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CHAPTER

RE-VISITING ARAVIND EYE HOSPITAL In times of Universal Health Coverage

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It is 24 years since Harvard Business Review published its famous case study of the Aravind eye hospital. A case study that not only brought international recognition to Aravind, but also became a model of a case study. As of 2012, 150,000 copies of this case study had been distributed to over 20 top business schools of US alone. One of the most widely read and successful of all case studies.

It is a time to revisit the hospital and the case study. The big idea of that case study is of Aravind as an example of MacDonalidization in Healthcare. An idea that showed that there is “the fortune at the bottom of the pyramid.” “Businesses” CK Prahlad wrote “can gain three important advantages by serving the poor - a new source of revenue growth, greater efficiency, and access to innovation.” The charm of this model is essentially there could be a business model that is profitable and scalable, while remaining very socially conscious and innovative. Written in the start of the structural adjustment years, when the prescription was to limit government to a few essential services and leave the rest to the markets, this study is often cited when making the case for engaging with private sector to meet public health goals. Dr. V’s

quote on why can’t eye care be organized on the lines of MacDonald also gets a central positioning in the presentation.

This case study draws from the earlier Harvard case study, but with a focus on the institutional design – the organization of service delivery and a health systems perspective.

The vision and origins

Aravind Eye Hospital is a family run not-for-profit enterprise (Trust) that draws its inspiration and its philosophy from two sources. One is the towering figure of its founder Dr. V and the other is the philosophy of Aurobindo, a philosophy that Dr. V was a conscious and ardent devotee of Dr. V (Dr. G. Venkataswamy - the G is not expanded in Tamil practice) was 58 years old when in 1976 he started off with an 11 bed Aravind eye hospital. 58 was then the retirement age - and Dr. V had just retired after a lifetime of public service in one of Tamilnadu’s leading government medical colleges - the Madurai medical college. It is not difficult to imagine that in the crowded medical college hospitals he clearly saw the need for services– and in the nineties he

also saw the limitations imposed by policy and political will in expanding public services. But he responded to the public crisis in a private manner - thinking through what *he* could do to supplement government's efforts and playing down the role of telling the government what *they* should do about it. (This is a feature that one finds in Aravind to this day - but more about that later). "High volume, high quality and affordable cost" was the mantra. Though case studies interpret this to mean that there is a business model available where with high volume and low prices one could still make a profit - it is not clear that there was any such motivation in the Aravind. Rather the leadership articulates it differently. "Private sector is very inefficient" Thulasi tells me. "With the same amount of investment one can reach out to far more people and provide much greater volume, quality and diversity of services."

The difference is not semantic. It is central. It is the heart of the difference between the notion of efficiency in the public and in the private. Imagine Aravind as a corporate. The measure of success of the latter would be by the dividends it pays its shareholders - the rate of returns on investment - and not necessarily the revenue earned in absolute terms. But for Aravind to a large extent revenue earnings means more space for cross -subsidy, more space for innovation. Expansion too, but that is limited by the fact that its values get transmitted much more slowly than its financing. But it's not the fiscal space that drives the volume - rather it's the perception of lack of efficiency as lost opportunity to have provided greater coverage. For a public hospital too what matters is how many people you can reach out within the given budget - the value for money proposition.

But why does a private player take such a view? There we may need to look at how the Aurobindo Ashram and its philosophy plays out. Much like the contribution of the protestant ethic to the rise of modern capitalism, there was an ethic generated by the independence movement that called upon Indian private sector, especially the large "nationalist industrial houses - Tata, Birla, Godrej -etc. to see their private assets as public assets held in trust - to be leveraged for building a nation. Aurobindo Ghosh, himself a revolutionary fighter for Indian independence, sets out in his "Ideal of Human

Unity" - a progressive vision of human and societal development. It is a philosophy that is compatible with (perhaps actively promotes) a notion of a private ownership that is ethical and responsible and contributory to human development. There are many industries which draw their inspiration from this ethic and philosophy - and though one has seen questions about their internal labour policies - largely they are bound by a strong business ethic of contributing to the public good. What the latter means for each enterprise in each historical context varies. And it is fascinating to study what it has meant for Aravind in the 90s, in the first decade of the 21st century and now in the second decade.

The Nineties Period

At 1990, the Aravind Hospital had three hospitals, the main one at Madurai had 600 beds and two smaller hospitals and Theni and Tirunelveli with 200 and 400 beds respectively. Together they were doing about 50,000 surgeries a year. By the year 2003, this had risen to five hospitals - one in Coimbatore and one in Pondicherry and the number of surgeries had increased to 200,000 a year.

Aravind spends nil on advertisement. It does not believe in it. It expects the message to be carried through word of mouth - satisfied patients telling their friends and relatives. It also had a schedule of meticulously planned eye camps where it identified those in need of services and brought them in. It works.

One necessity of this model of course is that there has to be a careful allocation of scarce resources. And in all of Healthcare, manpower is therefore the most critical resource. In the initial years the doctors took much less pay than their market worth - but as the organization's finances became better, they are able to ensure that the tier of consultants are able to get pay packages commensurate with the private market.

Efficiency is gained by engineering processes to maximise productivity. One interesting innovation was the introduction of a hospital management information system which had one of its several out puts, the ability to predict the out-patient attendance on each day of the coming year - and in

each outreach camp proposed for the coming year. It did so by averaging the previous year's out-patient attendance, the day of the week, festival days and holidays and if it was a camp the attendance in the camp the previous year. The number of doctors allocated for camp and out-patient duty would change according to this prediction.

A second innovation was built on the observation that doctors tended to take more time towards the beginning and speed up towards the end of the out-patient session. Now based on the predictive model, each doctor would be allocated cases and would know by 10.00 am whether he was at the optimal rate of consultation. Also, noting that most patients come early in the morning, more doctors would be posted in the out-patient department in the mornings and the operation theatres would start up a bit later.

A third innovation was having two operating beds in each operation theatre with the second patient going into the pre-operative preparations like draping when the other patient was completing the surgery and coming of it. This not only increased the capacity of the team, it decreased the overall resources needed (space, equipment, HR etc) and increased the output per surgeon. Time management within the operation theatre has brought down the time per cataract surgery to about 15 minutes per patient.

But such optimization and acceleration of processes was inherently risky with regard to quality of surgery. To address this problem, a software developed in-house monitors the outcomes of every single patient and infection and other complications rate and is able to provide a quality of care output for each surgeon. A monthly review spots any sub-optimal result - and through a discussion with the chief the problem is identified - and corrective measures taken, which could include a stint of surgery under supervision. This complication rates are kept much lower than any comparable norms.

The number and intensity of camps could be increased when patient load decreased, so that the system was always taut - with no slack. If there were inevitable slacks like a festival day, then academic and teaching/learning programmes would be

structured onto that day. A camp usually has the capacity to screen upto 300 patients per day and as many as 20 percent of them could be brought back for consultation and surgery on the subsequent days. The camps is therefore not a supplementary strategy. It was central to the model - that required mobilizing the demand - not by administration but by outreach. It was a model that over the year has been tweaked to perfection for cataract surgery, and is similarly being developed for other elements of eye care.

Thus across its hospitals and camps in a given year (2014 -15) the system would receive close to 35 lakh out-patient visits - of which 19 lakhs are paying patients and the remaining 16 lakhs are direct walk-in free patients at the hospitals or are from the camps, or from Vision Centres and Community clinics. (Vision centres are primary care units established in villages as part of the Aravind efforts towards universal eye care. Instead of a camp taking place a few times in a year, there is now an established centre where case detection, and follow up is a regular activity). The total number of surgeries performed in that same year was 4 lakhs and of these 2.6 lakhs were cataracts. Of the 4 lakh surgeries about half were paying patients (at market rates) and the other half were either subsidized "direct walk-in" patients at the hospitals or free brought in from the camps.

Human Resources for Health

Very little has been written about Aravind's human resource strategy. Aravind has today 4700 staff, of which about 500 are medical doctors. Of the rest, the major part - about 3500 - are composed of a category of paraprofessionals - who are largely young women with a nursing profile.

Of the 500 medical doctors about 223 would be medical consultants, about 178 are fellows and about 132 are post graduate resident-students of either the Diploma in Ophthalmology, or MS or DNB courses. The residents are paid a stipend of ₹ 25000 pm (with an annual raise of ₹ 1000) with subsidized hostel, which is adequate to sustain them during an intensive training programme, where most of the time is anyway spent in the hospital. The Fellowship programme is at two year training programme

that attracts qualified ophthalmologists from all over India and other developing countries, who seek to develop their skills in specialised fields of ophthalmology. They are paid ₹ 25,000 per month. This is certainly lower than what they would get elsewhere in private practice - but since the Fellows are hereby choice to develop skills and confidence and since there is a very planned and intensive programme to ensure such skill development - it is quite acceptable. Each year some 10 to 15 fellows complete and are retained as consultants - while the rest move on to start up their own clinics or join hospitals across the country. The full time permanent doctors are the consultants - who get a starting salary of ₹ 100,000 per year and then good increments every few years - so that at the start they match the best of the public sector - and later on they are comparable with even much of the private sector - though never rising too high.

The “paraprofessional’ nurses are taken in from the villages and trained in the hospital network. They are placed in one of 9 streams - and for all of these the remuneration is the same. These could be medical records, out-patient care, refraction, operation theatre, ward, counselling, ophthalmic dispensing, and house-keeping. It is interesting to note that though the perceived status of these jobs could vary greatly the young women are paid equally and have the same terms of service across all of them.

Most of these para-professionals are recruited from the locality where the hospital is situated. All of them have passed school (10+2) and single. Their training programme has them as residential student nurses for the first two years, paid a stipend - which covers their accommodation and food and uniform expenses, two trips to visit their family in the year. Necessarily their posting in this period is in a hospital which is distant from their home-town. From the third year onwards they are paid a wage meeting statutory norms (about ₹ 8,500 pm) plus housing, subsidized food and uniforms and their twice a year travel home. In the fourth year they are transferred back to the hospital near their home. Their pay increases by about 15% per year, after that. They may stay on for anywhere from 2 to 6 years, usually till they get married. Once married, few remain in the same locality, and if they choose, they can continue their employment. The reality is that most leave the job because of the

changed circumstances of their lives- but marriage is not a mandated exit of filter. Thus from recruitment to marriage is about an 8 to 10 year period.

The para -professionals who are well experienced as refractionists (prescribing glasses for refractive errors) with an additional 3 months training develop the skill sets of an optometrist. They along with a coordinator are then posted to independently manage one of the rural Vision Centres. They are assigned Vision Centres that are in or very close to their village or town and this allows several of the married staff to continue to work in the system.

One of the key issues of patient care is the attitude towards patients. Much more so for nurses, who have to physically help patients with different degrees of physical dependence due to visual loss or in in-patient and surgical care. This is how the problem is described in the book *Infinite vision*:“ In India, the power dynamic of caste still asserts itself throughout society, insidiously influencing relationships and outcomes. Many nurses hired to work at that Aravind hospital came from high-caste families. Many of them rebelled against helping poor, and presumably low-caste, patients put on the sterilized socks worn for surgery. They felt it was beneath their dignity to perform a task that involved touching a patients feet. The work of Aravind’s paraprofessional staff includes many interactions that are rooted in a sense of equality and caring for patients from all backgrounds. They are a fundamental part of the model, and the organization relies heavily on them to render its colossal scale kind and human. Each Aravind hospital would need to find nurses better suited to deliver compassionate, high -touch care.” (pg. 218, *Infinite Vision* - with minimal paraphrasing for context).

Bringing around such a change is not easy. So Aravind has over time thought this through. When a new hospital is decided on –a start-up team arrives. The entire doctors and paraprofessionals are from the existing teams at other hospitals. Then 10% of locals are recruited, and over the next five years another 20% of new local recruits per year. These locals are sent to two Aravind hospitals where they work with others already into such a culture of care. And by the time - the fourth year - they are back here, the culture is well established.

Access to Affordable Technology

The other frontier is technology. Can a new organization of service delivery be based only on existing technologies? Aravind's adaptations of technology are instructive. No talk of disruptive change here. Only quiet, steady incremental advance.

Firstly - to go to scale, to be based on revenue generated and yet be affordable, to keep in pace with the latest in care and yet escape the price spiral that goes with it, Aravind had to go beyond organization of service delivery to addressing access to technology at a very fundamental level. By the mid-1980s intra-ocular lens implantation had become the norm of quality cataract care. One could manage without it - but that would be second rate care. On the other hand the costs of intra-ocular lens, and for that matter eye sutures and other essential eye care material was prohibitive and they all had to be imported. The official programme refused to consider it; "the World Health Organization, the World bank and other international agencies maintained that using IOLs in developing countries was not merely unsustainable, but irresponsible." (ibid150) And they would not encourage local production either - citing concerns of quality and regulation. Aravind did not participate much in the public debates - but it decided to quietly go in for a proof of concept prototype. One of their mentors on this process at this stage, Dr. Litwin describes his learning as follows.. "It really taught me that if you are going to do some sort of innovative work, the way to go about it... do it on the smallest scale you can manage, so that you can say, " this is how it works." Otherwise every theoreticians will debate endlessly about the hypothetical results of that account. And they did - after a relentless internal debate, on the fourth floor of the hospital building in a facility named Aurolab, in 1992, the first prototypes were manufactured. The price of an IOL which was \$ 80 to 150 apiece - quite unaffordable except for the rich in those days could now be made available for about one dollar. (₹ 60+apiece). The initial aspiration was for in-house needs - 150 pieces per day. But today it has risen to 7000 pieces or over 2 million a year. It now commands over 10% of the global IOL market and over 22 million people in 120 nations have used it. There is a similar story for eye sutures where it commands close to 15% of the world market - and is the dominant supplier in the Indian market.

For a cost comparison consider this. In 2012, the NHS of UK did approximately 5 lakh eye surgeries whereas the Aravind system did about 300,000. The NHS spent 1.68 billion pounds on this - whereas the Aravind system spent 13.8 million pounds - roughly 1% of the amount. It is about savings due to technology innovation as well as the overall better organization of work processes that leads to such efficiency. Costs in the USA, which is the model of care that de facto we are moving into - would have been much higher than even the UK estimates.

Like every care delivery innovation of the last two decades use of information technology has played a key part. Notable is the fact that they have designed their own hospital information system as early as 1990, configuring it to give a set of indicators and information that works effectively for them. The contrast with most other hospital information system experiences is remarkable. Most hospitals struggle to put it in place, and then land up unable to use the data or even to recognize what is data of relevance. Aravind does not know of such problems because they defined their own uses. They do hope to market what is clearly a most successful device as part of their consultancy work, but are somewhat nonplussed to find that its replication in other hospital settings is not quite taking off. But that is not to our mind surprising.

Another remarkable effort at innovation was their early foray into telemedicine. With the help of some enthusiasts from Berkeley in 2004 they pioneered a Wi-Fi based wireless network that could transmit images and information from their rural Vision Centres to their headquarters. That this approach to wireless transmission became rapidly redundant in the recent years with further developments in the telecom technical environment is beside the point. The point is the readiness with which they embrace technological innovation for both problem solving and model building.

The financing system

One of the most important aspects of Aravind is that there is a clear intent that no one is denied an adequate quality of care, merely because of his or her inability to pay for it. This Bhore committee (1946)

injunction was interpreted to mean cross-subsidy or more precisely charging the patient in proportion to their ability to pay. The latter is a Mudaliar committee (1960) recommendation and indeed large public hospitals have a free general ward and then private wards of category C, B and A. It is not only the bed charges that vary with the quality of the bed/room, even the charges on medicines, consultations and surgeries vary with this categorization. In the public system this was not meant as cross-subsidy - but as resource optimization.

In Aravind's hands it became scaled up and a cross-subsidy. Roughly one in four patients are in the zero-priced ward, another one in four are in a subsidized category and the remaining half pay the full fee or even a premium. Aravind positions 'free care' not as a charitable hand-out but as one of the many options in a self-selecting fee system. Its price range is from zero "to market rates." Zero can be a legitimate price point," Thulasi is quoted as saying (pg. 75). "The charity or cross-subsidy element is not highlighted to the public - because low costs and work for charity or too often associated with poor quality and the model requires to be attractive even to the middle class patients and elite sections.

The outpatient consulting fee is ₹ 50 which is valid for three consultations and which includes basic tests. Then surgery for the poor is usually charged anywhere from ₹ 400 to 700. The market rates which are charge for those who can afford is at ₹ 5000 for a cataract surgery in one eye. Standard commercial low volume clinics charge at the rate of ₹ 25,000 per eye - so even the ₹ 5000 market rate is a very reasonable price.

There is a scheme of government reimbursement rate for the poor - and about ₹ 1000 is paid by the government per surgery. But there are inefficiencies in such pay-out and outstanding bills are in the range of several crores. The model allows space to benefit from government purchasing, but never becomes dependent on that.

One very important element is whether there is referral in or referral out, whether there are prescriptions for drugs or diagnostics - no commission/kick-backs in any form is allowed. Any such margin is passed on the patient as a subsidized

cost from the vendor. This is important to state - because such commissions have become the norm in most other hospital segments.

Unlike Mission hospitals Aravind did not have donors to pump in the initial capital investment. The capital for the first major investment for building the hospital came from bank borrowings against the mortgage of personal assets. This had to be and was paid back. The operating costs in the early years were met largely through sweat capital - the core team worked for very little or no salary. Capital investment for subsequent expansions came from the surplus that existing operations generate. When it comes to activities like research the strategy is seek grant funding which is often competitive. Its consultancy work also is relatively low cost and low profile - and self-sustaining. This is not a model that either requires or can support private equity based investments. Nor does the Trust structure allow it.

Thus an income and expenditure statement for the year 2014-15 shows a total income of ₹ 292 crores. Of which about 168 crores is from surgery and about 37 crores is from the consulting fees, laboratory fees and other treatment charges taken together. We have already noted that about half the patients receive free or well subsidized charges. Donations and grants total only ₹ 11 crores - less than 4% of the total. Bank interest is one major source of income (₹ 58 crores) - and there are small but significant incomes (₹ 1 to 5 crores) from consultancies, royalties, training programmes etc.

The total expenditure for the year is only about 70% of the income - making the approach not only viable, but leaving enough surpluses for its expansion. The management is salaried - and salaries are adequate though not competitive with hospital industry CEO salaries. And there are no dividends, bonuses or performance linked compensation.

Of the expenditures 59 crores goes to consumable and of these ₹ 27 crores is the intra-ocular lens alone. No doubt from a health systems approach the costs of drugs would be more if what is prescribed for purchase is included. Salaries are about 63 crores of which the doctors salaries are about 27 crores. Since the net surplus is about 129 crores, the system would be viable even if the para-professionals

were paid at the rate of nurses in the government system. But then income is from many sources like consultancies and at higher salary rates the margin for expansion and safety gets eroded. Interest from saved surpluses is also a major source of income. On the other hand if the free and subsidized care were to get reimbursed by the government on a regular and reliable basis - even if it were only part reimbursement - the workforce would be at par and the system would remain stable, sustainable and with enough of what they call "sweat capital" which can be used for expansion.

Scaling up phase of 2000 to 2010 – The MacDonald impulse

For all its talk of MacDonalidization, Aravind's expansion had been painfully slow and patient. This was to change in 2005. To quote "Until this time, for all of Dr. V's MacDonald's analogies, there had never been any concrete plans for nationwide expansion of global franchising. But in 2005, the Aravind Eye Care System announced a new goal: expansion to 100 eye hospitals under a new partnership model with the aim of collectively performing one million surgeries a year by 2015."

A stimulant to this change was without doubt the impetus that was gained by a famous interaction which the Aravind team had with CK Prahlad, a well-known management guru. Prahlad exhorted the team to scale up in a big way. The team responded - that though many hospitals had approached them for management collaboration or franchising their approach is to "teach those interested what we know - and then you must run it yourself. We don't want to spread ourselves thin there's too much work remaining within our own service population." Another stimulus was from Ms Birla who was willing to sponsor their expansion into Kolkata, and later a push from Rahul Gandhi to revamp the eye care services in the hospital under the Rajiv Gandhi foundation, in his constituency in Amethi. Clearly there was a demand – but what should be the approach?

The planned model of expansion adopted was now indeed typical of the MacDonald approach. Partner

hospitals would contribute funding, infrastructure and local ties. Aravind would be involved in planning, training – and no doubt also branding - in return for an annual fee.

The new partners and hospitals got going in Kolkata, in Amethi and Lucknow in Uttar Pradesh and in Amreli in Gujarat. But it was not very satisfactory. After the first two to three years, and the full system was in place, the Aravind team and the local became increasingly out of sync. One example was in marketing. Old school Aravind did not see marketing as a virtue (in medical ethics taught in those days - marketing was categorized as an unethical practice) - but its partners did. Business expansion brought new capital in, usually as bank loans or in the form of equity funds. But Aravind was sweat capital - their own savings - never private equity. There were also core values to be considered - no kickbacks for referrals could be one. The patient centric approach, and even the notion of efficiency as how many persons reached with the same capital outlay, rather than as how much revenue earned per dollar invested. By 2010, Aravind consciously stepped back. It called of its 100 hospital goal. It did not give up expansion - but that was in its older style - brick by brick -at a pace that allowed it to build core values and leadership qualities and gain peoples trust.

Eye care it turns out is not, after all, very much like hamburgers. Hamburgers do not require trust. And providers have to care, have to have a relationship with their providers whereas at MacDonald's it is enough to get the ambience right. And patients are not customers - they have to be actively involved in the production of their own health. The provider is their guide, their friend - but it is the patients themselves have to get well and do what it takes to remain healthy.

But if one route was closed down - another opened wider. LAICO - the consultancy and knowledge transfer wing grew rapidly. LAICO helps organizations with a strong motivation for public service world-wide to get their intervention into eye care modelled on Aravind, going. Seva Foundation, Grameen opened two hospitals in Bangladesh. There are centres that are working in Nepal too. There are also centres in Africa and Latin America

which have built on transfer of knowledge from Madurai. In the Madurai center, there is now a large training center which receives trainees from over a 100 nations across the world. There is considerable interest for example from China one of the countries which has sent the largest number of trainees. LAICO also undertakes consultancies for established eye hospitals struggling to break even - by on the spot assessment and hand-holding to help them pick up volumes and quality of care.

In this phase Aravind opens up a major research wing, and starts to address research questions of relevance to India and developing countries which have much less interest elsewhere. Fungal infections of the eye, responses to corneal healing subsequent to acid injuries, and so on.

It is worth noting that in this same year 2005, another model got going - Vasan Eye clinic. This was much more in tune with modern corporate logic. Primarily a business model, it was built on private equity - a 100 million dollar fund from Sequoia capital and then many others. Private equity aspires for a 500% return on capital invested - and settles for nothing less than at least a 50%. The industry average for the service sector is in comparison about 15%. Vasan rose from two hospitals in 2005 to over 150 by 2012 - one of the most rapid expansions ever—and if their claims are to be believed, over took or at least caught up with the number of surgeries that Aravind was doing (perhaps). It was a franchisee model. There was royalty to be paid. One of the driving ideas was to replace the loyalty to the individual clinician with trust and loyalty to a brand name and to incentivise the clinicians on the revenues they brought in – indirectly bringing in pressure to upsell. Clearly the only thing that they learnt from Aravind is what Prahlad has emphasised that there is a potential fortune to be made. And what was a real problem - Vasan's base and its major expansion in Tamilnadu was close to and all around Aravind - a competitor. It would be interesting to follow up what became of that model in another essay. But that is not the focus of this case study.

Aravind's response was to further examine its roots and reiterate to itself its core values. Infinite Vision, published 2012, by independent authors - but more like an authorized biography of the institute

discusses these challenges and then states - this was part of his (Dr. V's) aspirations for Aravind, and because of it, he held himself and his team to a set of powerful, unwritten directives:

Stay rooted in compassion: Skilfully channelled compassion can drive and dictate inclusion, equality, efficiency, excellence and scale. It can do this in such a way that each of these elements reinforces the others and strengthens the whole....

Serve and deserve: The austere constrain of self-reliance imposed on Aravind.. unleashes hidden resources. When the core of your energy and attention is focused on serving unconditionally, the boundaries of your perception shift. You discover value and relevance in unexpected places. The work acquires a magnetic, generative force. It builds trust and good will. It sustains and aligns resources with the mission in ways that money alone cannot...

Create a movement, not dominance:... Hoarding expertise limits impact. Sharing your strengths amplifies the effect of the work many fold. ...You build a resilient brand based on relationships and mutual respect that has little to do with an advertising budget. In this way, you tap into collective possibilities that far surpass proprietary efforts.

Practice for perfect vision:... The evolution of an organization ultimately hinges on the evolution of the individuals within it. Clarity in thought and action requires a discipline of mind and heart.... You become a more conscious instrument of a higher calling.

So much for MacDonald. One decade of their own experience and of observing corporate agencies who actually organized themselves on the catchphrase so amplified and popularized by the Harvard case study had led to a re-affirmation of their roots, a reconciliation and re-articulation of Aravind the business model and Aravind as public service.

Post 2011 - The UHC Phase

Aravind management has always been sensitive to the changing health sector environment around them. One approach to responding to it is a policy intervention – viz meeting policymakers and seeking a policy change. This is a path of action many large

industry players and their associations undertake and which Aravind could consider now, given their stature. Aravind's approach is to give more emphasis on how they could address the new environment by building upon what they can do within their own network. Given the size of their operations, even by this route they can make a sizeable impact.

Somewhere about 2001, Aravind started experimenting with vision centres as a supplement and later substitute to their outreach camps. Today their network of 60 vision centres caters to a population of 3.5 million people. A vision center typically caters to about 50,000 population. Its infrastructure is a simple shop-front clinic like the typical Indian GP clinic. It seats two para-professionals. A service user checking in, is registered, a history taken, clinical examination done and all this data entered digitally. Then in real-time, the doctor at the Madurai clinic comes online. On his side both patient and the patient's record is visible, and he or she can proceed to ask further questions to the patient over their telemedicine link - being visible to the patient on the computer screen. The interaction ends with the doctor entering the prescription and sending it - to be printed out at the local end - and given to the patient along with counselling by the para professional. Patient may then come weekly or monthly for follow up to the local clinic. If required they are referred to the hospital and that referral is honoured by recognition at the hospital end, with a feedback given to the referring para-professional for the follow up. If it is a patient needing urgent attention the para-professional would ensure compliance; if needed accompany the patient to the hospital. This is the same minimum wage para-professional who has now been given an extra training - and getting the same wage despite the extra responsibility of running a centre independently. There is no question of any performance based payment.

The current figures are as follows: On an average about 30 patients visit each Vision Centre (primary eye care clinic) per day, or about 1300 to 1800 across the 60 centres. All of them get a telemedicine consultation from the base hospital - where adequate doctors are deployed for just attending to this. The age distribution of the patients is roughly 11% in the 0 to 4 age group, 18% in the 5 to 19 age group, 22% in 20 to 39 years, 31% in 40 to 59 years and 41% above 60 years.

There is word of mouth publicity and few house-visits to encourage patients to use the clinic. This builds up the case load. The other important feature is that it is no longer a focus on cataract - it is also refractive errors, glaucoma and diabetic retinopathy and soon prematurity related retinopathy of the newborn. There is no house-to-house screening but based on the information of those who have registered, the center can and does generate the necessary population based data, compare it with epidemiological projections to estimate what is the proportion of people in need who have utilized services and then the outcomes as well. Curiously the articulation of this finding is stated as further possible improvements in efficiency - how many more persons could be reached for the same level of investment.

Population based coverage

Aravind's vision center network covers 3.5 million people, of which 50% or about 1.75 million are above the age of 30. Of these epidemiological studies indicate that approximately 10% - about 178,000 would be diabetic. Of these, based on studies, 50% or 88,849 are known diabetics and of these 35062 or 39% have registered. This rate of detection took over 5 years to reach - but at this level it plateaus. Potentially it could reach more.

Similarly the epidemiological estimate of glaucoma patients in their population is 1% - which Aravind computes to be 35540 anticipated patients. They have 6,558 registered patients of glaucoma, diagnosed and on follow up with them - just 19% of the anticipated. Which is an accurate measure of the UHC gap.

On refractive errors they use an epidemiological estimate of 20% in need which is 710792 and of this currently 224343 (32%) have been diagnosed and prescribed glasses - and of these 113070 (3.3% of the entire population but about 50% of those diagnosed) have bought and are using glasses. Remarkable data.

And all of this without any house to house survey or elaborate effort and expenditure. Their data also shows that as compared to the camp based approach the vision center based approach is almost

two to three times as productive in identifying those in need of services and many many times more productive in follow up before and after surgery - and at much lower costs. No doubt standardization in the form of standard protocols have helped, but such follow up would not be possible without both the technology (telemedicine format) and the dedicated human resource at the referred end (the doctors attending to this full time) and the humane and friendly human contacts that allows a personalized interface, adequate space for clinical judgement and adaptation from guidelines One further advantage of this approach is since the doctor's prescription is printed out in the local vision clinic and the paramedic is only dispensing it - the legal strictures against her prescription are not a barrier. It's not so much an issue of the legal barrier as the confidence within the providers and patients themselves. For follow up visits where only the same treatment is being repeated the medical consultation is not necessary - unless there is a specific reason to request for it or a change of prescription that is needed.

Financing" The user fees and revenue model

The patient is charged ₹ 20 which covers three visits in three months. The medicines and glasses prescribed are bought out of pocket - but low cost medicines are made available and glasses are affordable. Some of them are produced in-house and sold at the center to lower costs. The cost of setting up a center is in the range \$15,000 or ₹ 9 lakhs. The running costs of the center—are largely the expenditure on of two para-professional salaries and the operational overheads of the clinic and this would break even with about 20 patients per day. However without the referral services of the hospital the system as a whole would not work or even achieve sustained financial break even.

Lessons from Aravind

There are a number of important questions that can be raised about this model. One of the key questions was on scalability but a few others that we choose to discuss here are: Can the Aravind hospital

and its primary care outreach together be seen as a replicable model that demonstrates that public health services that can reach the poor, can be run without state support? Can the model be extended to health services other than for eye care? What are the lessons that public services and health systems design can learn from the Aravind eye care model?

Clearly we have no sympathy with the idiom of MacDonaldization as the approach to scalability. The heart of a MacDonald model is in building a strong brand image; visible presence with the same appearance and ambience with location in multiple frequently visited areas, standardization of product and work process as for both quality and costs control, and constant innovation in product mix to maximize revenue flow and maximize clientele. Superficially examined the Aravind hospitals have at least some of these features. But these flow not as marketing technique but as the necessity to communicate and practice some essential values and to maximize health outcomes with a certain quality. Scalability through sharing of values and by transfer of knowledge and skills is however very much in tune. Like in clinical care, there has to be cost recovery of these processes - but they are not in themselves means to further revenue maximization.

For this very reason Aravinds cannot be proof of a concept that purchase from private hospitals could substitute for public service. Aravind eye care is essentially a form of public ownership - a sense of private players holding public assets in trust to serve the public good. Public by other means. Often providers in public hospitals do not have the same public spirit - but as their own efforts at expansion show - neither do the usual private hospitals have it. The fact that a profit can be made is neither sufficient nor even desirable to create private sector that has such a spirit. Yet when we are talking of contracting in private sector we are largely talking of contracting in hospitals who are based on a business model where the revenue generated per bed or per dollar invested is the measure of its success. At best Aravind model instructs policy makers to recognize that the private sector is very heterogeneous - and there are players within this sector - who are more public than the usual public hospital itself. LV Prasad eye hospital chain has a very similar reputation - but

few other players has both a large scale presence and such a public reputation.

But then why is there such a *limited* record of partnership success of Aravind with government hospitals? And that too in the area of cataract surgery which is one of the few areas where public private partnership has succeeded in the health sector. This is quite difficult to answer. The main 'visible' reason is a huge backlog of payments from the government. It is also worth noting that insurance routes have also not helped Aravind much. And despite a very superior performance in quality measurement - Aravind has not achieved, and perhaps will never achieve, NABH quality accreditation. Which makes us wonder why when many hospitals have been able to use these schemes (PPPs, Insurance, NABH, etc.) to increase their revenues they do not work as well for pro-poor affordable care hospitals.

Is the Aravind eye care model possible to replicate for other healthcare needs - cardiovascular care for example, or for cancers or for infectious disease. There are some inherent advantages of this approach. The whole enterprise has one singular object of care and source of revenue - cataract surgery. Outreach centres that detect cataract early can do nothing to prevent it or even prevent its progress. Prior care is generally not needed and follow up care too is very limited. The pool of potential patients is large. That is the nature of the disease. The cost of detection is low, the costs of surgery is the main expense and the main source of revenue. Cataract surgery being a single discrete procedure, is easily verifiable and with almost certain results - elements of uncertainty and information asymmetry are at its lowest. The volumes can be expanded to achieve full cost recovery and more.

When the model expands beyond cataract surgery to include conditions like diabetic retinopathy and glaucoma and refractive errors - one has to plan for both prior preventive care to prevent progress and life-long post-operative care as well. The need for surgery is not as verifiable and moral hazards could be higher.

But that is precisely why at this stage of evolution, the lessons of Aravind eye care model, which had limited relevance for replication beyond eye care earlier, become greatly instructive.

Firstly we have in its universal eye care model built around vision centres, a model that is a) population based b) that is focused on prevention - not on cure and c) that has a good continuity of care between prevention and cure, and between primary, secondary and tertiary care and resists posing a false dichotomy between these elements and d) that is not without doctors, but is not dependent solely on them.

This model makes smart use of technology for mobilizing and re-organizing its resources, re-engineering work-processes so that the technology is built into it - instead of being an additional work layer imposed on existing work processes. There are no instances of technological solutions having been imposed or even of existing solutions adopted to the local needs. Rather there is a bottom up development of technology used for overcoming service delivery barriers, optimizing use of scarce human resources, ensuring quality of care and ensuring universal outreach.

Their use of information and its link with the management culture is also a major lesson. Information flow is purposely designed to aid the staff at all levels - frontline operational staff, managers and leadership. Most of this information is fed in real time. In the public sector, the information is very sketchy and often in one (up) direction and usually for "information" purpose, made available after considerable time lapse.

Aravind is a model of incremental change - not disruptive change at all. Population based systems need not be achieved overnight. They grow at a comfortable pace with a measure of progress and feedback loops to make the UHC gap visible at all times. It is also important to note what other features of the new public management is not there. Most important of these there are no monetary incentives, no payment for performance at any level of the system.

Such a model can very well be replicated by both the public system and by the private, for all of Healthcare, provided the values that are central to Aravind are embedded in it. And whether it is the public or the private it is not the exhortation for achieving these values, or the lamentation of the lack

of it, that address this issue - but a patient thoughtful sustained effort at embedding these values in the processes of growth, in the institutional design and in the workforce at every level. Theoretically, it would be easier to carry these values into the public system where the providers are, or rather ought to be, ring fenced from monetary gain, as compared

to the private sector where monetary gain is the driver. What the public system, inherently will find far difficult to replicate is the level of design and technological innovation that private ownership provides the space for - and which is essential for its success. How can we build an architecture which builds on these strengths of the respective sectors?