Private funded quality health care in India: a sustainable and equitable model

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Abstract

Objective. As the cost and degree of training necessary to provide state of the art health care has increased throughout the world, the present challenge in health care is to establish institutions that are financially sound and responsive to the dynamic needs of the communities in which they exist. As public funds have diminished, the role of the private sector in establishing innovative health care institutions has increased.

Setting and study participants. This paper reviews the case of the LV Prasad Eye Institute (LVPEI), an ophthalmologic institute in Hyderabad, India, that is financially sound and medically vital. With an annual budget of US$3 million, 180,000 patients are seen and 23,000 surgeries are performed at the Institute and its satellites each year.

Main Measures. The Institute provides patient care at a ratio of 1:1 non-paying to paying patients through fee cross-subsidization. The Institute uses a combination of financial modalities, including donations, grants and fees to administer its non-patient care programs. Non-clinical programs of the Institute include a paramedical training program and a fellowship in ophthalmology, an internationally accredited eye bank for the preservation of corneal tissues, a rural out-reach and education program, a basic science and epidemiology program that directs health policy activities of the Institute and a rehabilitation program for patients with incurable visual deficits. To evaluate its effectiveness, LVPEI uses quality improvement measures, including patient surveys, post-operative outcomes studies and service utilization reviews.

Conclusion. This case report of a privately-funded medical institution describes a successful model through which high-quality, equitable health care can be provided in a developing country. The LVPEI's active program of quality management, its academic commitment and programmatic relevance to the needs of its community should be modularized and replicated to establish equitable, efficient and effective health care institutions in the developing world.

Keywords: delivery of health care, education, eye diseases, hospitals, India, medical, quality of health care, rural health services, voluntary
India is fraught with feelings of misgiving and skepticism, therefore Indians will pay for non-governmental providers despite tremendous variability in the quality of care in the private sector [5]. Funding institutions such as the World Bank are promoting participation by privately organized institutions in the delivery of health care [7]. At the same time, ‘restructuring’ of health care finances in India has shifted the burden of public health funding to the State [8,9].

In 1994 the World Health Organization estimated that globally, the burden of serious visual impairment was around 148 million people, which, in two-thirds of cases was preventable or surgically correctable. One percent of the global burden of blindness is in India [10]. An earlier survey conducted by the Indian government (1986–1989) found a 1.49% prevalence of blindness; 80% of these cases were secondary to cataract [11]. Demographic changes such as population growth and aging, together with low utilization of surgical services have resulted in an increase in the number of people at risk for age-related cataract (people 50 years and older) [12]. In India, despite a large number of trained physicians, physician-to-population ratios are unfavorable given the absolute numbers of inhabitants (40:100 000) [2]. Additionally, the distribution of ophthalmologists favors urban over rural settings by a factor of ten [12].

### Overview

In 1983, Dr. Gullapalli Rao, Clinical Associate Professor in Ophthalmology at the University of Rochester, New York and Medical Director of the Rochester Eye Bank, returned to his home state of Andhra Pradesh to establish ‘a model of high quality, comprehensive eye care to be delivered to patients irrespective of ability to pay.’ Hyderabad is the capital of Andhra Pradesh, the fifth largest and fourth most populated state in India (population 80 million). Andhra Pradesh is a typical state with respect to its economic strength, availability of health care and level of literacy; the prevalence of blindness is 1.84% [13]. We will describe how this privately managed and funded medical facility was organized to thrive within the framework of the Indian health care system.

Working with an annual budget of approximately US$3.0 million, 150 000 patients are seen and 20 000 surgeries are performed at LVPEI (Table 1). Additionally, the institute’s two rural satellite clinics handle approximately 30 000 patients and 3 000 surgeries on an annual budget of $90 000. Thirty percent of LVPEI’s patients are from Hyderabad, 30% from other cities in Andhra Pradesh, 1% are international patients and the remainder come from throughout India. Two thirds of India’s blind persons live in one of six southern states [11].

### Challenges

The challenges to establishing this Institute can be classified into three areas: fiscal solvency, programmatic focus and quality management. Initial efforts to establish the Institute involved fundraising, building a physical facility that would embody the vision of its founder and recruiting and training personnel. As the Institute developed, new challenges arose:

(i) developing paramedical training programs and a fellowship in ophthalmology
(ii) establishing a modern eye bank for the preservation of corneal tissues for transplantation
(iii) conducting basic science research and investigating the epidemiology of eye disease in Andhra Pradesh
(iv) developing a rural out-reach program suited to the needs of the region
(v) designing a rehabilitation program for the visually impaired
(vi) instituting a finance mechanism to fund the Institute’s programs

### Table I LVPEI income and expenditure statement for the period April 1999–March 2000

<table>
<thead>
<tr>
<th>Category</th>
<th>US$</th>
<th>% Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient care services</td>
<td>2 086 414</td>
<td>63%</td>
</tr>
<tr>
<td>Training fees</td>
<td>36 847</td>
<td>1%</td>
</tr>
<tr>
<td>Recurring grants</td>
<td>571 522</td>
<td>17%</td>
</tr>
<tr>
<td>Donations</td>
<td>612 764</td>
<td>19%</td>
</tr>
<tr>
<td>Total</td>
<td>3 307 547</td>
<td>100%</td>
</tr>
<tr>
<td>Capital</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equipment</td>
<td>232 908</td>
<td>7%</td>
</tr>
<tr>
<td>Buildings</td>
<td>652 796</td>
<td>21%</td>
</tr>
<tr>
<td>Recurring</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Salaries</td>
<td>946 127</td>
<td>30%</td>
</tr>
<tr>
<td>Medical supplies</td>
<td>559 543</td>
<td>19%</td>
</tr>
<tr>
<td>Administrative expenses</td>
<td>657 007</td>
<td>21%</td>
</tr>
<tr>
<td>Training expenses</td>
<td>40 723</td>
<td>1%</td>
</tr>
<tr>
<td>Maintenance</td>
<td>75 798</td>
<td>2%</td>
</tr>
<tr>
<td>Total</td>
<td>3 164 901</td>
<td>100%</td>
</tr>
<tr>
<td>Surplus/(deficit)</td>
<td>142 646</td>
<td>5%</td>
</tr>
</tbody>
</table>

125% national, 75% international donations (cash and equipment).
2Fundraising efforts account for 1% of expenditures & 20% of income.
3MDs / PhDs (51%), administrative staff (22%), others (27%).
Privately funded health care in India

Table 2 Top contributors to LVPEI

<table>
<thead>
<tr>
<th>Local</th>
<th>National</th>
<th>International</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mr. L. V. Prasad</td>
<td>Mr. B. R. Barwale, Mumbai</td>
<td>Bausch &amp; Lomb, USA.</td>
</tr>
<tr>
<td>Dr. K. Anji Reddy</td>
<td>State Bank of India, Mumbai</td>
<td>Institute for Eye Research, Australia</td>
</tr>
<tr>
<td>VST Industries</td>
<td>Mr. B. V. Rao, Pune</td>
<td>Sight Savers International, UK</td>
</tr>
<tr>
<td>KLN Trust</td>
<td>Mr. B. D. Sureka, Calcutta</td>
<td>Mr. Subba Rao Makineni, USA</td>
</tr>
</tbody>
</table>

Fiscal solvency

According to the World Bank Group, in 2000, India’s gross national product (GNP) per capita was approximately US$440 [14]. Total per capita health care expenditure was US$23 [5.2% of gross domestic product (GDP)]. Although private and corporate health insurance is available through employment in India, health care is an out of pocket expense for 95% of patients due to the high unemployment rates. Private expenditure comprises 87% of total health expenditure [15]. Given this backdrop of health care financing, health institutions in India often employ a combination of financing modalities to achieve financial security.

Donations

In 1984 the Indo-American Eye Care Society was established in the USA to raise funds for the LVPEI. In India, a million dollars and several acres were donated by the charities of movie producer LV Prasad. The bulk of capital expenditures including start-up funds, expansion and equipment purchases were made through donations from individuals overseas interested in promoting the advancement of their native community. The Institute has volunteer and paid fundraisers who cultivate relations with philanthropic organizations and the ophthalmic industry. This effort accounts for 1% of the Institute’s expenses but provides 20% of the Institute’s funds (25% national, 75% international) (Table 2). The Institute is in the process of establishing an endowment for its future financial stability. Additionally, LVPEI secures donations of equipment from corporations eager to showcase their instruments at its training institutes. Approximately 25% of equipment is donated, 50% is obtained at or below cost and 25% is purchased at market values. Beside tax benefits, sponsorship of legitimate charities is a common mechanism by which Indian corporations promote a positive public image. To avoid possible hidden agendas, LVPEI only accepts donations given unconditionally.

Grants and public monies

In order to maintain administrative autonomy the Institute does not accept governmental and international development funds as they are often accompanied by regulatory constraints. On the other hand, LVPEI’s programs of research, rehabilitation and rural outreach compete for and receive grants including sums from the USA and Australia. Although grants provide 17% of the Institute’s annual revenues, these divisions of the Institute still depend on clinical fees.

Fees

Fees generate the Institute’s patient care expenses and sustain the bulk of research, rehabilitation and outreach (Table 1). If capital expenditures were not covered by donations the proportion of non-paying to paying patients would have to be shifted from 1:1 to 1:3. Paying patients are classified according to four tiers of financial ability. Non-paying patients comprise approximately 38% of outpatients and 50% of surgical patients. Inability to pay is based on eligibility for government ration cards and hospital staff are authorized to change a patient’s status to non-paying.

In 1999 the fee schedule was seen as a potential source of increased income since it had not been changed in 5 years. To attract paying customers, in 2000 the Institute built luxury suites with access to office and computer facilities to accommodate their families. The monies collected from these suites pay for the dormitory style rooms of non-paying patients. This system of cross-subsidization promotes equity as it supports quality. This model is replicated with success in parts of India, Nepal and Bangladesh.

Programmatic focus

Basic science research

Before the establishment of a research division, the staff at LVPEI collaborated with Hyderabad’s Center for Cellular and Molecular Biology. In 1997, the Institute’s clinical and investigative programs had progressed to a point where a division of basic science could be established. The Institute presently enjoys an excellent international reputation for its clinical research and publications; its staff is often invited to present their findings at ophthalmologic conferences. LVPEI’s research scientists are encouraged to excel scientifically and to compete for research grants in order to become financially independent of clinic funds.

First eye bank in Asia with international tissue banking standards

The Eye Bank Association of India (EBAI), a leading non-governmental organization, was formed in Hyderabad in 1989. EBAI recommended a framework for the development of eye banking in India and encouraged governmental support for national eye banking standards. The executive director of EBAI, Lalitha Raghuram, states that although ‘very few eye banks in the country follow medical standards in the strictest sense . . .’[The private sector eye banks are the most well performing ones’ [16].
In 1989, LVPEI established the first advanced eye bank in Asia due to the lack of availability of human tissues for procedures such as corneal transplantation. The primary challenge was developing protocols and guidelines necessary for the procurement, preservation and distribution of donated tissues. After three years of work in consultation with Tissue Banks International in Baltimore, Maryland, a program satisfying international standards of eye banking was established. The Institute participates in regular public awareness rallies to educate the local population about donation of tissues for transplantation. Statistics are collected to monitor the success of the donor program and its effectiveness in the community.

**Educational Center of Excellence**

On the national level, medical and paramedical training are not standardized and the latest innovations in ophthalmology are inaccessible to many students; in fact estimates show that there is a shortage of surgically trained ophthalmologists in India [17]. The Institute has become a Center of Excellence conducting training programs both for fellows in ophthalmology and for technicians in a host of paramedical specialties including optometry, operating room technology and eye banking.

To foster in-house employee skills, a systematic program of personnel training and performance review was instituted. LVPEI has 360 staff, including 16 full time salaried ophthalmologists, 2 internists, 6 part time anesthesiologists, 20 optometrists, 10 basic scientists, 5 directors and 30 administrators. The following steps were taken to advance paramedical, medical and administrative skills within LVPEI:

(i) Training programs to develop technical skills and service-orientation of general staff.
(ii) Funds to enable the participation of LVPEI professional staff in medical conferences and research internationally.
(iii) Training programs conducted by Zurich Financial Services for administrative staff.

Given its state of the art equipment and overseas-trained physicians, the LVPEI is a center for continuing medical education. Over the past twelve years, more than 7000 eye care professionals have enrolled in short- and long-term training programs at the Institute. Expenses for these programs are defrayed through corporate grants and training fees.

**Patient rehabilitation**

In 1991 LVPEI developed the first rehabilitation center for the visually impaired on the campus of an ophthalmologic hospital. This proactive program enables adult and pediatric patients to become self-sufficient in activities of daily living. Parents of pediatric patients are trained to optimize their child's development. The center networks with international organizations to design an integrated public education system in Hyderabad for visually handicapped children. Ultimately, this division will promote early intervention for all disabled children through public campaigns and a series of rehabilitation and vocational training programs.

**Rural outreach**

A preliminary study by the Institute discovered cultural barriers to seeking eye care in rural communities. To remedy the situation, in 1991 a network of satellite centers for screening, treatment and education of patients in remote areas was established. This program, spearheaded by an ophthalmologist trained in public health, conducted a systematic survey to determine the major ophthalmologic needs of the region [18,19]. These satellite centers are connected with the ophthalmology fellowship program; selected graduates spend their final year operating in and managing these centers. In time, these satellites will be programatically and financially independent and rooted in the local community.

**Product development**

To provide cheap and reliable supplies of basic eye care products, the Institute developed cottage industries in association with local businessmen. These enterprises employ local individuals and supply low cost eye care products including high quality lenses and corneal preservative solution. The preservative solution is made with donated materials and is supplied at no cost to eye banks in the region.

**Quality management**

A successful health care institution must regularly evaluate its programs and personnel in order to build on strengths and respond to programmatic deficiencies as they relate to the needs of patients. Although a comprehensive method of quality improvement is still in the process of development at LVPEI, quality management is data driven and is conducted at multiple levels. Regionally, the Institute surveys disease prevalence and programmatic effectiveness to implement policy. Locally, it tracks patient adherence, post-operative outcomes, costs and utilization of services. Finally, several innovative personnel policies promote a dynamic culture at the Institute.

**Survey of regional programmatic effectiveness**

To define the Institute's objectives, the administration conducted a survey of the region [20]. The survey examined the prevalence and economic burden of disease, the effectiveness of existing treatment options and the acceptance of these options within the community. The administrators believe that patient needs should drive the Institute's programmatic focus and regional eye care policy.

**Internal quality assurance endeavors**

*Patient driven quality improvement. *Patient care processes at the Institute are centered on the visually impaired. Flow is patient-oriented. Greeters' welcome and escort each patient to a visiting room to which their caregivers come. The patient's chart remains in this room to maximize communication between team members. Corridors and walkways are free of impediments and furnishings. Lighting and paint ensure maximum contrast to optimize patient mobility.
Weekly patient surveys are administered at the Institute to track the success of the patient-oriented programs. Patient-oriented outcome measures include patient experience with care teams and administrative staff, as well as patient satisfaction with medical, surgical or diagnostic interventions. Surveys evaluating the effectiveness of discharge instructions provided by the hospital’s team of nurses and counselors show that there is a 70% adherence by in-patients with discharge instructions. Patient adherence and the effectiveness of patient education are two measures that are tracked. Approximately 75% of inpatients and 25% of outpatients return surveys.

Outcome measures for quality improvement. Retrospective analyses of incident reports, mortality and morbidity statistics and random chart reviews enable comparisons with national and international standards. Outcome measures that are routinely analyzed include success of cataract surgery and corneal transplantation and postoperative infection rates. Outcomes of cataract surgery (extracapsular cataract extraction and intraocular lens replacement; ECCE/IOL) indicate that 97% of patients at the Institute and 86% at its rural clinics obtained good visual acuity (better than 6/60) at 6 weeks follow-up. Comparative data from other Indian states indicate similar results: 91.1% good visual acuity following ECCE/IOL [21]. These results are similar to those from industrialized countries. In comparison, studies aggregating outcomes from three other Indian states (aggregate of ECCE with and without lens placement and intracapsular cataract extraction) found good acuity in 88.6% of hospital cases and only 79.5% of rural cases (eye camps) [22]. For corneal graft operations, LVPEI’s outcomes compare very favorably with those published in developed countries [23].

Summaries of operating statistics are reviewed at faculty meetings to guide policy development. The board of directors retains six computer engineers to develop and manage the Institute’s information systems. Additionally, the Institute has an audiovisual facility for slide and CD ROM documentation of patient pathologies and surgical procedures. Tracking this information enables cross-institutional comparisons, identifies programmatic weaknesses and strengths and enables LVPEI to justify continued financial support.

Cost effectiveness
Detailed financial audits and policy studies are conducted annually to implement standards for cost containment and maximize the Institute’s efficiency. For instance, an extensive investigation showed that expenses are recovered more efficiently by promptness in surgical services. Therefore, LVPEI revised the appointment system to reserve 50% of slots for surgical patients and the other 50% for medical patients. To further contain costs, the Institute started to investigate the possibility of performing a number of surgeries on an outpatient basis for select patients. Institutional studies showed that patients with adequate preoperative education did just as well post-operatively at home as when hospitalized. This outcome prompted a reduction in bed numbers and an increase in outpatient procedures. The Institute has gone from a peak of 110 in-patient beds in 1989, to a present number of 60 and a projected number of 20 beds, despite an increase in total surgeries performed.

Transforming the culture of the workforce
To promote the Institute’s policies and enhance employee participation in the implementation of these policies, a hospital-wide meeting is held monthly. During this meeting members of the staff are publicly acknowledged for excellence and individuals are encouraged to raise questions and make recommendations to the administration. To further staff development, a benefits package that includes an education and personal hygiene allowance (for clothing and other personal effects) is provided. Hospital staff informally report that their commitment to the Institute lies in their respect for the values embodied in their workplace and its employee-oriented personnel policies, which are supported at the highest levels of the administration. Competitive salaries and fair treatment with regard to annual reviews further promote employee excellence.

Conclusions
To summarize, the success of LV Prasad Eye Institute can be attributed to close attention to three areas of health administration: fiscal solvency, programmatic focus and quality management.

The Institute’s financial independence enables its board of directors to govern its affairs through an internal process of needs evaluation, rather than an externally imposed set of mandates and regulations. Funds for capital expenditures are secured through private donations and institutional grants that have no programmatic hold on the Institute. Therefore, local needs may be addressed in a timely manner. The challenge for providers interested in the health of the entire community is to extend care both to those who can and those who cannot afford it.

LVPEI’s reputation for delivery of high quality care enhances its ability to raise funds and foster new initiatives. The Institute’s strong clinical program is accompanied by successful research, rehabilitation and outreach programs. In order to standardize care, the Institute adopted protocols, clinical guidelines and mechanisms of internal review before any patients were seen. Clearly defined standards of practice set it apart from other medical institutions, including long-standing private and public ophthalmologic hospitals in Hyderabad. Patients were assured of a systematic and equitable method of care and contributors were assured that their donations would be utilized.

The secret to the success of the Institute lies in its patient-oriented, multi-layered approach to self-evaluation and to the active implementation of corrective measures. A major challenge in health care is establishing institutions that are responsive to the dynamic needs of the communities in which they exist. The development of quality assessment is supported at the highest levels of administration and is the basis of the Institute’s policies and ‘culture of accountability’.
Interestingly, this is just the type of internal accountability and regulation that the OED believes is a necessity ‘if the private sector will continue to serve the public health goals in India’ [14]. Although LVPEI does not take public monies, their efforts at internal quality improvement approach the level that might be required of the health sector if public money was to buy private services. The Institute has slowly become known amongst members of the Ophthalmologic Society for its endeavor to promote quality improvement measures.

The Institute is presently in a transition phase. Until now the success of the Institute has depended on the capable, charismatic and visionary leadership of Dr. Rao. As the hospital has grown, there has been a need to delegate a greater share of programmatic and management responsibilities to the five division heads. The present challenges at LVPEI include the successful transfer of leadership and the maturation of the research and rehabilitation programs.

On a more global scale, the Institute is working with health care groups interested in replicating the LVPEI model abroad. The Institute is collaborating closely with a number of non-governmental, privately sponsored institutions to develop state of the art eye care centers in diverse locations, including China. Summarizing the essential aspects of this Institute may produce similarly viable health care establishments in other parts of the developing world. The LVPEI is poised to live up to the highest aims of a quality health care institution: to actualize the principles of equity, efficiency and efficacy.

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**References**


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