

Sentinel Surveillance of Blindness: An Initiative of the National Programme for Control of Blindness in India

Surveillance, a fundamental tool of public health, is the systematic collection, analysis and interpretation of health data and the timely dissemination of this data to policymakers and other stakeholders for initiating action for control and prevention of diseases.⁽¹⁾ Good quality health information is essential for planning, implementing and evaluating public health activities in any nation. Surveillance provides timely health information so that countries are prepared to take remedial action in the face of any challenge.

Sentinel surveillance is an active surveillance system that seeks out data from selected, targeted groups or networks put together for this specific purpose.⁽²⁾ These 'sentinel' centres cover a subset of the population and the information is projected to map trends and practices.

India is one of the first countries to have launched a sentinel surveillance system for tracking blindness at the national level. The need for such a programme was realized after the completion of the World Bank Blindness Control Project (1994-2001), to decrease the cataract blindness burden in India. Despite the quantitative achievements of the programme (15.35 million cataract surgeries in seven years),⁽³⁾ there was no concrete mechanism to assess quality and visual outcome of the cataract surgeries performed under this gigantic endeavor. Hence, in order to maintain a constant vigil on performance, quality and implementation of identified blindness control strategies, the blindness surveillance project was conceptualized in 2001 under the National Programme for Control of Blindness (NPCB). In a culturally diverse and heavily populated country like India, it was practically impossible and daunting to set up a monitoring and collating mechanism in all districts

of the country. It was therefore decided to set up a network of Sentinel Surveillance Units (SSUs) across the country that would be representative of the different regions. A National Surveillance Unit was established at Dr. Rajendra Prasad Centre for Ophthalmic Sciences, All India Institute of Medical Sciences, New Delhi with the objective of supervising and providing technical support to the network of sentinel centres in most of the states in India. The National Surveillance Unit (NSU) was supported by the World Health Organization in 2004-05 in order to develop a model for strengthening the Management Information System related to blindness in the country. Twenty five sentinel sites were identified across the country based on the blindness and ocular morbidity load and the availability of infrastructure and the competence to maintain and disseminate good quality data. Currently SSUs are located in the Regional Institute of Ophthalmology or Medical Colleges in Allahabad, Aligarh,⁽⁴⁾ Ajmer, Cuttack, Goa, Indore, Jammu, Kolkata, Ludhiana, New Delhi, Pune, Raipur, Rohtak, Surat, Shimla, Srinagar, Thiruvanthapuram, Udaipur, Vishakhapatnam, Vellore, Wardha and Nagpur.

The SSUs are located in the Department of Community Medicine or Social and Preventive Medicine of Medical Colleges with technical cooperation of the Ophthalmology Departments in the same institution.⁽⁵⁾ Community Medicine Department with para-ophthalmic personnel is responsible for the collection of data from various hospitals of that region. At the central level, the Ophthalmology Section, Directorate General of Health Services, Government of India, is responsible for the administrative and financial management of the program while Dr. Rajendra Prasad Centre for Ophthalmic Sciences, AIIMS, New Delhi, designated as NSU, provides technical support to the SSUs. The Unit is responsible for data compilation, analysis and reporting of blindness surveillance data to the Government of India.

Cataract is the leading cause of blindness globally⁽⁶⁾ as well as in India.⁽⁷⁾ Hence, this programme was launched with the objective of establishing a database especially for elimination of cataract. All the SSUs

Access this article online	
Quick Response Code: 	Website: www.ijcm.org.in
	DOI: 10.4103/0970-0218.99905

send their quarterly reports on parameters reflecting cataract surgical performance including post-operative complications to the National Surveillance Unit. The programme is helpful in assessing the quality of cataract surgical services by determining success rate in relation to gender, socio economic status, type of surgery, place of surgery and age at the time of surgery.

During 2001-02 to 2011-12, cataract surgical outcomes of more than 5 million patients have been reported by various SSUs. The trends show a significant increase in proportion of cataract surgeries with intra-ocular lens implantation (80.8% in 2001 to 97.7% in 2011) and decrease in surgeries performed in bilateral blind people (39% in 2001 to 17.2% in 2011). The reported surgeries conducted in females are higher than in the male patients. Visual outcome (post-operative visual acuity better than 6/18 in the operated eye) after cataract surgery has improved over time (66.2 % in 2003 to 76.4% in 2011). Poor visual outcome (defined as post-operative visual acuity worse than 6/60 in the operated eye) was noted in 15.4 % of surgeries in 2002-03 as against 6.1% surgeries in 2011. Post-operative complication rate has reduced from 43.4/1000 surgeries in 2007 to 24.8/1000 cataract surgeries in 2011. The SSUs also report data on Ocular morbidity from their regions. Ocular morbidity of more than 6.1 million cases in last 10 years reveal that refractive error (39.9%) and cataract (18.8 %) are the most common causes of ocular morbidity in India. The trends are similar for last ten years.⁽⁸⁾

Sentinel surveillance data should be used judiciously as it may not be representative of the whole population. It should not be taken as an estimate of the disease prevalence in a country but should be used as an indicator of the prevailing trends in the region / country. It provides an insight into the overall trends in disease profile and service delivery.

Analysis of data from the sentinel sites over a specified period captures the trends in blindness control activities across the country and thus helps in strengthening the system further. It is the exclusive source of data related to blindness and ocular morbidity from various Regional Institutes of Ophthalmology and medical colleges in the country. It is proposed that this programme should be extended to include other medical colleges and tertiary health care centres imparting ophthalmic care in the country.

There is a scope for improvement of this programme by enhancing the quality, accuracy, regularity and accountability of collected data by various SSUs. It is suggested that all SSUs should also collect data from the NGOs and private institutions in their districts so

that data of all the sectors providing eye care may be compared. The programme should shift from being 'cataract centric' to a more comprehensive approach to involve surgical outcomes of other blinding eye diseases like refractive error, childhood blindness, glaucoma, corneal diseases, diabetic retinopathy and other retinal diseases.

The SSUs are the key organizations identified under NPCB for their capacity to provide quality data in their respective regions. All institutes involved in blindness surveillance under this programme should also conduct and facilitate multi-centric operational research and population based surveys in their respective regions, so as to advocate policy formulation and program implementation. This would help in reducing the burden of avoidable blindness in the country.

Government of India has registered around 1300 NGOs involved in eye care and provides funding to them for cataract and other ocular surgeries. There is a need for capacity building and adequate monitoring of these NGOs for proper utilization of funds. It is suggested that SSUs should also be actively involved in monitoring of NGOs in their region. It is a gigantic task and may require increase in number of SSUs in the country. In the long term, all the medical colleges should function as Sentinel Surveillance Units as well as monitoring agencies for the NGOs in their catchment area. They should be instrumental in holistic eye care in their region having some control on the District Program Managers and provide effective monitoring, training and research facilities to all eye care organizations in the region.

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How to cite this article: Vashist P, Gupta N, Rathore AS. Sentinel surveillance of blindness: An initiative of the National Programme for Control of Blindness in India. *Indian J Community Med* 2012;37:139-41.