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Interview

Compassionate, High Quality Health Care at Low Cost: The Aravind Model

In Conversation with **Dr G Venkataswamy and R D Thulasiraj**

Round Table

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Indian Institute of Management Bangalore



Compassionate, High Quality Health Care at Low Cost: The Aravind Model

In conversation with Dr G Venkataswamy and R D Thulasiraj

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Dr G Venkataswamy is Founder and Chairman, Aravind Eye Hospitals. Formerly Professor of Ophthalmology and Vice Principal at Madurai Medical College, Tamil Nadu, he has been Adjunct Professor at the University of Illinois, Chicago, since 1982. He has many publications to his credit and is a member/office bearer of many professional bodies including the National Association for the Blind and the Indian Academy of Medical Sciences. Among the many honours bestowed on him are the Honorary Fellowship of the Royal College Of Ophthalmology, London (2004) and the Padmashree (1973) by the Government of India.

R D Thulasiraj

R D Thulasiraj is Executive Director, Aravind Eye Hospitals.

The bottom of the pyramid is coming sharply into focus today, and the corporate world is beginning to sit up and take notice. According to C K Prahalad, 'If we can start thinking commercially about the poor, and respect them as customers rather than as wards of the state, we have a fundamentally different way of thinking about product development, use of technology, scaling and price performance.' Confirming this theory, a new business model is emerging in health care, exemplified by the Aravind Eye Care System, which reaches out to the masses and aims at being inclusive and affordable. In terms of productivity, quality, scalability and transferability, the model is of interest to management professionals and academics worldwide. Professors Janat Shah and L S Murty met with Dr G Venkataswamy, Founder and Chairman of the Aravind Eye Hospitals, and R D Thulasiraj, Executive Director, to try and understand the essentials of the Aravind Model.

A sense of compassion and commitment, and a strong leadership are key elements of the model. But what makes it a viable business proposition is the central principle that productivity is fundamentally related to demand. Volume brings down the cost and ensures the viability of the enterprise. Volume in turn is ensured by the combination of low cost, high quality and efficient procedures, as well as the appropriate use of information technology in spreading awareness among the people. The model can be replicated, and some of its principles are universally applicable – the appropriate use of manpower, reducing the time and costs, sharing innovative practices to improve quality, and so on. It is Dr Venkataswamy's firm belief that the focused efforts of top management experts could help usher in a health revolution in India.

Productivity

JS: We would like to understand the important elements of the Aravind model. To start with, how have you achieved such high productivity?

GV: Normally, you ask a doctor and he will say I can do four cataracts a day. If you offer more money, he can do forty. But when there is a commitment to giving sight, a different push comes. From 6:00 a.m to 6:00 p.m. we operate. And as in the case of any organisation that produces a lot more, whether it is computers or radios, the price comes down.

Modern technology has helped us increase the volume and at the same time improve the quality too.

hospitals. What are the kinds of interventions or actions taken to improve the productivity?

GV: Most of the district hospitals have eye doctors and they also do microsurgery. Their average in a year is 300 operations. This is only a fraction of what it is possible to achieve. And this is the situation world wide.

In England, once a general practitioner refers a case, the waiting time for surgery is eight months. But for a paying patient, there is no waiting period. Similarly, in the US, most people are insured, and the insurance company pays \$1600 for an intraocular lens (IOL) cataract surgery. A University hospital like Massachusetts University won't accept a patient who is not insured, because the government pays only \$300.

Aravind Eye Care System

About 45 million people worldwide, and nine million in India are needlessly blind. In 1976, Dr Venkataswamy, on his retirement from the Government Medical College, Madurai, set up the 11-bed Aravind Eye Hospital. His mission was to eradicate needless blindness, restore to these people the precious gift of sight, and provide compassionate and high quality eye care for all. Today the Aravind Eye Care System has grown to five hospitals with 2850 beds. The five hospitals together perform a total of 200,000 surgeries an year.

With its unique blend of spirituality and good management practices, Aravind has perfected the art of doing world class quality surgery at low cost for large volume. Although two thirds of the patients are provided free surgery, the Aravind Hospitals are financially independent, do not depend on donations, and make enough money to fund their own growth.

LSM: You say your doctors are working long hours because they have a sense of purpose. But that in itself cannot determine productivity. Your numbers of 400 surgeries per doctor per month are mind boggling compared to the averages in other

hospitals. Their costs include maintaining a theatre, which costs them \$150 per patient, and their estimated time per cataract is an hour and twenty-five minutes, which includes the time taken to clean up the whole theatre, the doctor to have a wash, a coffee break for the nurses and the doctor, and so on.

Exhibit 1 Aravind Eye Hospitals Patient Statistics						
Year	Out-Patient Visits			Surgeries		
	Free	Paying	Total	Free	Paying	Total
1978	18,251	15,781	34,032	1,045	1,320	2,365
1985	153,037	89,441	242,478	17,586	7,194	24,780
1990	338,407	227,243	565,650	31,162	17,896	49,058
1995	414,817	327,768	742,585	59,535	36,138	95,673
2000	763,888	567,105	1,330,993	134,498	58,267	192,765
2004 (Jan-July)	364,804	430,028	794,832	70,359	42,910	113,269

However, next door there is the Boston Ophthalmology Group, which can operate 20 cataracts or more in a day, and is willing to accept this \$300.

RDT: If you take the high tech service segment, productivity is fundamentally related to demand. There has to be demand for you to produce more. We were convinced that the fundamental thing was to attract patients and so we pioneered the screening eye camp approach. Traditionally eye camps used to be places where surgery was done in a makeshift theatre. People had to travel long distances to get there; many factors were sub-optimal, and therefore the overall efficiency was not very good. But here we have streamlined the processes, the scheduling and so on. We studied the flow of patients, improved the internal systems, and planned it so that the waiting time or the unproductive time is reduced and the actual operating time is maximised. In order to ensure that the surgeons do not waste time between surgeries, we have done some resource planning. This planning ensures that the number of cases a surgeon gets depends on his efficiency, and that we never have to postpone a surgery because we have run out of supplies.

LSM: It is one thing to ensure that resources are available so that the doctor does not waste time, but how do you reduce the time spent by the doctor? While the industry standard is 30 minutes, your doctors take only 10 minutes. How is that possible – still maintaining the quality, no complaints?

GV: At Aravind Eye Hospitals, each surgeon works on two operation tables alternately. We don't need to do everything ourselves. There is a team of paramedics and junior doctors to wash the eye, put the suture, give the injection and so on. The surgeon does his part and moves on to the next table. This practice is followed the world over. In the Heart Centre in Houston, for instance, the chief cardio surgeon does only

the critical aspects of the surgery, and in this way they do five or six heart surgeries a day or more.

JS: Doesn't having two operation tables close by increase the risk of infection?

GV: We have studied this carefully, and found that this does not increase infection at all. All over the world there are doctors who do more than 25 operations a day. Their infection rate is not higher.

RDT: It would be literally impossible to do a study on our own statistics because the infection rates are so low. So the best we can do is to benchmark our infection rates against published rates on a year by year basis. For instance, last year it was about 4 per 10,000 cases at Aravind, while the UK published rate was 6 per 10,000.

Quality and Culture

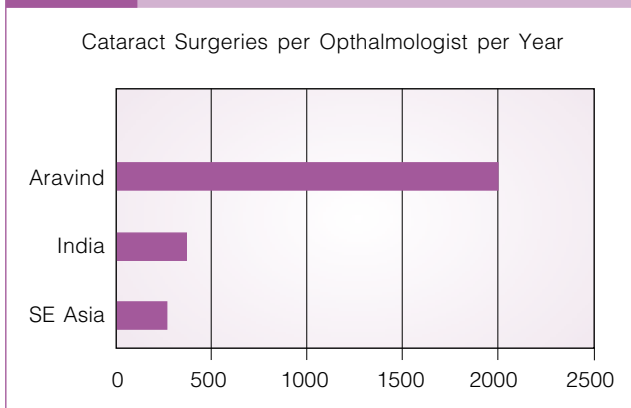
JS: Talking of quality, how has Aravind improved quality, which figures show to be better than the world average, and maintained it in spite of such large numbers?

RDT: One of the factors in achieving high quality is through organisation design, appropriate staffing, training and good systems. You have to pay attention to all the aspects. We have a very close outcome monitoring system, especially for cataract surgery, where every case sheet on discharge is fed into the computer and then analysed. We have developed a scorecard for the doctors, and we openly discuss the issues in our monthly meetings and take a consensus on different procedures. This is a constant update process – measuring, reviewing and then changing. We put in a lot of effort to follow up on every camp patient, to get a very high coverage on our system. Around 90% of the patients come back for follow up. We discuss many things including the outcomes of cataract surgery, the number of people recovering normal vision, intermediate vision and so on. Until recently, we used to do this at each individual location, but now, with video conferencing available in the hospitals, we have started putting it all together. For this, we will need to drastically revise the format.

JS: And can you determine quality in that time frame?

RDT: By and large, yes. It is very rarely that you get late stage complications; usually anything beyond that will be patient induced injury or something that is outside the purview of that particular treatment. So if you find everything is fine at

Exhibit 2 Comparison of Surgeon Productivity



One aspect on maintaining quality is that we don't take any chances. Whether a patient is a paying or free patient, all complicated surgeries are done only by senior doctors. Or if a patient has permanently lost vision in one eye, even a simple cataract will go to a senior doctor because the risk is greater.

the end of six weeks, you can be fairly sure that there will be no surgery induced complications.

JS: What are the incentives for a patient to come to a review meeting? Isn't the general tendency to avoid coming back, unless there is a problem?

RDT: We ensure that every patient will come by convincing him that the review examination is a part of the treatment.

GV: The government will not give you money for the camp unless you review. This system ensures that you are responsible for the people who have been operated by you.

RDT: Another aspect on maintaining quality is that we don't take any chances. Whether a patient is a paying or free patient, all complicated surgeries are done only by senior doctors. Or if a patient has permanently lost vision in one eye, even a simple cataract will go to a senior doctor because the risk is greater.

GV: We also keep a full time medical doctor who is available for patients with diabetes, hypertension and so on. So both the patients and the doctors feel confident that they have medical support. The doctor will also advise them on the risks involved if a patient has had a by-pass surgery or a kidney transplant.

RDT: The most important element in our system is our culture, which I attribute to the leadership. I think we are still a learning organisation; we have an openness to change and we have been able to develop a kind of atmosphere where people can talk about quality without feeling under pressure. We always believe there is something more we can do. For example, we do a screening of school children. Then we found that in cases where we had prescribed glasses, they children were not wearing them. So we made efforts to make sure they got their glasses and used them. Now our school screening cycle has become quite complex: we train the teachers in the first

screening. Then we go back after three months to check if the children are wearing the glasses, and if they are not, we try to find out if there is something we can do differently to improve compliance. So that is our mindset, to keep on improving processes.

LSM: What are the other important elements of the culture at Aravind?

RDT: One aspect is transparency in terms of charges, and in terms of the surgical procedures.

GV: Whether the patient is from the village or a big man from a metro, we tell them honestly what their problem is, what can or cannot be done to treat it, and what the fixed rates are. Over the years we have built an image, that we respect them and we don't treat them badly because they are poor. Now, even when there is a choice of three or four camps, people prefer the Aravind camp, whether it is sponsors or patients.

RDT: There is also a sense of compassion. Sometimes we end up spending more than the fixed charge on some patients in the camp, but we don't charge them for it. It could also be looked at as investment on image building. You do spend money but overall it pays back.

Human Resources

JS: Basically you are hiring from the same pool that will go to a government hospital or any other hospital. So how do you instil that sense of compassion in your doctors and paramedics?

RDT: The difference is mainly in the paramedics, because we have constant interaction with them. This begins right at the time of recruitment. In our selection process, we recruit young girls from the villages who have a certain amount of curiosity and a capacity for hard work. We interview the parents also, and look for commitment, so that we can be sure they will stay on. Most of them continue with us even after they get married because they are respected in the community.

In our meetings too, the discussion is often patient-centred. Senior staff members also attend eye camps frequently, so they keep in touch.

GV: In the case of paramedics, the retention rate is quite high because we do all the training; they don't have certificates from the government which will help them find jobs elsewhere. In rare cases, some of the doctors who leave us

take away a few nurses to start an institution. But retaining doctors is more of a problem, because once they get experience and make a reputation, a lot of doctors move to places where they get better money. Recently we have had discussions with youngsters in an effort to understand how to make the jobs attractive to them, how to retain them, how to improve their careers, the financial aspect, and so on.

RDT: Retaining doctors is a constant struggle, but we are slowly increasing our numbers – every year we add five or ten doctors. So we are focusing on how to keep them a little longer. One of the strategies is monetary incentives. We are paying market rates and we have now identified some time periods when salaries are hiked up substantially. So they stay a little bit longer – on an average, about four years.

JS: What is Aravind doing to advance the professional development of its doctors?

GV: We are developing some centres of excellence. In Coimbatore we are trying to develop a cancer department. Cancer of the eye needs special treatment, and we sent our doctor to New York for three months training. In the same way Tirunelveli is a Centre of Excellence for Glaucoma and has special equipment and well-trained doctors for the treatment of glaucoma. Among our staff, people may choose to specialise in some aspect. The centre in Madurai is especially good for paediatrics – it has a senior doctor who has trained a lot of people.

RDT: Such expertise depends on the doctors' own initiatives as well as the availability of infrastructure. For example Aravind-Coimbatore has developed into a good centre for handling premature babies with eye problems (ROP) since the city of Coimbatore has excellent facilities for the care of premature babies.

Free versus Paid Patients

LSM: Coming to pay and free patients, we are talking about volumes required, cost reduction, quality improvement, commitment etc. All these are going well with free patients. So where is the need for you to look at paying patients at all?

RDT: How else can you make it work? What about finances?

LSM: Your pricing for the paying segment is at most that of the free market. But here you have a low volume, lower than that of the free segment.

GV: But it is still much more than that of a private practitioner. For every thousand surgeries we do in a year, about 300

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come under the pay segment. That is ten times what an average private practitioner may do.

RDT: Our cost is much lower than a private practitioner's. To put it simplistically, we are to a large extent helped by the inefficiency of the private sector. For example, take an instrument that costs several lakhs. We would do 100 procedures a day on it, while a private practitioner would use it something like 5 to 10 times in a week. So we can recover the cost of the equipment much more quickly, and we can afford to buy the best technology.

So our cost of service for the one third paying segment is much smaller for us than for the private practitioner. If the private practitioner gets his volume, he makes very good margins, but we are helped by the fact that a normal patient would compare our price with that of the private practitioner.

LSM: The volume of the pay sector now seems to be increasing, both relative to the free sector, and in absolute terms. How would you explain this increase?

RDT: The absolute numbers have been growing, but not the relative numbers. In fact we have been having difficulties there – we want to maintain the 1:2 ratio, but it had gone down to 1: 4 for cataract surgery. We have been trying to correct it, and now it has come to 1: 3. I think the absolute number is growing possibly because of the growth in the economy. The pricing is roughly equivalent to three to four weeks' wages of a person. We offer the patient a menu card, in which the price varies from Rs 3000 to Rs 12000 on different techniques.

LSM: Aren't the growing numbers also explained by the fact that a patient sees a difference in your quality as compared to that of the market?

RDT: The fact that we are getting a larger chunk of the patients to come here means that they do see a better quality

proposition in Aravind. But obviously we don't get everybody, and private practice is also thriving.

LSM: Unless you're offering a better proposition, they wouldn't be coming in. But what intrigues me is that, in spite of the class distinctions in the country, people who can afford to pay come to a system that is known for delivering service to the poor. How would you explain that?

RDT: That I think is purely based on the quality. I have spoken to some of our patients and one of the solid factors is the transparency of our charges and the reputation we have built for not being money minded. We don't do things just for the money; we constantly review our clinical protocol and cut off things that are not strictly necessary, even if they have been bringing in money. Our staff and patients are all aware of this, and so they trust us more than they trust private doctors, many of whom will scare their patients just so they can charge them more. So we even have patients coming from Calcutta for a cataract operation. And then also right from the beginning, we have been projecting ourselves as a community hospital, not as a charity hospital. Service has always been our aim.

LSM: Traditionally, the pay segment is seen as paying for and hence subsidising the free segment. But here, we see the opposite happening – it is the free segment that has brought the large volumes, the quality and the credibility that facilitates the pay segment.

RDT: Actually it works both ways. In fact we have mapped it in the early period. Whenever we did a free camp we would find that after about two months the paying segment in that area took off. The local doctors also have more patients.

LSM: If there is a strong relation between the two, how do you determine the appropriate ratio, the 1:2 ratio that you aim at?

RDT: This is mainly based on our finances, on what it takes to make us financially comfortable. Then, with the economy growing and the middle class increasing, it also helps us to get a sense of what the market is like. In Coimbatore, for instance, the paying segment is larger than the free segment. And unless we have that mix, we risk being branded as a poor man's hospital, which is equated to poor quality.

JS: Do you find that free patients tend to accept whatever they get, and as a result there is not enough learning for your doctors?

RDT: Not only doctors, for everybody. Free patients will tolerate any thing; even if the place is dirty they won't complain. So your quality will really deteriorate. Whereas paying patients won't tolerate any nonsense, they would take you to court. We need a pistol at our back. Our staff are rotated between the paying segment and the free segment every month or two months.

JS: How did the idea of free camps originate?

GV: In 1961, when I was working for a government hospital, the Government of Tamil Nadu asked me to conduct four camps a year. They promised us Rs 750 for each camp, and the number of patients steadily went up. In all we could operate and feed 400 patients. We had the support of the people in a big way – personal support, monetary support, sponsors, volunteers for all kinds of work including cooking and feeding the patients. That is how the momentum came from the people. And it continues even today.

The camp organisation, consisting of sponsors and volunteers, plays an important role. Usually they form a committee, which organises the feeding of all the patients, the procurement of the rice, vegetables and so on. They do it much more efficiently than any contractor because they take pride in the work. So the numbers keep going up: for instance, one camp operated 1000 people in a day. All this created an image, and Aravind was equated with good care, irrespective of whether the patients are rich or poor.

Exhibit 3 Aravind Eye Camps			
Year	No of Camps Organised	Patients Seen	Surgeries of 'Camp' Patients
1997	1041	287,571	40,389
1998	1346	373,997	65,926
1999	1488	413,580	87,084
2000	1548	426,350	93,519
2001	1480	422,373	88,585
2002	1549	461,762	92,372
2003 (incl. Pondicherry)	1158	388,594	79,785

Backward Integration

JS: We see that you have started manufacturing the intraocular lens. Manufacturing is a completely different field, in which you don't really have any expertise. How did you take that decision?

RDJ: One of the things we used to say was that the quality of care was the same for the free and the paying patients. But after the introduction of IOL surgery, which was proven to be superior and was affordable only by the paying patient because of the high cost – initially we had to import the lens – that equity was lost. Even then we used to do the surgery for free patients if they were willing to pay for the lens. The main cost of the lens was the import price, and it came down over a few years from Rs 1800 to Rs 1000, but even then it was beyond the reach of the poor patients.

We strongly felt that the IOL was even more relevant to a poor man than a rich man because his living environment is less predictable, and the thick ‘soda bottle’ glasses that are prescribed after traditional surgery really restrict your vision. So from the functional point of view the poor would benefit more by the new technique, and we had to make it affordable for them.

At that time, the only bargain we could get was to buy non-moving stock off inventory at a lower price from the US multinationals. We were really pushed so we decided to examine this option. We looked at the technology and visited many of the factories, and found that the high cost of production was because of trying to develop a niche market, and it had to do with the shape or colour rather than the functionality of the lens. That is what really prompted us to get into manufacturing.

Going by Aravind’s earlier experience, we felt it was better to make it a separate entity as a non-profit manufacturing unit. Many people came forward to support that venture. We found a technology partner who provided the technology, the equipment, the training and the initial supply of raw materials. About 20% of the total cost was to be paid back as finished goods, which helped us both because he could sell the finished product at a higher price than what we owed him. This also ensured that quality was maintained. Setting it up as a separate trust with separate staff, and focusing on the outside market were some of the factors that made it a sustainable venture. I believe many other hospitals that went into similar manufacturing did not succeed because they were doing it as a part of the hospital’s activities.

GV: At one time, world experts, including those at WHO, said IOL surgery couldn’t be done in a developing country – that it was too costly, and it would be difficult for doctors to learn the new techniques and do such large volumes. The government was also against it, and felt that Aravind was derailing the eye care programme by working at a tangent. It was difficult for us to argue with them. So we just quietly

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went ahead and did it. This was a similar kind of challenge.

LSM: Is there a differential pricing for the profit and non-profit?

RDJ: In the beginning, we had a differential pricing, because we primarily wanted to push it to the charitable sector and the Government sector, which are both non-profit; and to validate the good quality we wanted the paying market also to buy them. But this became unmanageable because we couldn’t monitor it properly. Many customers had difficulty buying from us directly because we did not have any sales force. So now we have a dealer network coming in.

JS: Today what is the differential in terms of surgery without IOL and surgery with implant (with IOL)?

RDJ: Today, since we don’t have suturing, it takes the same time; in fact implant is faster. Initially there were not enough trained surgeons; but with the help of some funding agencies, who set up training labs, we were able to overcome this problem. The eight-week training has a good curriculum and is very professional. The Government of India has decided to adopt this curriculum in training centres identified by them all over the country.

JS: What is the logic behind manufacturing other products like medical sutures and so on?

RDJ: Same logic of bringing the cost down. That is the only logic.

JS: How do you get the technology for the sutures and so on?

RDJ: In all the cases we have bought the technology from private companies; for instance, there was one group whose technology was bought over by a multinational when they shut down, and after the period of non-disclosure we were able to get the technology.

There is a certain amount of room to experiment, so people report back on the benefits of new ways they have tried out. All over the world, there is constant improvement in new techniques and new methods of using equipment. And we are part of this process, and the sharing process that follows.

JS: What would be the typical cost structure for the sutures?

RDT: The suture is a monopoly, even now, of Johnson & Johnson. At one time the suture cost, at Rs 250, became more than the lens cost. But now that we don't need any sutures in eye surgery, we are trying to see if we can use that technology for cardiovascular surgeries. I think we are the only ones apart from the multinationals to have the know-how for micro needles.

LSM: Wouldn't that be shifting your focus from eye care?

RDT: It will to some extent but we have de-linked the manufacturing from the eye care.

GV: Competing with the MNCs is a challenge, because we can't afford to spend tons of money like they can. Recently, the Government of India called for tenders and they introduced a clause disqualifying companies that are less than five years old in that product.

Innovation and Sharing

LSM: Has Aravind developed any indigenous technologies by way of equipment, by way of treatment models to improve productivity?

RDT: We have perfected some surgical techniques. These are refinements of the procedures, rather than inventions. For instance, we have developed a manual sutureless cataract surgery instead of the usual suture done with instrumentation, with a certain kind of wound construction, you don't have to put in any stitches, it will close on its own. With such refinements, some of the faster surgeons can do as many as 10 to 12 surgeries per hour.

GV: There is a lot of interest in these methods. We conduct instruction courses and training courses all over the world as well as in India. Recently we conducted an instruction course in San Diego on specific techniques, and a training course in Indonesia.

JS: Do you have a specific research wing or a person who spends time looking at new ideas, championing them and so on?

RDT: It's not specifically looked at as research. There is a certain amount of room to experiment, so people will report back on the benefits of new ways they have tried out. Then we study it before we make it part of the system.

JS: Is there a system of rewards, financial or otherwise, so that people are encouraged to experiment?

GV: All over the world, there is constant improvement in new techniques and new methods of using equipment. And we are part of this process, and the sharing process that follows. For instance, if a doctor in Boston or Germany discovers a new technique, people go there to learn it, or the expert comes here to teach us. Our doctors also specialise in different areas. For instance we have a doctor in Madurai who is an expert at squint surgery. Madurai is now the Orbis centre for training in children's eye surgery, where groups of doctors, anaesthetists and technicians are sent for training. Doctors have the opportunity to make a name for themselves in specialised areas, and people come from all over the country to consult them.

RDT: I think sharing itself can influence quality. Once you share, your quality goes up.

GV: I guess it's like IT or any other field where development is taking place. When somebody is developing something we would like to know about it and see how we can use it. The Aravind model – cost effective, high volume, high quality surgery – has caught the interest of other countries. We are trying to work with institutions in various countries and it is a constant challenge for us to improve ourselves so that we can be better trainers. For instance, we are trying to train African hospitals to have a sustained management capacity and we are working with the Rotary Hospitals, the Lions hospitals, the mission hospitals; and wherever there was a strong leadership it is working well. Today there are 40 to 50 hospitals which have exceeded 5000 surgeries; some of them have done even 10,000 surgeries and they are able to retain their doctors. We want these to develop into institutions of excellence in each area, which in turn can train people, not

only in the technical aspects, but also the management aspects.

JS: What are the major changes in some of these issues at Aravind in the last twenty years?

GV: Today we are doing 2,00,000 operations a year, while twenty years back we did 8000-10,000. We are also doing capacity building of institutions. Aravind has trained thousands of people all over India, including over 1000 doctors in IOL microsurgery. The number of voluntary hospitals trained has grown to 165. In that way we have contributed a lot to the nation.

Transfer of Aravind Model

JS: What part of the Aravind Model can be transferred easily and what part of it do you have difficulty in transferring, when somebody comes to you for advice on improving productivity and viability?

RD: What we are able to transfer is the systems. But all said and done, the systems don't operate in a vacuum. There has to be that leadership which will make the system work in the way it should. We have studied the conditions in which it has worked or has not worked. Wherever the leadership was strong the change has been enormous. Where leadership has been weak, where it changes every year (as in Rotary Clubs and Lions Clubs) and where it is too far removed from the action (as in Mission hospitals), the transfer is less successful.

GV: At least 50% to 60% of the hospitals that have joined us from various parts of India have doubled their productivity. They are earning enough money to not only meet recurring expenses but also to save money to buy equipment or construct buildings and so on. So they have gained confidence and become financially viable or sustainable.

JS: You have demonstrated that this model can work in eye care. Would you say the Aravind model would work in other health care services?

RD: Eye care has some unique characteristics that make it possible to transfer the model directly. One characteristic is the high volume: about 20% of the population needs glasses, and 1% of the population has cataract, so you are talking huge numbers. Secondly, the intervention for the most part is one-time, because it is not a chronic disease, or one needing long-term treatment like cancer. The intervention is also quite low cost compared to other interventions – bypass surgery, for instance, costs about Rs 100,000.

Eye problems, like dental or hearing problems, do not have an economic bias. Certain diseases – malnutrition, hygiene-related diseases, etc – tend to affect poor people more. There the focus is as much on prevention as on cure. Our model is curative, and I think there are certain disease entities that would fit this.

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GV: I think this model must work in other health care also, whether it is in women's health or children's health, or cancer or tuberculosis. People like you must explore and see where this model can be applied. Our main focus should be on improving the total health of the country.

RD: Transferring it in totality may not be easy, but some principles are universally applicable – the appropriate use of manpower, reducing the time and costs, and so on.

JS: I think one challenge is to ensure that we don't get into the trap of a five star treatment model. This involves choosing technologies and processes that are appropriate to our environment.

RD: This is where an institute like yours should play a more proactive role. Somehow in health care all the new hospitals that come up are five-star and they are not doing well. Apollo is an exception, perhaps because they got an early start and have worked out a good formula. Many of these hospitals may become defaulters of payment as they have invested on non-performing assets. If you have marble flooring and air conditioning, only a certain type of clientele can afford to come. Today even MNCs like Levers depend on the mass market. That approach is what is needed in the health sector.

JS: Traditionally the idea has been to capture the premium patients, who can give you a margin. That

is the model these hospitals have been chasing.

RDT: They will try but the market is so small. The absolute numbers may be quite high because of our large population, but scaling up will be difficult.

LSM: Can a for-profit hospital, with predominantly paying patients, be benefited by using the Aravind model?

GV: Certainly. Once you have got all the equipment, the more patients you have the better. It is like a bus – if you are running at full capacity rather than half, you can give a 50% concession, provide the best service, and still make a profit.

LSM: But given the high incidence of the most commonly occurring eye care problems, I don't think any hospital will have under-utilisation. Secondly, with the type of equipment they get, they will implicitly have higher capacity, but in order to achieve high utilisation the doctors will have to work longer hours. How does this affect quality?

RDT: The reality is that most hospitals are under-utilised.

GV: There is also the public perception: a man doing 20 operations a day is generally considered more competent than one who does two operations a month. It is also important for people to have the confidence that they will not be turned away, and that their economic status is not important to the doctor. Poor people are often intimidated by hospitals. We want everybody to feel comfortable with us. I strongly believe that if we use information technology properly, the barriers between the rich and poor will go, and in ten years' time we can raise the level of health to that of the developed countries.

National Eye Care Scenario

JS: Are we in a position today to manage the large number of cataract operations required in our country?

GV: Until recently, we have been getting World Bank support but now our government feels that we no longer need that support. From 2002 to 2007, the government has allotted Rs 440 million for five years. Once we train the voluntary hospitals, they would be able to manage this task if they are given the opportunity, as the volumes are large.

The total number of cataract operations done last year all over India was about 4 million. Of this, 40% or more is done by the voluntary hospitals. The cheapest option is the NGO-organised training camps supplemented by surgery by skilled

persons at BASE hospitals. The government is willing to pay Rs 600 per surgery, and there are several voluntary organisations willing to do the operations, even though the actual amount paid is only about Rs. 525 with all the restrictions. That means it is economically feasible. And the patients are happy with the quality of care provided. How has the cost been brought down? By scale economies, outsourcing, and efficient methods of working.

Right now we are doing over 3000 operations per million of population, which is close to the figures of many developed countries. Our government feels that we can become a leader in achieving this eradication of blindness, and they have put a very good system in place. We get regular monthly, quarterly and annual statements on all the states and districts and the various organisations involved. This develops the confidence that we can achieve our targets. The Aravind model is being copied by other hospitals also, and this will help us achieve this target nationally.

Exhibit 4 Cataract Surgeries per Million	
States	No of Cataract Surgeries per Million of Population
India	
Andhra Pradesh	5703
Bihar	1010
Gujarat	8532
Jammu & Kashmir	984
Madhya Pradesh	3711
Nagaland	196
Pondicherry	9868
Punjab	5300
Tamil Nadu	7136
Uttar Pradesh	3269
West Bengal	3016
Some Developing Countries	
India	3250
Tanzania	329
Bangladesh	500
Nepal	900
Thailand	1667
Some Developed Countries	
USA	5000
UK	4500
Australia	6500

JS: Have you considered a different form of organisation? If you look at the cooperative dairy movement in Gujarat, they reap the synergy of working jointly with other organisations – for example, the way the milk route is planned for milk collection. Would such a system work here, where patients are collected say once a week and brought here, instead of conducting camps?

GV: The first step is to create awareness of a facility that can be used. It's like learning to use a public telephone or the Internet. Awareness alone will not create a demand: as we discovered in the early days, there is also the problem of ignorance, the fear of surgery; and even free treatment involves some expense for them. But with increased education and awareness the demand is growing.

However, the facilities are really inadequate. A lot of people don't have access to the camps. One survey found that only 7% of people with an eye problem were able to reach eye care. We have one eye doctor for 100,000 of population, and in the rural areas, there are some districts that don't have an eye doctor at all. A problem with camps is that we have to get government approval each time, as the government is paying for the surgeries. Sending patients to a local hospital instead is infeasible because the compensation often does not cover the hospital's expenses. We need to create a system that is economical and self-supporting so that we can help people to get better vision.

Future Growth of Aravind

JS: As you extend your attempts to eradicate needless blindness what challenges are you facing?

GV: We have set up programmes in Orissa, Bihar, UP... we put in our best efforts, but the demands are very great. Often we find doctors doing very well when they come here for training, but simply getting back into the old rut when they go back. This is an area where we need some help from business schools.

RDT: Actually the demand for capacity building is still not coming from individual organisations; it is something that we have to stimulate through different agencies. Even the government does not have the kind of strong focus needed. The south is doing extremely well while the numbers are really low in Bihar, Orissa and UP. The Government of India needs to redesign their programme to handle these shortcomings.

There is a WHO project called 'Vision 2020', aimed at eradicating blindness. But this is different from eradicating small pox or polio: you can't prevent blindness. You need to have good institutions – financially viable organisations with good human resources – all over the country, that can provide eye care to all economic classes in a community.

GV: There is a project called 'Vision 2020', started by WHO in conjunction with other organisations, which aims at eradicating blindness by the year 2020. But this is very different from eradicating small pox or polio: you can't prevent blindness. You need to have good institutions – financially viable organisations with good human resources – all over the country, that can provide eye care to all economic classes in a community.

Many NGOs working for the blind have focused their attention on the developing countries. A lot of money comes in, but money alone cannot build an institute. So they approach us for help in building and sustaining hospitals in these countries. It is a management task, training people to manage an organisation efficiently, handling people, handling money and things like that. The key lies in building capacity to run and sustain an organisation. We have been helping organisations all over the third world – in Nigeria, in Dacca, in Malawi – to utilise their funds effectively and improve their productivity.

RDT: The main challenge is that of leadership. Somehow we have to make them feel it is their problem, and not ours.

LSM: What is your experience of transferring the Aravind Model to for-profit and not-for-profit organisations?

RDT: There are very few voluntary hospitals that seek help on their own, at least initially. But once we have interacted with them, they have gone back and made changes in their way of functioning, and done much better. Then there is a constant interaction with us, and whenever a need arises, they ask us if we can go and spend some time. But even

Today, information technology and computers have reached the villages. Farmers and fishermen in villages now have access to all kinds of information, like health, market prices, education and developments in agriculture. If we can use information technology properly, I don't see any reason why people should be poor at all.

among NGOs, there are two kinds – those who are really attached to the cause, and those to whom the cause is merely a platform to raise money. By and large the former group does better, but even with the latter, we have some success if we are able to inspire them with a sense of service.

Until recently we did not have any for-profit organisations coming to us for help, but now a private for-profit hospital from Kerala has approached us for consultancy. Of course, a lot of private practitioners have attended our short-term courses, and some of them have asked us to help them expand.

JS: If you look at Aravind ten years from now, where do you plan to focus your efforts – on increasing the number of surgeries performed, giving more doctors to society, or helping more hospitals to improve their management capacity?

GV: What we are really aiming at is to have enough infrastructure to manage the blindness problem throughout the country, without leaving pockets of poor performers like Bihar. India is a big country, bigger than the whole of Europe, but we had the Green Revolution that made us self sufficient in food, we had Operation Flood which made us self sufficient in milk, and that shows we can develop both technical and management manpower in any arena. So far we have not been able to develop entrepreneurs in health from the management side. Everybody wants to be an entrepreneur in information technology or an associated field. We need to focus our efforts on health care also – it is an important research area, which needs top management experts.

JS: Would you be open to the idea of doing a kind of audit and certification of hospitals across the country – say on elements like integrity and quality?

GV: That is what we are doing in the capacity building programmes – we have different programmes catering to new hospitals, start up hospitals and existing hospitals. In fact, we are interacting with a finance organisation called Zurich Finances, which is also involved in social causes. They send some of their staff, who are experts in marketing, quality care, or finance, to study our systems and see what kind of impact our training makes on other hospitals. With this kind of guidance, we can fine-tune our system, so that we can achieve our aim of helping those hospitals to grow into institutions, training not only postgraduates, but also administrators.

Eye Care and IT

LSM: In the course of accomplishing your objectives, what are the barriers you come across? Do you sometimes feel frustrated?

GV: I always think of every challenge as an opportunity to work. Today, thanks to people like Prof. M S Swaminathan, information technology and computers have reached the villages. Farmers and fishermen in villages now have access to all kinds of information, like health, market prices, education, developments in agriculture and agro products, and movement of fish near the coast. If we can use information technology properly, I don't see any reason why people should be poor at all. Poverty must go. We can at least ensure that people have enough food and decent places to live.

With more than 1000 camps a year, we need to use information technology to improve access to eye care. We have trained village workers to identify common eye diseases. Now they go from house to house, identify common problems, advice people when they need to go to the hospital for treatment, and contact us by voice mail to give us information about patients they are sending.

LSM: I understand you are setting up kiosks in the villages, with the primary purpose of identifying their needs. One way of handling it is to look at the task of compiling the eye care data as a one time job, like a census – although the kiosks will continue even after this exercise is completed.

RDT: Once a patient comes into the system, there are many who can handle it. The real difficulty is in establishing a link with individuals who are outside the system. That is where the kiosks come in. They are also in a sense a business

proposition, because each is run by a technical person, who has invested Rs 50,000 to do this, and we have to ensure that he makes money. Although they are well equipped with a phone and so on, and get a certain amount of other business, the eye care part of it does not have sufficiently high volumes to be economical. You were mentioning cooperatives and optimised milk routes. In fact in the early days, we got the milk route of the Aavin Milk Society, and used it to send out people trained to diagnose cataract and other simple problems. So it is possible to leverage strong institutions like the cooperative milk society movement in Gujarat and the cooperative banks in Andhra. The M S Swaminathan Research Foundation is doing just that, and it is working very well in many areas.

GV: As C K Prahalad says, there is immense potential waiting to be tapped by using new technology for the benefit of customers at the bottom of the pyramid.

LSM: Which means that if we look at the Aravind Model and its contribution, we have a business logic, systems and procedures. Now what we need is good leaders or entrepreneurs who can take this out.

GV: Business schools like the IIMs have to produce them, provide the motivation, and make it possible for them to disseminate the model.

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