo-retina, NPCB: National Programme for Control of Blindness, INR: Indian Rupee

Budgetary guidelines relevant to DR were developed by NPCB from 2008 onward. Recurring grant-in-aid sums were established for complete treatment of DR by voluntary organizations, NGOs, or private practitioners in fixed facilities and for VR surgery.<sup>[27]</sup> Patient eligibility, evidence, maintaining a DR register and submission of monthly reports on cases screened, treated, and operated in prescribed formats, and payments are mentioned, but without details.

For nonrecurring grant-in-aid for the development of mobile ophthalmic units with tele-ophthalmic network and fixed tele-models (up to maximum of INR 0.6 million), at least one eye surgeon in the base hospital is required to

be experienced in DR. Currently, the PIP for 2013–2014 includes active DR screening of the population above 50 years at eye camps and transportation of operable cases to care facilities.

## CONCLUSION

The policy literature is unanimous on the importance of strengthening functional linkages among primary, secondary, and tertiary care centers for integrated treatment of diabetes mellitus, hypertension, and heart disease. However, “universal eye health” as a backdrop for the systems’ response and governance structures suggests that there are many ways to significantly improve early detection, treatment, and management of DR in India.

Recommendations of the World Health Report in 2008 on primary health care sought to breathe life into the aims of the Alma Ata Declaration, translating public policy for health systems strengthening and governance at the lowest level. India’s policies have begun to shape a stronger primary eye care infrastructure and cadre, such that patients with simple eye conditions do not require to access services at secondary or tertiary hospitals.

A lack of focus on building sustainable synergies and sketchy details appear to be the weakest links across policy documents. Many of them lack the “how to” mechanisms for collaboration within the health sector and with other sectors. Operational research is required to identify mechanisms of convergence between NPCDCS and NPCB programme activities. To reasonably address the issues of consistency, comprehensiveness, clarity, context, connectedness, and sustainability, policies will have to rely more on evidence to support decisions and present essential actions. Current policies also need to expand their view of contributions by the not-for-profit sector and private health service providers to holistically address the situation. At the moment, limited innovations and voices are reflected.

There is a growing recognition of the need for multi-sectoral actions, if the commitment to tackle DR is to be adequately reflected in the policy realm. This is evident from reflections on policy formulation processes through working group notes and active revisions in the last decade. This is, especially crucial as the key tasks to prevent and control DR include improving dietary intake, reducing high levels of stress and lack of physical activity, as well as managing rapid urbanization and concomitant lifestyle change. As Vision 2020 is less than 5 years away, it is these factors and a responsive, nuanced policy architecture that may pave the way for vital change.

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## Conflicts of interest

There are no conflicts of interest.

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