

## High volume and high quality eye care - Bridging the paradox. A unique rural based approach – The Chitrakoot model

India is often highlighted for its disproportionate spending on health care.<sup>[1]</sup> Overall, India lacks adequate health care infrastructure and facilities.<sup>[2]</sup> Even today, access to health care facilities are urban-centric, while a majority of our population lives in rural areas. Discrepancy in resource distribution deprives the rural population leaving their health care needs unattended.<sup>[3]</sup> There have been efforts to overcome these and ensure that those living in relatively inaccessible areas should be able to receive timely care. But evidence shows that access to health care remains the lowest in the most vulnerable, rural population. It has been noted that there is not much variance amongst rural and urban populations when it comes to minor illnesses, but for major illnesses, rural regions remain suboptimally cared for due to non-availability of treatment and diagnostic facilities in the vicinity.<sup>[4]</sup>

The problem of this rural urban disparity is the same in ophthalmology where majority of the eye care providers are situated in urban or semi-urban areas. Rural areas are served by Non-Government Organisations (NGOs), a majority of whom are also situated in urban and semi-urban areas. These non-rural-based eye care organisations serve the rural population through outreach camps and primary eye care centres. Such an effort can handle diseases like cataract and refractive errors. Emerging diseases like diabetic retinopathy, age related macular diseases (ARMD) and glaucoma are on a steep rise in India largely due to the ageing population, changing lifestyle and enhanced life expectancy.<sup>[5]</sup> To deal with these, where expert long-term follow-up care is required, relying on outreach programmes for will be ineffective and impractical. This emerging scenario emphasises the need for models established in the rural areas, providing high volume and high quality comprehensive eye care services.

### Sadguru Netra Chikitsalaya (SNC), A Unique Rural-based Eye Care Provider

In 1950, Gurudev (Param Pujya Ranchhoddasji Maharaj, respectfully called as Gurudev) spearheaded the movement of voluntary eye care services by organizing a free eye camp at Chitrakoot. In spite of difficulties and absence of basic facilities, 950 cataract surgeries were done through the camp. Following this, similar eye care activities were undertaken across the length and breadth of India. These efforts gradually converged into forming an institution and in the year 1968 - Sadguru Netra Chikitsalaya (SNC) was established under, Shri Sadguru Seva Sangh Trust.<sup>[6]</sup> Over the years, SNC has grown from strength to strength. Today, it is recognised worldwide as the largest rural eye care provider and also for its high volume and high quality of comprehensive eye care services. Services are supported by a team of more than 100 full time ophthalmologists who perform more than 132000 ophthalmic surgeries annually at Chitrakoot.<sup>[6]</sup> Key features at SNC include: 1. Serving more

than a million patients every year, 2. Performing more than 100000 cataracts surgeries annually, 3. Performing more than 25000 specialty procedures annually, 4. 25 modular operation theatres, 5. 3500 rural outreach eye screening camps annually, 6. 53 vision/primary eye care centers, 7. 2.5 million surgeries since inception, and 8. Assured standardized quality care, across all the strata of society.

### Establishing Eye Care in Rural Areas - Challenges

SNC faced several challenges on its way to become the largest eye care provider in India. Initially, majority of the work was carried out in the winter months through volunteers and devotees of Gurudev. Temporary structures were erected to operate patients and provide care during this short period every year. Efforts were then made to regularize work throughout the year - a challenge by itself, with minimal patient inflow during the rest of the year and non-availability of full time skilled workers. Financial viability was another concern as all the services were provided free of cost. With limited support from donors, scaling up with infrastructural backup and meeting requirements of people to work for the organization was a real challenge. The region lacked even basic educational facilities. To attract and retain skilled manpower including ophthalmologists, managers, Information and Technology, and paramedical staff to such a remote and backward place was extremely difficult. Reduced connectivity and poor supply chain for sustaining and further scaling up of eye care activities was difficult. Regularization of eye care activities through the years with lack of management systems and absence of technical knowhow also stood out as barriers. Focus on quality assurance, and monitoring was minimal in those days. In spite of all these challenges, eventually the plan to create a high-volume high-quality rural eye care set up was successfully implemented in one of the most remote and backward areas of India. This article describes how "Rural based model of Chitrakoot" was established as a state of the art, high-volume eye care provider along with maintaining equal focus on higher levels of quality assurance.

### High-Volume Eye Care - Major Drivers

Access to care in rural areas, depends on various factors. The major factors which helped SNC improve its patient base over the years are -

#### Patients centric care

Ears to the ground: In rural India, people take opinions at face value and the 'word-of-mouth' effect influences the service sector. Positioning makes you unique and patients become your true ambassadors spreading information about your services. Focusing care around the patient and ensuring their satisfaction increases the reach of your services. In the case of SNC, hospital data shows that patients travelled large distances to avail trustworthy services. [Fig. 1].

#### Community engagement

Unlike urban and corporates setups, rural positioning is not feasible without ensuring community buy in and participation.

People in the community need a sense of ownership in the process and the problems. Success can be attained when one involves the community at every stage. A wider reach can be attained through effective community participation. With community engagement and involvement, today we conduct the largest number of outreach camps and have the largest primary eye care network spread across Madhya Pradesh and Uttar Pradesh. Several focused efforts including sponsors day, vision center foundation day etc., are organized to ensure active participation of the stakeholders. Outreach and vision center network of SNC are depicted in Fig. 2.

**Creating access to care**

There have been several additional challenges in creating access for the rural population including transportation, lack of health seeking behavior and lack of awareness. One needs to device models and mechanisms to ensure people have access to care at various possible points. Apart from direct walk-in patients, we have regular outreach programs which reach out to the rural population on a continual basis. In order to bring patients from remote and rural areas of Madhya Pradesh and Uttar Pradesh, transportation facility is provided to and from the base hospital. Specialized screening camps as for Diabetic Retinopathy are also conducted on a regular basis.

**Ensuring affordability**

To ensure that all the segments of the population avail the services, we need to device a sustainable mechanism of financing eye care services. SNC adopted a model similar to that of the Indian Railways wherein the decision on payment for a service is in the hands of patients. But we added free service as our organizational policy 'no one should be denied treatment due to their inability to pay'. This is being followed in our models. SNC is one of the few tertiary care institutes which also provides specialty services to camp patients completely free of cost. Today people from all segments of society access care [Fig. 3] establishing SNC as a large charity with an equally competent sustainable eye care model.

**Partnership and collaborations**

To work in underserved areas and provide care in a sustainable manner, one needs to collaborate and partner with both health and non-health sector groups and voluntary organizations.

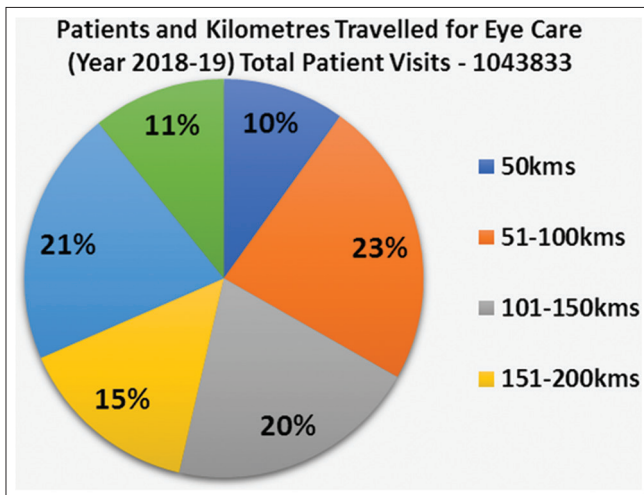


Figure 1: Patients and distance travelled for eye care

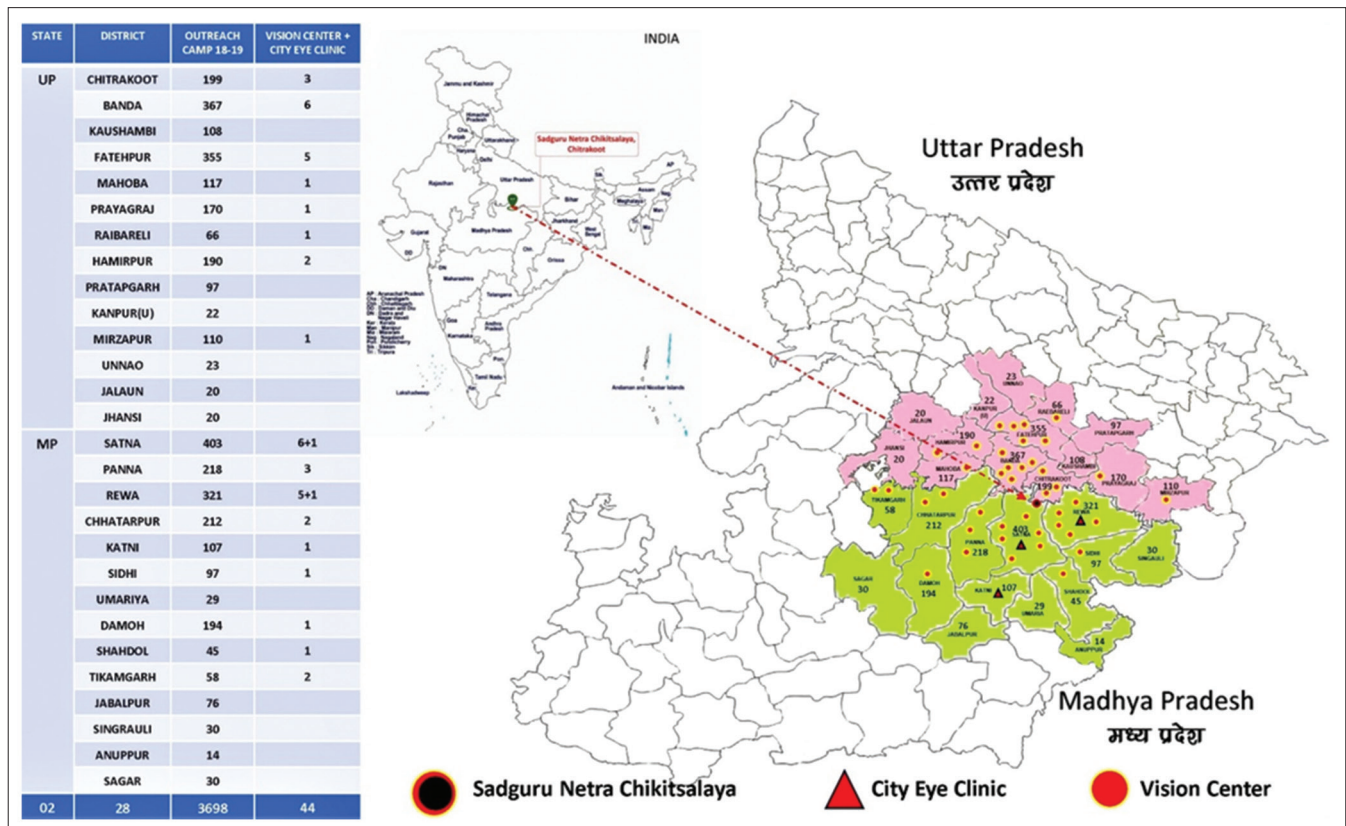
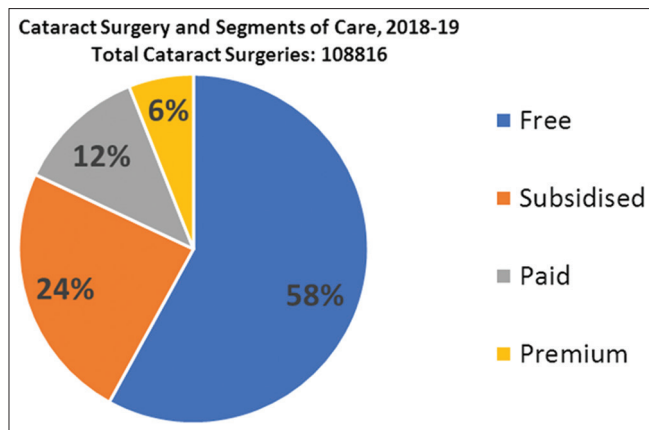


Figure 2: SNC outreach network



**Figure 3:** Affordability chart of SNC

This will be helpful in gaining more community trust, sharing financial burden, and training and skill development. Presently, SNC partners with several INGOS, NGOs, and governments at local and state level through which several programs are undertaken. This provides a base for increased utilization of eye care facilities at SNC.

### High Quality Eye Care - Major Drivers

In the eye care field there is a notion that quality and quantity don't go hand in hand, but to a large extent, we at SNC have been able to achieve both. Being located in a rural area, there are certain limitations of working, but in spite of all these, we work towards achieving quality outcomes in a high volume situation. There are certain aspects of functioning which help us to deliver high quality eye care services to the rural masses and the same are as follows:

#### Organizational culture and values

While working in a rural set up one often makes compromises in service delivery parameters. At SNC, right from the top management, everyone is committed to provide the best possible care to the patients, which in itself represents culture for the success of the organization. All employees at SNC work towards the vision of "Sight for the Blind". Every single day, one can see the same dedication and commitment to work. This is reflected in the fact that a large proportion of the work force has been associated with the organization for over two decades and a few of them have been involved right from its inception. The devotion of senior workers acts as a source of inspiration for the junior staff, which makes the continuity of quality eye care a reality. The involvement of volunteers and the local community gives a further impetus. To top it all, the most important aspect of eye care delivery at SNC involves utilization of the same resources for all patients irrespective of their ability to pay.

#### Infrastructure and facilities

The key to delivering high volume quality eye care lies in providing cutting-edge infrastructure and facilities. There are 25 modular operating theatres at SNC. They are shared across paying and non-paying patients, delivering similar quality outcomes across all categories. The organization keeps itself up-to-date with the latest ophthalmic equipment and gives regular training to its personnel on using it. Exclusively,

several wards have been dedicated to cataract alone with a bed capacity of 250 in each. All specialty services (retina, glaucoma, cornea, oculoplasty and pediatric ophthalmology) are available under the same roof with the most advanced diagnostics and treatment facilities.

#### System and protocols

A standard of care has been developed to manage high volume service delivery without compromising on the quality. This standardized care is delivered across all strata of patients - non-paying, subsidized and paying. Surgical steps practiced by all the surgeons are similar in order to minimize the surgical time. Surgical SOPs at SNC are evidence-based, with separate instrument sets for every surgery, single use sterile gloves for every case, use of good quality disposables and intraocular implants, changing gowns between cases and separate septic theatre for infected cases, etc. Regular surveillance of the operating theatre is carried out by taking weekly swabs from critical areas, fortnightly air cultures and water cultures every month. Every new batch of consumables for intraocular use is cultured prior to use. The single most important aspect of OT protocols involves a separate sterile and dirty corridor and a conduit for the flow of material without the possibility of being mixed. This system helps the team to manage the increased volume without any compromise in quality.

#### Human resources training and academic orientations

Recruitment of well trained and qualified staff for effective eye care delivery is important. All the faculty are well-versed and proficient in current clinical and surgical procedures. Regular training of junior doctors is undertaken through a state of the art wet lab and structured fellowship programs. Emphasis is on absorbing faculty from the training doctors pool in order to deliver standardized and quality eye care. Weekly CMEs, journal clubs and classes are held to keep everyone updated with the latest in eye care. In order to keep the employee motivated, they are honored for their hard work, dedication and commitment to the organization and its ethics. There is an onsite nursing college, optometry school and vision care technician program to generate trained staff for the organization.

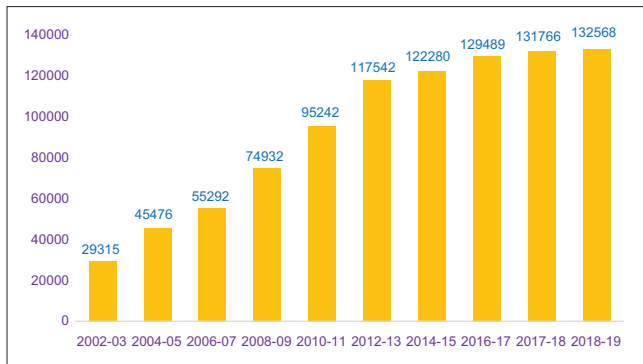
#### Focus on continual improvement

We are an ISO: 2015 certified organization, reflecting our organization's commitment to continuous quality improvement. We are compliant with NABH standards awaiting final assessment and accreditation from the board. All quality norms are in accordance with national and international guidelines. The eye hospital has a quality wing which strives for excellence in eye care by regularly monitoring and improving SOPs. In order to keep abreast with the latest technology in eye care, the institute is not weary of adapting to new procedures and techniques and this is evident in our moving from the era of ICCE to ECCE to manual SICS and phacoemulsification. We implant IOLs Implantation for every patient and 30% of our cataract surgeries are by phacoemulsification.

### Results

#### High volume provider:

With effective and efficient strategies, the organization has been able to keep the steady phase of its growth in reaching



**Figure 4: Eye Surgeries at SNC**

the rural mass and provide eye care. Year-on-year it shows improved the volume with a precise focus on outcome and comprehensiveness in care. The volume of surgical operations increased from about 30,000 in the year 2002-03 to more than 132,000 in the year 2018-19, a phenomenal growth of almost 400%. [Fig. 4] With a focus on providing comprehensive eye care to rural masses, the organization took several steps from building infrastructure and skill development to adopting newer technology and techniques. This resulted in increasing the access of affordable subspecialty services in the region.

#### Quality assured practices- complications and surgical site infections

With increasing volumes, maintaining or further improving the quality of services presents a great challenge to any organization. We took several steps to reduce our infection. These include a strict sterilization protocol, adherence to standard operating protocols in the theatre, adaptation of preoperative prophylaxis for prevention of endophthalmitis, including the peri-operative use of intracameral antibiotics. Similarly, the state of art wet lab training facility for the trainee surgeons as well as one to one training program has resulted in significant reduction in complication rates of novice surgeons. Our cumulatively infection rate over a period of 5 years is 0.04%, which is at par to the acceptable global standard of <0.07. Similarly, the complication rate reported during the last 5 years' period of time is 0.83%, which is again better than the considered benchmark of <2%.

#### Compliance to care and cataract post-operative visual outcome

In spite being located in rural area and serving a radius of 400 km, the hospital was able to ensure an adequate postoperative follow up for the cataract patients. Compliance was assured by effective counseling of patients, follow-up specific camps, follow-up at vision centres and through an active support of community level volunteers. Also, the compliance is being closely monitored and improvements are tried to be made on an ongoing basis. If we look at the cumulative post-operative visual outcome (4 weeks follow-ups) over a period of last 5 years among the reported, 92% of the patients who underwent cataract had good ( $\geq 6/18P$ ) visual outcome (>90% WHO's benchmark) and 4.65% had borderline (<6/18P to 6/60) visual outcome (against <5%) and only 3.35% patients had poor (<6/60) visual outcome (against <5%).

## Way Ahead

Among all the medical visits in India, more than 80% are contributed by rural population, with most of the patients travelling over 100 km to access health care facilities.<sup>[2]</sup> Changing disease priorities in ophthalmology will lead to further problems in terms of accessibility and affordability. Development of comprehensive eye care facilities in rural areas with community participation may be an optimal solution. The Chitrakoot Model remains a unique example of how a most backward rural area can become a hub for advanced eye care services and provide high volume, high quality care in an optimally cost-effective and sustainable manner. If a successful model can be established in Chitrakoot, then it should be possible to replicate it everywhere across India. We wait for such a day with deep optimism and hope.

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	<b>DOI:</b> 10.4103/ijo.IJO_61_20

**Cite this article as:** Jain BK, Jain E, Kuyyadiyil S, Sen A, Sood D, Bajaj A. High volume and high quality eye care - Bridging the paradox. A unique rural based approach – The Chitrakoot model. *Indian J Ophthalmol* 2020;68:294-8.

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#### **Dr BK Jain**

BK Jain, Director and Trustee of Sadguru Netra Chikitsalaya, Shri Sadguru Seva Sangh Trust is a renowned name in the eye care domain for his contribution to the community eye care movement in rural India, specifically in the Central and Northern Indian states. He was successful in establishing a rural based state-of-the-art eye care facility Sadguru Netra Chikitsalaya, with arms of program management, training, research, advocacy and and advocacy. Under his able guidance, Sadguru Netra Chikitsalaya not only has become one of the largest rural eye care providers in the world, but also has come to be an unique example for developing rural areas through eye care programs. Dr Jain has been honored with several international and national awards for his outstanding contributions and has also been included in several committees including the advisory committee of National Program for Control of Blindness (NPCB).