



ARAVIND EYE CARE'S VISION CENTERS – REACHING OUT TO THE RURAL POOR

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Shainesh G, Professor of Marketing, and Suhruta Kulkarni, prepared this case for class discussion. This case is not intended to serve as an endorsement, source of primary data, or to show effective or inefficient handling of decision or business processes.

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Vision Centres will help us achieve Aravind's Vision 2020: The Right to Sight. What should we do to ensure that all centres reach out to everyone who needs eye care? We have set up the centers, invested in resources but are we doing enough to reach out to all potential patients?

—R. Thulasiraj (Thulsi), Director – Operations, Aravind Eye Care

Thulsi was going through the performance report of the 51 vision centers (VC), set up by Aravind Eye Care Systems (Aravind), to provide technology-enabled eye care services to rural areas. Over 1.8 million consultations were conducted at the VCs across the state of Tamil Nadu from their inception in 2006. Although most VCs had performed well, some were facing challenges in attracting the targeted number of patients. Some of the key performance indicators for these centers include the number of patients reached, the number of patients identified with problems and treated, and the cost recovery for sustainability. Other performance measures included access to eye care in rural areas, awareness creation, and transformed health-seeking behavior.

Thulsi was wondering whether additional marketing efforts should be planned for the VCs which were attracting relatively lower number of patients. He was evaluating the option of implementing customized programs at each VC, considering the unique characteristics of each VC's potential market.

ARAVIND EYE CARE SYSTEM – FOUNDATION AND PHILOSOPHY

Dr. GovindappaVenkatswamy (1918-2006), popularly known as Dr. V, established Aravind Eye Hospital in 1976 when he was 58 years old. Dr. V received his medical degree in 1944 and joined the Indian Army Medical Corps but had to take early retirement in 1948, after he developed rheumatoid arthritis which made it very difficult for him to even walk. In spite of the debilitating pain, he returned to the medical school and earned his post-graduate diploma and Master's degree in Ophthalmology. Through sheer determination and hard work, he soon started conducting surgeries. He joined Madurai Medical College, a government-run medical school, where he served as the Vice-Dean and Head of Ophthalmology. During his stint with the government, he focused on programs to eradicate blindness.ⁱ

Dr. V founded Aravind Eye Hospital in Madurai at his home with 11 beds. His objective was to provide high quality eye care to all patients. Dr. V was inspired by Sri Aurobindo, an Indian philosopher who had his own vision of human progress and spiritual evolution. In 2015, Aravind had 10 hospitals, with over 4,000 beds, operational in the Indian state of Tamil Nadu (**Exhibit 1**). Over 35 million patients have been treated at Aravind since its inception. In 2014-2015, doctors at Aravind treated more than 3.5 million patients and conducted over 400,000 surgeries.ⁱⁱ

Aravind developed a unique model of eye care service delivery, in which high quality service was provided at very low cost on a sustainable basis. Every patient who paid, not only covered cost for two patients who could not pay but also generated a surplus for growth and expansion – owing to the large volumes it catered to. Even patients, who could afford to pay, paid considerably lower fees as compared to equivalent organizations – thus at Aravind, cross-subsidization was not used to sustain operations. Resource utilization was the focus at Aravind. Processes were designed to increase utilization of all capital equipment through large volumes, thus reducing the per usage cost. Doctors performed more

surgeries, averaging at around 2,000 surgeries per year as compared to the national average of less than 500,ⁱⁱⁱ assisted by trained local paramedics (mostly women). Aravind's focus on human welfare through high quality, low cost treatment available to a large number of patients, made it financially and operationally sustainable.

VISION CENTERS

The hospitals catered to all eye care needs of patients. Eye camps were conducted regularly to reach out to patients in small towns and rural areas as many poor patients could not afford to travel for treatment. Many did not even recognize the need to avail eye care. Teams of doctors, paramedics, and volunteers from the hospital organized free camps for ailments related to the eye. Those who required additional treatment or surgeries were transported to the base hospital, treated and sent back home at zero or nominal expenses, depending on the patients' ability to pay. Each eye camp would involve a series of activities such as patient registration, preliminary vision test, preliminary examination, tension & duct examination, refraction, and final examination followed by providing counseling and optical services.

After analyzing the response to the eye camps (**Exhibit 2**), Thulsi's team realized that such temporary service provision had its own drawbacks. Providing low-cost service was not sufficient, people's trust had to be gained if any healthcare service had to be provided to them. In spite of Aravind's strong reputation and brand image in Tamil Nadu, many patients would not turn up at the rural eye camps. They found that only about 8% of potential patients residing in the catchment area would visit their eye camps. The management realized the need for a permanent but low-cost setup to increase its reach among potential patients. However, ophthalmologists were reluctant to stay in rural areas: hence, telemedicine was identified as a viable option to reach the rural areas. Thulsi explained:

Our country has approximately 12,000 trained ophthalmologists, but most practice in urban areas, thereby majority of the population residing in the rural areas, does not have easy access to eye care. Our biggest challenge is to make eye care affordable for the patient and the community. At the same time, it should be sustainable for Aravind. How do we ensure sustainability when most patients cannot afford to pay? About 60 percent of our patients do not pay anything, while we charge market rates from those who can afford. The building blocks of the Aravind model include a strong value system committed to the ideals and mission of Dr. V, a very effective delivery system, and innovations to serve the large underserved population in the face of resource scarcity of capital and people, dispersed population, low affordability, and poor logistics.”

The International Agency of Prevention of Blindness (IAPB) launched the program “Vision 2020 – The Right to Sight”. This envisioned setting up of vision centers for the needy population. The Government of India planned to set up 20,000 vision centers across the country. Aravind had set up 51 IT-enabled vision centers (VCs) to provide tele-medicine consultation. All VCs were linked to Aravind's base hospitals located in Tamil Nadu.

OBJECTIVES AND IMPACT OF VISION CENTERS

The vision centers were set up with the following objectives^{iv}-

- Provide comprehensive care by integrating information technology effectively that would facilitate providing quality care at the doorsteps of the rural population.
- Collaborate with the community and promote eye health education and create awareness proactively.
- Change the health-seeking behavior of the community and thereby slowly move away from eye-camps to a sustainable center-based approach.

Each vision center was designed to serve around 50,000 people across 15 to 20 villages in a 5-7 km radial distance. Each VC had a target of reaching atleast 10%, that is, around 5,000 patients, which served as a benchmark for penetration. The target population for each VC was determined using estimations obtained from geographic information system (GIS) mapping and local surveys. VCs provided consultations and patients could buy medicines as well spectacles at these centers. It provided all arrangements for patients requiring surgeries at the base hospital, including their transport, food and any other reimbursement. The VCs operated for six days in a week from 9:00 am to 5:00 pm.

The presence of this permanent establishment motivated residents of rural areas to seek earlier treatment for vision problems, thus not only eliminating eye care problems but also enabling them to get back to earning their livelihoods. A permanent establishment had changed the healthcare-seeking behavior of the people. Meenakshi Sundaram, Senior Manager - Outreach Program explained:

The vision centers have helped us reach larger numbers of patients and provide them with quality service. The major benefit of the IT-enabled connectivity is that when patients talk to our doctor at the base hospital, it increases their trust. The technician tests the eye, but talking to the doctor increases patients' confidence in the treatment, making it comprehensive and trustworthy. The consultation at the center improves the technician's skills. She gains knowledge and develops her clinical skills. For patients, unnecessary referrals to the hospital, and the associated costs and efforts, are minimized. So these centers help everyone.

STRUCTURE OF VISION CENTRE

Each VC had three key personnel – coordinator, ophthalmic technician, and field worker. The coordinator was responsible for registration, record-keeping, accounts, supply inventories, counseling, statistics, overlooking VC operations and coordinating with base hospital, outreach manager and field workers (**Exhibit 3**). The ophthalmic technician was trained and skilled to diagnose common eye problems, dispense spectacles and treat minor injuries after tele-consultation with ophthalmologist at the base hospital. The technician could also perform slit lamp examination, refraction, and Fundus photography (**Exhibit 4**). The technician would first communicate with the ophthalmologist at the base hospital after which the patient could speak directly with the ophthalmologist through the video conferencing facility at the VC. The patients derived huge comfort when they knew that they are talking to a doctor. The patient's

confidence greatly helped in diagnosing and treating his/her ailment. The field worker reached out to people, counseled them, tested them, and referred them to the VC. Each field worker was trained to conduct household level surveys, measure vision, identify extra ocular defects, curable and incurable blindness and record all information at village level. They moved around on a bicycle to provide the last-mile connectivity for Aravind. All the three key personnel at the VC were usually locals, who had been trained at Aravind's base hospitals. This provided twin benefits – people could connect better with the VC and the VC personnel were more dedicated in serving the target population while working at places near their homes.

Each VC was equipped with basic ophthalmic equipment such as slit lamp, streak retinoscope, direct ophthalmoscope, trial sets, applanation tonometer, basic sterilizers, BP apparatus and 90D lens and a computer with a digital camera (in the place of webcam) and internet connectivity.¹ In line with Aravind's philosophy of lean operations, each VC operated out of a rented space of 200-400 square feet (sq. ft.) area. The standard layout for a VC was divided into three sections – registration, examination and optical dispensing unit (**Exhibit 5**), each having an area of around 100 sq. ft. The layout was designed to provide optimal workflow for each patient (**Exhibit 6**).

VCs were well-networked with the base hospitals for secondary and tertiary level eye care, leadership needs, conduct of training programs, additional human resources and for an uninterrupted supply chain through an IT-enabled system. The registration area was equipped with a desktop computer and a laser printer. The examination area included a desktop computer with a web camera and an electronic medical records (EMR) software to record medical notes. Broadband connectivity helped connect the VCs with their base hospitals. Ganesh, Senior Manager - IT and Systems at Aravind said:

Only 10 percent of the patients visiting VCs require further examination or treatment at a base hospital. The VCs enable us to offer high quality, low-cost eye care service access for the rural poor at their doorsteps. The majority—90 percent of the patients—receive appropriate care at vision centres, thus saving travel and other costs associated with the patients' and attendants' loss of wages incurred for visiting the base hospital.

VARYING PERFORMANCE OF VISION CENTRES

Thulasi was reviewing the annual reports of all VCs. Most VCs had performed well in attracting the target of around 5,000 patients per annum, while a few VCs were finding it difficult to attract large numbers of potential patients (**Exhibit 7**). As mentioned, VCs were assessed on the basis of the number of patients reached, identification of patients with problems and treated, and cost recovery¹ for sustainability, access to eye care in rural areas, awareness creation, and transformation in health-seeking behavior.

The Madurai-based VCs had treated 127,046 patients in 2014 while 52,108 and 66,986 patients were examined at Theni and Tirunelveli based VCs, respectively. At Aravind, providing eye care to patients was the primary driver for sustainable operations. Therefore, each VC had to attract its target patients to enable achieving Aravind's vision of eliminating needless blindness. Aravind's outreach program comprised screening camps, VCs and community eye clinics along with free and paid walk-ins. VCs

¹ Cost Recovery = Total Revenues/(Total Variable Expenses+ Total Fixed Expenses)

Aravind Eye Care's Vision Centers – Reaching out to the Rural Poor



reached 10% of the population, while screening camps and community eye clinics reached 17% and 4%, respectively; 69% reach was through walk-ins. Also, considering the costs to set up a VC (**Exhibit 8**), Aravind had to ensure that each VC catered to the maximum number of patients within the served community. The VCs at Alanganallur and Thirupuvanam were set up after conducting a detailed study of the surrounding areas around Madurai (**Exhibit 9**).

Nagalakshmi, Coordinator – Alanganallur VC and a local resident, had started working with the VC since its inception after a couple of years of experience at the main hospital in Madurai. She had a good rapport with the community which helped her organize several events successfully. A mega camp for diabetic retinopathy (DR) screening, sponsored by the local Member of Parliament, conducted in December 2014 had attracted 350 patients (**Exhibit 10**). Similarly, another camp organized in November 2014 at the VC for known diabetes patients attracted 70 patients. The locals were attached to the VC staff. Nagalakshmi explained that the VC was seen as a part of the local community.

Patients visit the VC to gift us their farm produce. Some bring mangoes while others bring rice. People are very close to us.

The Alanganallur VC was prompt in executing the plans formulated at Aravind's Head Office (HO). When the HO proposed the idea of family-based screening, Nagalakshmi promptly took this up and conducted 35 additional screenings for existing patients. The VC's team had a good rapport with the base hospital and worked proactively for patients' benefits, without waiting for instructions and ideas from HO. The patient numbers were also watched carefully and any dip in numbers was followed by additional efforts in reaching out to the community. Nagalakshmi also ensured that the monthly doctor's visit to VC was utilized fully. She would try to ensure at least one additional patient attended the consultation compared to the last visit by the doctor. Dhan Foundation, a NGO, had an office at Alanganallur to train self-help groups (SHGs). The VC was connected with all SHGs, thus connecting deeply with the community. The camp organizer also put in special efforts to ensure successful eye camps. Additionally, an event was held every three months at the Alanganallur VC to strengthen the connect with the community.

In comparison, the VC at Thirupuvanam had a locational disadvantage although it was closer to Madurai than Alanganalur. The VC was located on the highway to Rameshwaram and had a vertical coverage as against circular coverage for other VCs. One part of the target population stayed across the river and preferred to visit Aravind's main hospital at Madurai. Initially, the coordinator at Thirupuvanam VC was not a localite. In 2012, Muthumanimekalai, a local, was appointed as the coordinator. She brought about a significant improvement in the VC's performance. Attendance for camps and patients treated were earlier lower than that for the Alanganallur VC (**Exhibit 10**). However, the performance started improving over the last 2 years (**Exhibit 11**).

HOW WILL VCS ATTRACT MORE PATIENTS?

The field worker at each VC traveled across the entire target area to contact families in their homes. Being a local person, people connected with him/her and also trusted his/her counsel. One of the options at Aravind was to increase the number of field workers at each VC from the existing one to at least two,

Aravind Eye Care's Vision Centers – Reaching out to the Rural Poor



depending on the coverage required. Aravind was also contemplating tie-ups with the local primary healthcare center. Thulsi stated:

Almost everyone above the age of 40 requires some kind of eye care due to the natural degradation of human eye. Thus, each VC should have atleast 5,000 patients per annum. We have set up the VCs with up-to-date technology providing highest quality eye care at low cost. Yet, some of our VCs do not attract the potential number of patients. We have to explore new ways of creating awareness and educate people on the need for regular eye care.

Mohammed Gowth, member of faculty at Aravind's educational institute explained:

Thirupuvanam VC's performance improved significantly when Muthumanimekalai joined us. Thirupuvanam and Alanganallur VCs started at around same time with similar eye care potential. Yet, Alanganallur performed better consistently, while Thirupuvanam has seen varying performance. Our VC model will succeed when coordinators apply innovative marketing communication strategies to reach and attract patients.

Word-of-mouth and increased health-seeking behavior would definitely help VCs gain more traction in reaching out to people. Thulsi was also wondering whether they should get back to organizing eye camps at popular locations to attract patients to the VCs. How should he analyze the performance of VCs from a marketing perspective? Should he implement marketing campaigns for VCs that had attracted relatively lower patients and if yes, how should this campaign be designed, considering the unique market in which each VC operates? Were the VCs innovative in their approach to reach out to patients? Were the VCs self-sustainable? What parameters should he use to evaluate the performance of VCs? How should he aim for an increase in the number of patients at VCs?

Exhibit 1

Aravind Eye Care: Locations



Source: <http://www.aravind.org/default/clinicscontent/hospitals> (Salem, Udamalapet, and Tuticorin were added recently.)

Exhibit 2

Comparison of Eye Care Provided at Eye Camps and Vision Centers

Parameters	Eye Camp	Vision Center
Eye Check-Ups	Yes	Yes
Refractive Error	Yes	Yes
Cataract Surgery	Yes	Yes
Glaucoma & Other Specialties Reach – Coverage	Yes	Yes
Reach Coverage	Limited coverage (around 10 to 20 thousand)	15 to 20 surrounding villages (around 60 to 80 thousand)
Focus	Specific – for example, cataract or children eye problems	All eye care needs – cataract, refractive error, glaucoma, DR, pediatric, uvea & similar injuries, foreign body removal, etc.
Access	Temporary service for one day	Permanent facility function throughout the year

Source: Data obtained from Aravind Eye Care for Natham, District Dindigul

Exhibit 3

Job Description of Vision Center Coordinator

1. Inviting Patients

Usually whenever the patient enters the vision center first question raised by them is – when will the doctor come? Or is the doctor there? So, the VC coordinator has to clearly explain about the VC and its functions.

2. Medical records

- ✓ Collect information about name, age, dependent/spouse name, residential address and phone no., Of the patient and register it in the electronic medical record.
- ✓ Collect consultation fee of Rs. 20 and inform the patient that for 90 days from that day onwards, the patient can receive free consultation twice. In the instance of a visit after 90 days, additional consultation fee has to be paid.
- ✓ Enter all the data in the computer and print the Unique Patient Identity card. Provide Patient Identity card to patient and explain to the patient to carry the card for any VC visit.
- ✓ Measure height and weight and record it for all the patients .
- ✓ Measure blood pressure for patients above 40 years of age and counsel them to check their blood sugar.

3. Counseling

- ✓ Make patients feel comfortable and explain about the process of diagnosis by vision technicians and teleconsultation with doctors.
- ✓ Provide counseling for all the patients
 - If the glasses are prescribed, explain to the patients about the need and importance of using glasses and help the patient to choose the right frame and lenses considering the occupation and affordability of the patient.
 - If medicines are prescribed, explain to the patients about the need and importance of using the medicine, how to use and proper dosage of medicines.
 - In the instance of cataract, explain to the patient about the need for cataract surgery, its benefits and its impact if left untreated. Help the patient to choose an appropriate package considering the age, occupation, ocular conditions, and affordability.
 - For those patients referred to the base hospital, explain about importance of further treatment, provide reference letter and details of contact person.
- ✓ Ensure periodical follow-up for patients identified with chronic eye conditions such as glaucoma and diabetic retinopathy through reminders.

4. Statistics maintenance

- ✓ Send daily, weekly and monthly reports on patient visits to the base hospital through mail.
- ✓ Prepare system back-up daily and mail back-up weekly.

5. Cleanliness

- ✓ Supervise sweeper's work.
- ✓ Check the purity of the drinking water.
- ✓ Instruct the patient to use the toilet cleanly.

6. Stock Maintenance

- ✓ Maintain stock for all the materials provided to VC.

7. Billing

- ✓ Provide printed receipts for consulting fee, sale of medicines, spectacles and blood sugar to patients immediately after receiving cash.
- ✓ Enter collection details in daily collection report and maintain in monthly revenue report.
- ✓ Deposit collections in the bank the next day.

8. General duties

- ✓ Maintain computers and other instruments in a clean condition
- ✓ Treat patients properly. Ensure patient satisfaction for improving patient referral in future.
- ✓ For emergency cases, provide first aid and refer the patient to the base hospital immediately.
- ✓ Maintain and follow Aravind culture and values.


Exhibit 4

Job Description of Vision Center Technician

- ✓ Vision test has to be done
- ✓ Preliminary eye examination
 - ✓ Clear knowledge about common eye diseases
 - ✓ Treat the patient with care and patience
 - ✓ Changes in the eye have to be clearly mentioned in the case sheet
 - ✓ Should be able to diagnose the eye defect, cataract, and pupil movement
 - ✓ According to the eye defect, investigation & examination have to be done
- ✓ Tension checking for patients with cataract and patients above 40 years
- ✓ Duct examination for patients with cataract, eye discharge, and corneal ulcer
- ✓ BP has to be checked for patients above 40 years. Counsel patients to check their blood sugar.
- ✓ Refraction test: Understand the nature of the work and occupation of the patient.
If the patient's eye is clear or lens is clear, the following tests will be conducted
 - Defective distance vision
 - Near vision testing for patients from 38 years onwards
 - Aphakia, Pseudophakia
 - Early cataract
 - Posterior capsule opacity
- ✓ Dilatation refraction is done for following patients
 - Manifest hypermetropia
 - High astigmatism high power
 - More different from previous power
 - Entering of medical diagnosis
- ✓ Fundus photos have to be taken for all diabetic patients and those who need dilatation.
- ✓ Coordinator explains all the medical details to the doctors. Then, the patients will be allowed to interact with the doctors regarding their complaints.
- ✓ All the diagnoses are entered in the electronic medical record and doctor's coding will be given at the end of the teleconsultation.
- ✓ Counseling
 - ✓ Importance of using glasses has to be explained
 - ✓ Clear information about the frame lens has to be given
 - ✓ Explain the procedures to wear and maintain the glasses
- ✓ First Aid
 - ✓ If the patient comes with any infection due to dust, any powder, shampoo, etc, the eye has to be irrigated with normal saline water and antibiotic drops applied. Then, vision test, preliminary and slit lamp examination have to be done
- ✓ Lid and conjunctiva foreign body is removed in the vision center by the technician
- ✓ Sterilization has to be done for wiper, pad, syringe, duct needle, etc.
- ✓ Cleaning and Maintenance
 - ✓ Properly clean and maintain slit lamp, trial sets, applanation tonometer, BP apparatus and fundus camera.
 - ✓ Check for the proper functioning of all these patient care items at the beginning and end of the day
- ✓ General Duties
 - ✓ Patients have to be treated properly
 - ✓ Ensure patient satisfaction for improving patient referral in future
 - ✓ Maintain and follow the Aravind culture and values

Exhibit 5

Layout of Vision Center at Alanganallur, Madurai

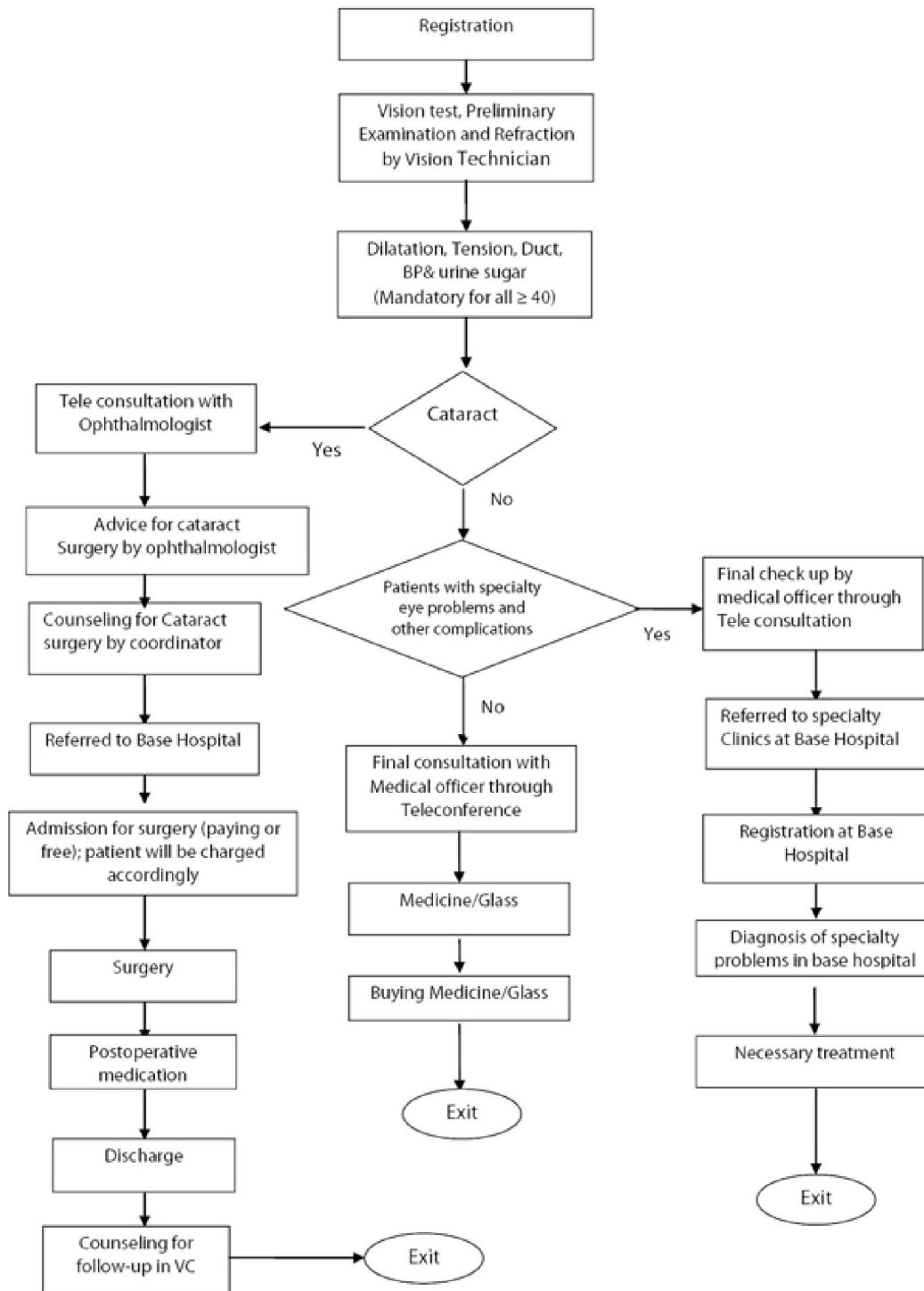
	<p>Area 1: Registration with space for waiting and counseling</p> <p>120 square feet Tuticorin</p> <p>Counter for registration, opticals, and medicines</p>
	<p>Area 2: Refraction, slit lamp examination and teleconference</p> <p>120 square</p> <p>Vision drum, mirror, slit lamp, tonometer, trial set, torch & computer with web cam</p>
	<p>Area 3: Optical dispensing unit and space for store Salem</p> <p>80 square feet</p> <p>Optical grinding edging machine and finishing unit</p>

Source: Aravind Eye Care



Exhibit 6

Workflow at Vision Center



Source: <http://www.aravind.org/communityOutreach/primaryeyecarecentres.aspx>

Exhibit 7

Vision Centers – Growth over Years

Particulars	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
No. of Vision Centers	3	5	22	30	31	36	40	41	46	51
Consultations (New + Review)	8,685	13,871	63,043	123,198	159,634	201,512	234,695	276,330	320,476	396,007

Source: Aravind Eye Care

Exhibit 8

Vision Centre – Investment

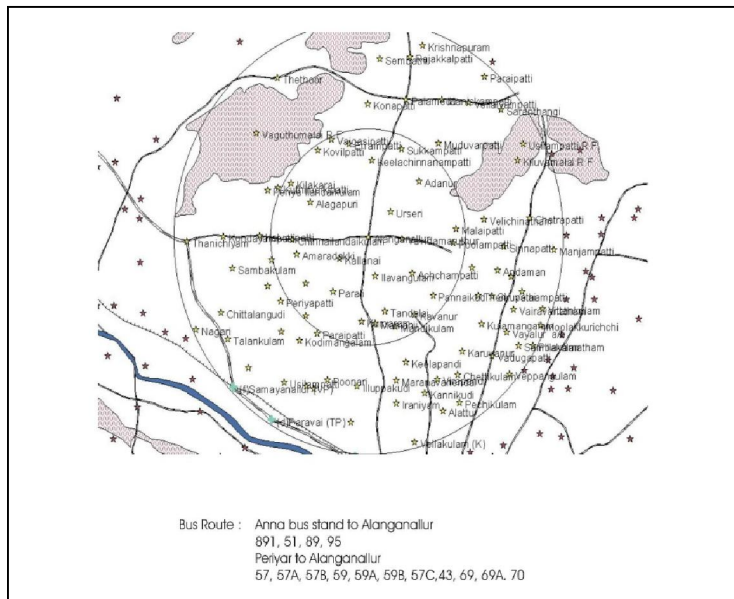
Item	Cost (INR)in 2015
Ophthalmic and other clinical equipment	400,941
Optical showcase	18,096
Computer and other hardware (2 units) including web cameras software, printers, Internet modem & telephone	125,403
Digital camera	12,000
Setting up the vision center (renovation, publicity, IEC materials, stationeries and inauguration)	105,811
Furniture (waiting chairs, reception and consulting tables, revolving stools, etc.)	43,256
Power invertors and UPS	52,900
Total	7,58,407
Connectivity charges excluding base hospital broadband rental is Rs. 2,500/- per month.	

Source: Aravind Eye Care

Exhibit 9

Detailed Study Elements before Setting Up VCs

GIS Mapping and Target Determination for the Vision Center at Alanganallur, Madurai



GIS Mapping and Target Determination for the Vision Center at Thirupuvanam, Sivaganga

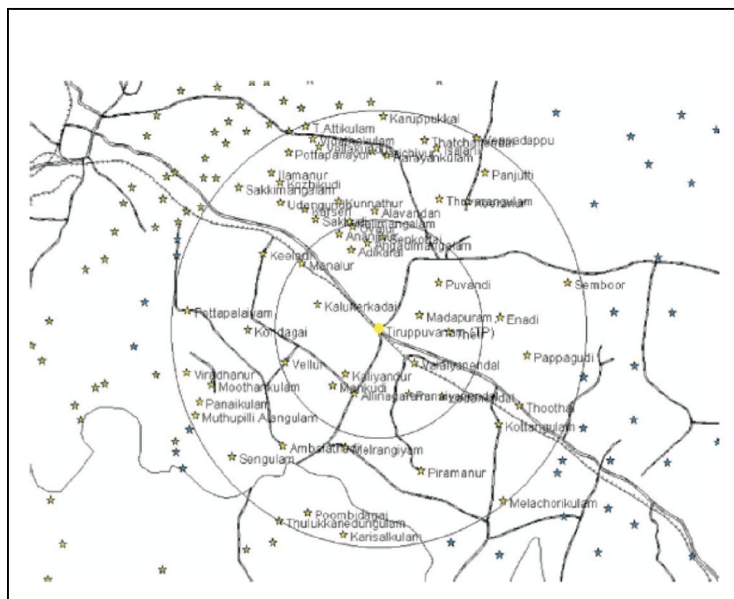


Exhibit 9 (Contd.)

Village Detail (5 km radius of VC)							
Alanganallur				Thirupuvanam			
Village Name	Total No. of Houses	Total Population	Above 40 years	Village Name	Total No. of Houses	Total Population	Above 40 years
Alanganallur	2001	10807	2529	Angadimangalam	434	2601	609
Kavanur	288	1363	319	Ananjiyar	118	519	121
Errampatti	510	2607	610	Ovalur	47	301	70
Kovilpatti	423	2093	490	Trippuvanam	3941	22649	5300
Urseri	1335	7039	1647	Manalur	507	2365	553
Adhanur	371	2069	484	Theли	168	872	204
Vavidamaruthur	774	3889	910	Madapuram	532	2841	665
Alagapuri	842	4148	971	Puvandhi	642	3290	770
Chinnailandaikulam	303	1389	325	Kalukerkadai	667	3573	836
Kallani	1567	7872	1842	Kaliyandur	335	1818	426
Achampatti	256	1318	308	Allinagaram	562	2856	668
Tlandalai	272	1375	322	Ladanendhal	727	3821	894
Manianji	255	1409	330	Adikarai	238	1202	281
Kumaram	264	1325	310	Mankudi	143	681	159
Malapatti	202	1167	273	Valaiyanendal	112	583	136
Poolampatti	157	820	192	Panaiyanendal	107	474	111
Mandhikulam	137	805	188				
Kilakarai	101	475	111				
Vaigasipatti	66	405	95				
Keelachinnampatti	166	764	179				
Panakudi	188	1066	249				
Ilavankulam	174	933	218				
TOTAL	10,652	55,138	12,902	TOTAL	9775	53,221	12,452

Minimum Target of Service (Per Year)	Alanganallur&Thirupuvanam
Cataract surgeries	300
Spectacles dispensed	600-800
Diabetes identified	500
Diabetic retinopathy diagnosed & followed-up	100
Glaucoma patients diagnosed & followed-up	250
Low vision rehabilitation services	100
Incurably blind persons to be rehabilitated	20-30

Exhibit 9 (Contd.)

Area Details	Alanganallur	Thirupuvanam
Distance from AEH Madurai	23 km	20 km
Population (estimated for 2006)	55,145	53,221
No. of villages in 5 km radius	22	19
No. of Panchayaths	14	12
No. of Households	10,653	9,333
40+ years aged Population in the service area (25% of total population)	13,786	13,305
Occupation	Agriculture	Agriculture
Area Details	Alanganallur	Thirupuvanam
No. of primary & high schools	15	23
- No. of teachers	97	107
-No. of students	2984	3387
No. of higher secondary schools	4	6
- No. of teachers	112	263
-No. of students	3378	6992
No. of industries	3	8
- No. of employees	1358	880
No. of NGOs & No. of SHGs	3 – 6659	8– 16030
No. of L/Cs	1	
No. of primary health centers	4	2
No. of private clinics	10	8

Estimation of Magnitude of Blindness in VC	Alanganallur	Thirupuvanam
Population	55,145	53,221
Glaucoma (approximately 1% of the population) Need follow-up at least once in 6 months	552	532
Diabetics (6% of the population) Need Follow-up at least once in 6 months	3,309	3,193
Diabetics retinopathy (15% of Diabetic patients may have DR)	496	479
Refractive errors (approximately 16% of the population) Most of them need to change every 2 years on power change, breakage and fashion	8,823	8,515
Cataract potential (approximately 1% of the population considering ideal CSR of 10,000/million) every year	551	532

Source: Aravind Eye Care



Exhibit 10

Camps at Alanganallur and Thirupuvanam

Camps in 2014	Alanganallur	Thirupuvanam
School Children Screening Camp		None
<ul style="list-style-type: none"> No. of schools covered No. of students covered No. of teachers trained No. of students provided with spectacles 	<p>1</p> <p>1723</p> <p>15</p> <p>18</p>	
Glaucoma Screening by Visiting Team		
<ul style="list-style-type: none"> Visit dates No. of people (known patients & suspects) informed about the camp No. of people who attended the camp No. of people confirmed as glaucoma patients No. of new glaucoma patients identified 	<p>10¹ Feb & 14 Aug</p> <p>155</p> <p>76</p> <p>61</p> <p>2</p>	<p>22 Mar & 26 Sep</p> <p>206</p> <p>136</p> <p>96</p> <p>5</p>
Diabetic Retinopathy (DR) Screening Camp at VC for known Diabetic Patients		
<ul style="list-style-type: none"> Date of camp No. of known diabetic patients examined Known DR Newly diagnosed DR 	<p>19 Nov</p> <p>70</p> <p>6</p> <p>6</p>	<p>22 Aug</p> <p>46</p> <p>7</p> <p>2</p>
Diabetic Retinopathy (DR) Screening Camp in VC Service Area		
<ul style="list-style-type: none"> Date of camp No. of people who attended the camp No. of known diabetic patients No. of newly diagnosed diabetic patients No. of known DR patients No. of newly diagnosed DR patients 	<p>6 Dec#</p> <p>350</p> <p>176</p> <p>30*</p> <p>3</p> <p>23</p>	<p>19 Nov</p> <p>70</p> <p>40</p> <p>3</p> <p>5</p> <p>2</p>
#Mega camp *2 newly diagnosed diabetic patients were also newly diagnosed to be DR patients		
Awareness Lecture	None	1

Source: Aravind Eye Care

Exhibit 11

Financial Performance of VCs: Alanganallur and Thirupuvanam

Alanganallur VC – Income & Expenditure

Year	Beginning to 2009	2010	2011	2012	2013	2014	2015
New Patients	12,511	4,392	4,774	4,671	4,561	4,366	4,977
Review Patients	4,157	1,770	2,094	2,013	2,264	2,829	3,632
Total Patients	16,668	6,162	6,868	6,684	6,825	7,195	8,609
Revenues							
Consulting Fees	170,240	108,640	122,700	118,600	121,080	118,120	140,900
Lab Charges & Other Charges	17,782	6,310	4,975	5,925	5,750	6,775	7,577
Sale of Spectacles	449,990	194,475	282,730	385,495	520,665	550,370	505,965
Sale of Medicine	151,803	96,636	112,986	126,680	152,627	179,182	204,862
Others	7,940	3,416	-	7,887	7,406	7,432	7,380
Total Revenues	797,755	409,477	523,391	644,587	807,528	861,879	866,684
Variable Expenses							
Lens & Frames	230,921	118,611	154,266	186,218	276,559	298,927	275,219
Medicines	140,630	76,164	86,032	104,112	121,910	128,965	156,683
Medicine & Lab Kits	9,520	7,659	7,930	12,605	11,666	10,567	13,332
Total Variable Expenses	381,071	202,434	248,228	302,935	410,135	438,459	445,234
Fixed Expenses							
Salaries & Allowances	307,461	159,177	203,320	207,881	255,830	271,884	315,422
Electricity, Fuel, Repairs & Maintenance	58,541	32,642	32,876	14,136	35,712	21,384	23,908
Telephone & Internet	19,677	17,076	12,844	10,176	11,134	32,985	42,896
Rent	42,000	18,000	18,000	33,000	38,000	60,000	60,000
Others	53,342	19,823	20,010	22,879	32,511	18,793	30,951
Total Fixed Expenses	481,021	246,717	287,050	288,073	373,187	405,046	473,177
Net Income/Loss	(64,336)	(39,674)	(11,887)	53,579	24,206	18,374	(51,728)

Exhibit 11 (Contd.)

Thirupuvanam VC – Income & Expenditure

Year	Beginning to 2009	2010	2011	2012	2013	2014	2015
New Patients	9,150	3,359	3,742	3,682	4,100	4,311	4,300
Review Patients	3,737	1,622	1,954	2,243	2,694	365	3,900
Total Patients	12,887	4,981	5,696	5,925	6,794	4,676	8,200
Revenues							
Consulting Fees	128,420	81,916	96,580	100,240	112,980	123,160	137,760
Lab Charges & Other Charges	11,605	5,342	13,140	14,612	22,828	27,454	19,175
Sale of Spectacles	320,370	161,410	249,095	304,977	355,495	468,795	500,420
Sale of Medicine	115,806	90,517	103,695	131,408	194,079	233,132	263,725
Others	5,200	3,319	-	6,891	4,617	6,948	8,110
Total Revenues	581,401	342,504	462,510	558,128	689,999	859,489	929,190
Variable Expenses							
Lens & Frames	126,811	92,771	133,135	158,594	226,675	238,604	262,404
Medicines	97,585	73,934	80,432	99,997	151,903	181,349	195,618
Medicine & Lab Kits	8,442	42,230	10,512	14,953	16,696	27,568	18,934
Total Variable Expenses	232,838	208,935	224,079	273,543	395,275	447,521	476,956
Fixed Expenses							
Salaries & Allowances	283,660	131,714	161,786	186,108	236,438	239,342	280,614
Electricity, Fuel, Repairs & Maintenance	37,691	32,562	34,165	14,498	30,062	18,001	39,953
Telephone & Internet	14,304	9,956	7,373	6,901	16,723	27,305	37,571
Rent Paid	38,733	20,400	27,600	30,400	36,000	38,400	43,200
Others	39,543	61,603	11,747	13,520	16,315	15,766	14,957
Total Fixed Expenses	413,932	256,235	242,671	251,428	335,538	338,814	416,295
Net Income/Loss	(65,369)	(122,666)	(4,240)	33,157	(40,814)	73,154	35,939

Source: Aravind Eye Care

END NOTES

ⁱ Source - <http://www.aravind.org/default/aboutuscontent/genesis>

ⁱⁱ Aravind Eye Care Systems Activity Report 2014-15, pg. 20, <http://www.aravind.org/content/downloads/aecsreport201415.pdf>

ⁱⁱⁱ <http://www.aravind.org/content/Downloads/draravindinterview.pdf>

^{iv} Source: <http://www.aravind.org/communityOutreach/primaryeyecarecentres.aspx>

^v Source: <http://www.aravind.org/communityOutreach/primaryeyecarecentres.aspx>