INFINITE VISION

How Aravind Became the World's Greatest Business Case for Compassion

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An Excerpt From

Infinite Vision:
How Aravind Became the World's Greatest Business Case for Compassion

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Published by Berrett-Koehler Publishers

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THE POWER AND PARADOX OF ARAVIND

His journal entries from the 1980s read as electrifying notes to self:

> *Attachment to your village, your hospital, your state or country—that must go. You must live in your soul and face the universal consciousness. To see all as one.*
>
> *To have this vision and work with strength and wisdom all over the world.*

Perhaps the white-haired man with curiously gnarled fingers paused here for a moment before scrawling the next line.

> *To give sight for all.*

The impossible rarely deterred Dr. Govindappa Venkataswamy. As a young surgeon, he watched a crippling disease permanently twist and freeze his fingers out of shape. Those fingers went on to delicately perform more than 100,000 sight-restoring surgeries, but Dr. V, as he came to be known, would not stop there. In 1976, he founded Aravind, an eye clinic operating out of a family home in South India. He was 58 years old. Aravind was his post-retirement project, created with no money, business plan, or safety net. What it

did have was 11 beds—and an oversized mission. Its mission was to eliminate curable blindness.

At Aravind, if you could not pay for surgery, you did not have to. If you could not reach the clinic, its doctors would come to you. At first glance, it seemed a venture far too quixotic to be effective. But when intuitive goodness is pitted against unthinkable odds, it stirs the imagination and awakens possibility.

Dr. V integrated a heart of service and deep spiritual aspiration with the best practices of business. In this way, he forged a high-volume, high-quality, and affordable approach to service delivery that would expand to put a serious dent in a problem of global proportions. Today, the Aravind Eye Care System is the largest and most productive blindness-prevention organization on the planet. During the last 35 years, its network of five eye hospitals in South India have treated more than 32 million patients and performed more than 4 million surgeries, the majority either ultrasubsidized or free.[1]

Think David and Goliath: a man stands up in all his devastating frailty, fights the good fight, and wins a victory for humanity. Aravind is luminous proof of what is possible in our world. Dr. V's compassionate vision and the work of his 3,200-person team (including 21 ophthalmologists across three generations of his family) have captured the attention of individuals as diverse as Bill Clinton, England's Princess Alexandra, and management icon Peter Drucker. The organization consults for Nobel laureate Muhammad Yunus and was visited by Google's celebrity cofounder Larry Page; and a case study on Aravind's work is mandatory reading for every MBA student at the Harvard Business School. In 2008 Aravind won the Gates Award for Global Health, the Hilton Humanitarian Prize followed in 2010, and in that same year Aravind's chief executive officer made it to *Time* magazine's list of the 100 most influential people in the world.

None of this means that Aravind is a perfect organization. Its leaders are regular people who struggle, make mistakes, and chafe

against their limitations. They are fallible like the rest of us, with only this difference: together, these ordinary individuals made a series of uncommon decisions and commitments that resulted in something extraordinary.

In a country of 12 million blind, where the majority lives on less than $2 a day, Aravind ripped the price tag off of sight-restoring surgery, treating more than a third of its patients at no charge. Simultaneously, it insisted on financial self-reliance, resolving not to depend on government aid, private donations, or foreign funding. Even more curiously, in a move to preserve its patients' dignity and self-esteem, Aravind allowed them to decide for themselves whether or not they would pay. In its self-selecting system, there are no eligibility criteria to be met, no income assessments done. A barefoot farmer can choose to pay for surgery, while the man destined to be president of India can opt to receive high-quality treatment for free (true story). It is a generous arrangement, all the more intriguing for being vigorously profitable. Aravind is a nonprofit organization that consistently runs a substantial operating surplus. Its patient services and major expansion projects are entirely self-funded.

In another paradoxical twist, Aravind's marketing strategies target those least able to pay. The organization invests tremendous energy in bringing eye care to villagers too poor to seek out its services. Its policies ensure that *all* patients get the same high standard of care. The same doctors work across both free and paid services, and patient outcomes hold their own in comparisons with those of the best hospitals in the world. In a recent like-for-like assessment of its surgical performance against the United Kingdom's Royal College of Ophthalmologists, Aravind's overall complication rates were found to be less than those of its British counterpart.[2]

Defying the assumption that high-quality surgery cannot be performed at high volumes, its doctors are among the most productive in the world. Aravind surgeons average 2,000 cataract surgeries a year,

against the Indian average of 400 surgeries and the United States' average of under 200.[3] The efficiencies that enable this achievement help make Aravind one of the lowest-cost, highest-quality eye care systems in the world.

Its focus on the penniless does not preclude a breadth or sophistication of services. Aravind's hospitals attract not just the poor but also hundreds of thousands of individuals with the financial means to pick and choose between service providers across the country. It offers a comprehensive range of specialty care, covering everything from corneal ulcers to cancer of the eye. The organization also runs a global research foundation and a postgraduate teaching institute that has trained 15 percent of all ophthalmologists in India.[4] Its short-term fellowships continue to attract residents from leading medical schools around the world (including the Johns Hopkins School of Medicine and the Massachusetts Eye and Ear teaching hospital of Harvard Medical School).

Taking on a goal that far exceeds your capacity has a powerful side effect. It primes you to find allies everywhere. At Aravind, a global mission led to a counterintuitive commitment to training its competition. The organization works with other hospitals, many in its own backyard, helping them to replicate the Aravind model. Not only does it permit others to copy the very systems that give it a competitive advantage—it encourages them to do so. Aravind runs a training and consulting service that has worked with more than 270 hospitals and trained thousands of health care professionals from 69 different countries.[5]

This is a spirited organization that followed the dictates of mission into perilous territory—and lived to tell the tale. When the intraocular lens implant that revolutionized cataract surgery in the West proved too expensive to import for all of Aravind's patients, the organization took a brave step. Against informed opinion and global pressure, it set up its own internationally certified manufacturing facility. Its high-

quality implants dropped the price from $150 to $10, making the lenses affordable not just for its own patients but also for the rest of India and other developing countries as well. Today, its ophthalmic exports are indirectly responsible for improving surgical outcomes for millions of patients in more than 120 countries.

These individual actions, amazing in themselves, collectively speak to something more. They are uplifting evidence that an organization with a social mission does not have to depend on external funding; or run at a loss; or make compromises in efficiency, scale, quality, or scope. In all these ways, Aravind is a glowing exception to the usual rules.

Over the decades, numerous case studies and magazine articles have attempted to explain its success. Most of them seek to answer the same implicit question: How has Aravind reached its current scale and prosperity despite giving away specialized, high-quality services for free?

The framing of that question tends to limit the scope of the answer. Aravind is an unconventional model that came into being not despite but *because of* the deep-seated compassion at its core. This is a model that demonstrates the power of integrating innovation with empathy, business principles with service, and outer transformation with inner change.

From this perspective, a new line of inquiry emerges. How did Aravind design a model such that wealthy patients and those in greatest need benefit from each other? What values, experiences, and insights spurred its leaders to make the unexpected choices that they did? How did these choices influence the organization's efficiency, sustainability, and scale? And, at a time when Western health care systems are in crisis and social enterprises are proliferating across multiple sectors, is Aravind an inspiring singularity or a repeatable miracle?

These are some of the puzzles examined in this book. And at its core is a simple riddle that entwines them all: If Aravind is the extraordinary answer, what were Dr. V's questions?

To understand the Aravind model—what made it work and what continues to fuel its expansion and impact—one must look into the heart and mind of the visionary surgeon who set it all into motion. In that sense, this book is an invitation to walk a while with Dr. V, see the world as he saw it, meet the people who would join him, and catch a glimpse of the lives they touch. In the end, it is an invitation to experience a spark of that which drives our deepest intentions to action.

To see all as one. To give sight for all. Ultimately, Dr. V's vision and Aravind's work draw an arc between the practical and the profound. This story lives on that arc. It is the tale of a revolutionary business model set in the developing world, focused on the sustainable delivery of eyesight. But it is also the journey of an unlikely hero with an impossible dream, whose story (not without its share of snarls and unresolved dilemmas) transcends its own specificity to speak of universal truths: To be of service to others is to serve ourselves. Our limitations do not define us. And embedded in the human spirit is a wisdom and strength that can rise to meet our greatest challenges. Together we can light the eyes of millions.

PROLOGUE

CLIMBING EVEREST

In an interview with Aravind's founder, questions shoot out like impatient arrows from Justin Huggler, Asia correspondent for the British newspaper *The Independent*: "How? How did you do it all? How do you keep on keeping on the way you do? How do you persuade so many others to do the same?"[6]

Dr. V, who can sometimes be very somber during interviews, is at his sunniest. He smiles and says nothing. "How did you manage to do it all, Dr. V?" Huggler persists, and Dr. V chortles. "You know, there are people who have climbed Mount Everest," he says in his strongly accented English. When you spend some time with Dr. V, you eventually begin to understand his seemingly irrelevant answers to questions that refer too closely to the grandeur of his achievements. But this is Huggler's first meeting with Dr. V, so he tries again.

"Yes, but it takes people four weeks to climb Everest, and then they go home and holiday. You've been doing this work day after day after day—how do you do it?"

"People are good at heart; they help you."

"Maybe, but they're also lazy. How did you make this to work?"

Huggler is determined to get somewhere. And after a few more digressions on Everest, unexpectedly he does.

"You see, when people need help, you can't simply run away, no?" says Dr. V. "You say, I will help you, and then you do what you can.

Even when we started, we did good-quality work, so the rich people came and paid us, and we could treat the poor people with the money saved. The poor people brought more poor people; the rich people brought more rich people. So now, here we are."

The man has fit his entire life's work and the evolution of the largest eye care system in the world into five sentences.

Huggler laughs, and his face relaxes for the first time. "Amazing," he says, "this is just amazing." His wonder is still laced with a journalist's curiosity. "But what motivates people to stay and work so hard here when they could have things so much easier somewhere else?"

"What motivates people to climb mountains?" asks Dr. V in return. "It isn't easy to climb Everest, but people do it anyway—isn't it?"

In somewhat more than five sentences, here is a study of that climb.

PART I

The 5-Minute, $15 Cure

On Efficiency and Compassion

My goal is to spread the Aravind model to every nook and corner of India, Asia, and Africa; wherever there is blindness, we want to offer hope. Tell me, what is this concept of franchising? Can't we do what McDonald's and Burger King have done?

—Dr. V, in an interview from "Aravind Eye Hospital, Madurai, India: In Service for Sight" (Harvard Business School case study), by V. Kasturi Rangan, 1993

ONE

OF BURGERS AND BLINDNESS

Built in the shape of a lotus, Madurai is one of the oldest cities of South India. Home to a million people, it is a dense cultural center, famed for its lofty poetry, heady jasmine, and legendary goddess ruler, Meenakshi. At the heart of Madurai lies the massive complex of the Meenakshi Amman temple, whose origins are believed to trace back as far as 6 BC. The temperamental river Vaigai, which alternates between trickle and monsoon flood, divides the city in two. On one side rise the distant towers of the temple, and on the other is a street that has gradually been taken over by an expanding empire for eye care.

On this spring morning the banana man's cart, festooned with garlands of his yellow fruit, is parked in its customary place. A woman slaps laundry against a stone block on the sidewalk, and clotheslines slung from crowded balconies flutter in the breeze. A beanpole of a man weaves through traffic on a bicycle, holding a cell phone to his ear. Straight ahead, a bus has been held up by a herd of buffalos. Road dividers and traffic lights make a stab at order, but there are cheerful violations everywhere.

This is not an easy country to regulate, not its streets and certainly not its health care. Lawsuits have not deeply permeated India's medical profession, and the kind of stringent mandates and regulations that govern Western medicine are often absent or ill enforced. It is the dawn of the 21st century, and health insurance for the masses is only begin-

ning to emerge here. The vast majority of patients pay out of pocket for private care or seek subsidized service in government hospitals that are overcrowded, understaffed, and rife with serious performance issues. The road to care can be hazardous in such an environment. But there are exceptions.

Up ahead, a frail, elderly woman sits sidesaddle on a scooter behind her son. A green post-surgery patch over her left eye gives her an unexpected rakish air. On this street, such pirate-patients are common—they are evidence that a small miracle of sight has recently occurred. The scooter turns the corner at 1 Anna Nagar, where a pale blue five-story building rises behind a stone wall. Brass letters on black granite announce "Aravind Eye Hospital." The wrought iron gates bearing a flowerlike symbol are open, and the scooter carrying the woman with the green eye patch drives in. Today she will be one of the 7,500 patients that Aravind's network of care examines on a daily basis.

According to the World Health Organization's estimates, 39 million people in the world are blind, 80 percent of them needlessly so.[1] "Needless blindness" is a curious turn of phrase you can't escape at Aravind. It refers to the urgent fact that some forms of blindness are entirely within our power to treat or prevent. Cataract is a prime example. A word whose origins lie in the Greek word for "waterfall," it refers to the clouding of the eye's lens. Painless but progressive, if left untreated, cataract leads from blurred vision to total blindness. A simple one-time operation can restore sight, but the sobering fact is that cataract still accounts for more than 60 percent of blindness in India.[2]

DR. V STANDS in the hallway, quietly observing the registration queue. Patients take no notice of the elderly man with the close-cropped white hair and walking stick. The founder of Aravind is easily overlooked

in a crowd. He is a man of unremarkable height and weight, with stooped shoulders and a serious face. Today he is wearing a wrinkled white shirt and no doctor's coat or badge. But those gnarled fingers are unmistakable. On his right hand is a ring that bears the same symbol as the one on the hospital gates. All the founding members of Aravind wear this ring; it is a reminder of a particular spiritual inspiration.

Dr. V bends down slowly, and with difficulty. Two nurses rush forward but are too late. He picks up a discarded candy wrapper (a vintage practice of his), scans the now-spotless floor, and then heads back toward his office.

Aravind was founded by a small band of siblings. Dr. Govindappa Venkataswamy, known to much of the world as Dr. V, was the eldest of five children, and after the early death of their father, he took on the responsibility of educating the others, guiding their careers, and arranging their marriages (as is still the custom in much of India). He himself chose to live a life of celibacy, devoting everything to his family and to the service of the sightless.

In 1976, he asked his siblings (and their spouses) to join him in running a tiny eye clinic *and* to treat patients who could not afford to pay them for free. There was no graceful way to refuse. To say it grew from there is an understatement. The Aravind Eye Care System is now the largest provider of eye surgeries in the world. By 2010, it was seeing more than 2.5 million patients and performing 300,000 surgeries a year.[3] The family's involvement spiraled out, and the employee roster at Aravind now resembles the guest list of a typical Indian wedding.

In the office next door to Dr. V's sits one of his nephews, a man whose grade school report cards Dr. V inspected three decades ago. "If somebody is blind, that's our problem," says Dr. Aravind Srinivasan. "It doesn't matter whether they have money or not. The problem is ours." This charismatic 30-something man is the sole surgeon-MBA in the organization he shares a name with. "Our view of the world

is very different because of Dr. V," he continues. "Over time, he has built a conviction in us that serving the poor is good. That giving most of your services away for free is good." He breaks into a boyish grin. "Basically, he has corrupted our view of the world."[4]

Dr. Aravind heads out the door of his office. He is the administrator of the hospital but still operates three mornings a week and cannot be late; punctuality is a religion here. It is 7:30 a.m., and the corridors, waiting rooms, and registration counters are alive with ordered activity. Thirty-three operating theaters across Aravind's five hospitals (each located in different cities and small towns of Tamil Nadu) are already in full swing. By this afternoon, a thousand patients, rich and poor, will have received surgery across the system. "Our focus is on human welfare," says Dr. V. "If a man can't pay me, it doesn't matter. He will give later if he can."[5]

In the early 1990s, a visitor with floppy gray hair walked into Aravind. At the counter he took out a checkbook, but was politely informed that checks were not accepted and he would need to pay in cash. Having no cash on him, he inquired whether it was possible to be treated in Aravind's free section. Yes, it was. Minutes later, the director of Aravind received a frantic phone call. It was from the visitor's security team, who had lost track of him in the corridors. As the story goes, Dr. Abdul Kalam was located in the free division of the hospital, thrilled with the quality of care he had just received. Kalam went on to become the president of India and a dear friend of the organization. And this episode became one of Aravind's legends. It illustrates the unusual degree of choice—and universal high-quality treatment—accorded to patients here.

Thulsi Ravilla, a nephew of Dr. V's by marriage and the organization's very first managerial hire, presents another startling facet of the organization. "The National Health Service for the United Kingdom does a little over half a million eye surgeries annually; Aravind does

roughly 300,000," he says.[6] That a single organization in a developing country does about 50 percent of the ophthalmic surgical volume of one of the world's most advanced nations is a compelling fact, but not the punch line. Thulsi's next data point typically drops jaws: Aravind does this *at less than 1 percent* of Britain's costs. The latter's National Health Service spends 1.6 billion pounds annually on eye care delivery against Aravind's modest 13.8 million pounds.[7] "The reasons go beyond a simplistic 'Britain isn't India,' explanation," says Thulsi. While external factors like regional economies, regulations, and cultural expectations are valid differences between East and West, Thulsi maintains that myriad other aspects feed into the numbers and must be taken into account. Things like efficiency, clinical processes, and cost-control measures. "Decoding all this can bring answers to most developed countries," he says.[8]

"High volume, high quality, and affordable cost" is the tri-part mantra of the Aravind model. It can seem disappointingly simplistic in the beginning. Provide good service to enough people, and you can keep your prices low and still make a profit. But the real genius of the Aravind model lies in the mindset behind it, the well-crafted processes and all the built-in interdependencies.

How do you create a system that thrives on generosity, one that actually benefits from serving those most in need? How do you engineer an organization that demonstrates repeatedly that high-quality surgical outcomes can be fostered, not threatened, by high volume; and how do you, in the developing-world context, link high quality with affordability—or more radically still, with "free"? The answers to these questions weave together as inextricable threads in the fabric of Aravind. Each influences, and is affected by, the others. "Fundamentally, it's not just numbers that we are chasing. There is a synergy between quality, cost, and the demand for services," says Thulsi.

The first glimpse of that synergy came from a very unlikely place.

NO ONE KNOWS when Dr. V first came up with the delicious non sequitur that linked eye care service delivery with hamburgers, but his fascination with the golden arches of McDonald's is part of Aravind lore now. Sidestepping the notoriety of the world's most successful fast-food chain and the controversies over its public health impact, Dr. V saw in McDonald's the power of standardization, product recognition, accessibility, and scale. "Just as fast food is affordable to many lower-middle-class families in the West, in developing countries we can organize to provide affordable cataract operations," he declared in an interview in the late 1980s.[9] Even close colleagues found his "hamburger talk" a little absurd. But Dr. V's outlandish references were vindicated in the late '90s by Regina Herzlinger, one of America's leading advocates for health care reform. In her book *Market-Driven Health Care*, Herzlinger analyzed the McDonald's Corporation's service system. Why McDonald's? "Because week after week, year after year, it demonstrates how to attain exactly the qualities that the health-care system needs—consistency, reliability, clear standards, and low costs—in each of its 20,000 restaurants all around the world."[10]

Following the 11-bed clinic Dr. V opened in 1976 came a hospital with 600 beds in 1981. Aravind's second and third hospitals were opened in 1984 and 1988. By the first decade of the new millennium, there were three more Aravind Eye Hospitals across the state of Tamil Nadu, totaling more than 3,200 beds. Dr. V launched all of this starting with a grand total of just five ophthalmologists by his side.

In order to amplify each surgeon's impact and reach the most people in need, he brought in assembly-line techniques and engineered hospital systems that eventually allowed his doctors to perform close

to five times more surgeries than the national average. An intensively trained cadre of paraprofessionals, or midlevel ophthalmic personnel (Aravind's designation for them) was also key to making this possible. The two-year training program they undergo has been accredited by the Joint Commission on Allied Health Personnel in Ophthalmology in the United States (JCAHPO).

A routine eye checkup at Aravind entails registration, basic vision testing, a preliminary doctor's examination, measurement of ocular pressure, pupil dilation, and a final examination. If surgery is recommended, detailed counseling takes place to ensure that the patient fully understands the process. Typically an ophthalmologist would perform the bulk of these duties. But at Aravind the entire stream of patient-centric activities, from entry to discharge, is broken up into sets of discrete tasks. Aravind's army of paraprofessionals performs most of these tasks (except for the preliminary exam and the final diagnosis, which are done by doctors). This group includes nurses, counselors, refractionists, and ophthalmic technicians, among a dozen different subcadres, each specialized in a clearly defined set of recurring duties.[11]

A similar role designation is seen in Aravind's operating rooms and postoperative wards. The result is a system that powerfully maximizes the time and skill of Aravind's surgeons. Everything is geared to allow these doctors to focus almost exclusively on diagnosing patients and performing operations. In this way, with less than 1 percent of the country's ophthalmic power, Aravind is able to perform 5 percent of all eye care procedures in India.[12]

A mindset geared toward constant process innovation also contributes to this record-breaking efficiency. From Aravind's earliest years, Dr. V urged his team to reexamine their systems for unnecessary delays and avoidable irregularities, and to find key leverage points in their process where small shifts could yield a significant impact. His journal entries across the decades reflect these preoccupations.

Dr. V has accumulated close to 100 journals over his lifetime. Their yellowing pages carry the forgettable details of various conferences, research papers, projects, hospital inventory, and meticulous accounts. But among these prosaic notes are meditations on life's purpose, frank self-assessments, and questions—copious questions. Inquiry is a deep part of his nature, and Dr. V's private catechism embraces both abiding mysteries and transient practical concerns. In a founding-year entry from 1976, he wrote: *How to train nurses for post-op dressing. How many tables do we need to operate 30 patients a week. Do we have enough operating sets. Can we start operating earlier in the day. What if we had another facility.*[13]

It is striking that in the tens of thousands of journal entries Dr. V has penned over the decades, he almost never uses question marks—as if to him, framing the right question is in itself an answer of sorts.

THE HOSPITAL-AS-FACTORY MINDSET can raise logical objections in the uninitiated, but the reality is that Aravind's approach serves patient interests in multiple ways. The streamlined workflow increases efficiency, which means less waiting time. Task repetition creates competence, which means better clinical outcomes. And employing skilled paraprofessionals for steps that do not require a doctor's expertise not only facilitates individualized attention but also reduces prices. All three factors working in conjunction contribute to scale and affordability while improving patient experience and the quality of care.

It is early 2004, and Dr. V is talking with two guests from the Schwab Foundation for Social Entrepreneurship. One of the visitors remarks that in the United Kingdom, until recently, the wait time for cataract surgery was often as long as two years. "How long do patients have to wait here?" she asks. Dr. V's response is gleeful: "Here we don't give them a chance to wait." When a patient at Aravind is

advised to have surgery, the system is prepared to admit him or her the same day and operate the very next.

Aravind deliberately keeps the fees for its paid services low. For those who elect to pay, the consultation fee is roughly $1, and the various surgery prices are capped at local market rates. In this something-for-everyone approach, patients who decide to pay for cataract surgery choose from a tiered range of packages. Midrange prices start at about $110, while high-end packages can go up to $1,000. Service differentiation occurs primarily in terms of accommodation add-ons (air conditioning, attached bath, an extra bed for a family member, etc.) and choice from a range of surgical techniques and ophthalmic implants. Patients who opt for free or minimal-payment surgery pay between $0 and $17. They are housed in dormitories and receive standard surgery and ophthalmic implants. Clinical outcomes are similar whether or not a patient pays.

In Aravind's free department, a young nurse bends to address a woman sitting on a bench. "Grandmother, please cover your left eye with your hand," she says. Her face is serious, and she is intent on the task at hand. Now she waves two fingers inches away from the patient's nose. "How many fingers?" she asks. "Two," says Rukmini, peering between the fingers of her cupped palm. "No, no, you must keep the eye closed!" says the nurse, and Rukmini promptly screws shut both her eyes.

For a villager who has never been to a hospital, much less undergone an eye exam before, the instructions to close first one eye and then the other, count fingers, and stare at a black-and-white illuminated cube covered with strange line drawings can be mystifying.

For actual refraction testing and eyeglass prescription, Aravind's trained refractionists use trial lenses for fine-tuned results. But for initial rapid assessments, nurses use the finger test and then alphabet-based or number-based Snellen charts (the standardized vision charts employed the world over). For patients like Rukmini who are illiterate,

the nurses use the Tumbling E chart, with rows of the letter E in different orientations, diminishing in size from top to bottom. Patients are asked to sequentially indicate with their fingers the direction in which the prongs of the letter are pointing.

After a more successful go-around, Rukmini uncovers her eye and blinks a few times. She is wearing a faded red cotton sari and no jewelry. Her face is sun worn, wrinkled, and wears an ancient expression. There's something in her right eye that catches attention—a milky opacity. "Cataract," says the nurse briefly, before helping the woman to her feet. "Grandmother, walk this way; we're going to see the doctor now."

By tomorrow, Rukmini will have a green post-surgery patch covering her eye.

There is a palpable, almost oceanic, quality of calm in Aravind's operating theaters; gowned and masked doctors and nurses flit through the shining hallways, as tranquil patients wait on stretchers or in wheelchairs. Considering that they are about to go under the knife, there is a curious absence of anxiety or tension in the air. *From Here to Nirvana*, a whimsically titled guidebook for spiritual destinations in India, includes an entry on the Aravind Eye Care System. A fitting inclusion, considering that visitors often refer to the organization as a temple for sight.

The nurses have been at work since 6:30 a.m., setting up the theaters and prepping the patients. Each theater has four operating tables lined up parallel to each other, two tables to a surgeon. The chief of cataract services, Dr. Haripriya Aravind, sits on a stool, her gaze locked into a surgical microscope trained on the patient on her operating table. Above the blue surgical mask, only her eyes, with finely arched eyebrows and the tear-shaped *bindi* between them, are visible. Another surgeon is similarly positioned at the far end of the room. In a

few minutes, Haripriya looks up. The operation is done, a nurse helps the patient off the table, and the long arm of the surgical microscope is swung over to the next patient, already prepped and waiting on the second operating table.

Purusottam Lal Bhudo is a 75-year-old man who chose to pay $200 (a midrange price) for his treatment. Cataract surgery takes place under local anesthesia—in this case, topical drops that have been administered by an assisting nurse. Draped in a green surgical cloth, Bhudo is silent but awake. Before the surgery, a circulating nurse reads out details of his case to the doctor.

At Aravind, nurses handle 70 percent of all the activities that take place in the operating room.[14] A team of four nurses supports each surgeon; two assist the surgeon directly, while two circulating nurses (shared with an adjacent surgeon) are responsible for bringing in fresh sets of sterile instruments.

The surgery that Haripriya is performing is phacoemulsification (phaco), an elegant technique with excellent visual outcomes. This minimally invasive, high-tech approach delivers ultrasound through a microscopic surgical handpiece controlled by the surgeon via sophisticated software to emulsify the large, hard cataract core. It enables the entire cataract to be suctioned out through a tiny incision less than 3 millimeters long. Phaco is a convenient, same-day procedure with rapid recovery rates. It is the gold standard for cataract treatment in the West.

Haripriya deftly makes an incision and inserts the needlelike ultrasonic device to pulverize the hardened cataract. She aspirates the shattered pieces, suctioning them out. One of the assisting nurses leans in to irrigate the ocular surface. Using a series of delicate sterile instruments, Haripriya folds and inserts a synthetic intraocular lens through the incision and adjusts it for a perfect fit. No sutures are required; the tiny incision is self-sealing. Through all of this, the assisting nurses have handed instruments to the surgeon in rhythmic sequence, anticipatory motions so smooth

that the surgeon's eyes don't lift from the microscope. A choreographed exchange between gloved hands. Barely a word is exchanged.

"It's very hot," mumbles a freshly operated-on Bhudo from under the white glare of the overhead lamp. "Don't worry, we're almost done," Haripriya says softly. Within moments, Bhudo is helped off the table and led to his room by a reassuring nurse.

Time taken for entire operation: less than six minutes.

Haripriya swings the microscope over to the table on her right, where her next patient is ready. At Aravind assembly-line processes have reduced lag time between a surgeon's operations to just 1 to 3 minutes, versus an average of 15 minutes at other hospitals in India.[15] Through experience and constant tweaking, Aravind has identified key factors that boost surgical productivity and standardized its processes accordingly. The systems in place aim to reduce the surgeon's wait time—whether for case details, a surgical instrument, or the next patient—to zero.[16] All resources are optimally employed. Aravind knows, for instance, that if a team of one surgeon and two nurses is equipped with two sets of instruments instead of one, they can double the number of surgeries done per hour. With an additional nurse and four more instrument sets, they can quadruple their output. They have also discovered that pre-grouping cases by degree of complexity boosts surgical productivity.

"When I was a resident here, every day Dr. V would want to know how many surgeries I had done," says Haripriya, who is married to his nephew, Dr. Aravind.[17] "To be able to face Chief [Dr. V], I would try and do more and do better—just to hear him say, on rare occasions, 'Very good, Very good.'" Rarely, and only with stringent qualifications, are surgeons from the developing world granted permission to operate in the West. In October 2010, Haripriya was one of four surgeons from around the world (and the only woman) invited to Chicago to demonstrate live surgery at the annual gathering of the American Academy of Ophthalmology.

Cataract surgery comprises 67 percent of all operations performed at Aravind.[18] "All our surgeons help tackle the workload by doing cataract surgeries during the first part of the day, before moving on to cases in their specialty," says Haripriya, who typically handles the more complicated cataract cases. "It's part of the culture here. Everyone does cataracts." While Aravind offers a full range of eye care services, including specialties like cornea, uvea, pediatrics, and neuro-ophthalmology, the system ensures that all of its surgeons (with the exception of its retina specialists, whose surgeries are particularly time intensive) play their part in eliminating the world's leading cause of needless blindness.

"What I do here I can't imagine accomplishing at other hospitals," says the other surgeon operating in the theater with Haripriya. "The numbers we do are only possible because of the efficient systems in place—and the amazing work of our nurses." A doctor at Aravind performs over 2,000 surgeries a year, compared with an all-India average of 400.

"*Amma*, your operation is over; it went well," says Haripriya to the woman on her table. The clock overhead reads 9:20 a.m.; she has been operating since 8 a.m. and is already 15 cases deep. This pace is not unusual at Aravind, but by the standards of the rest of the world, it is nothing short of extraordinary.

In the United States, Dr. David F. Chang is to cataract surgery what Michael Jordan is to basketball. His surgical speed, technique, research, and teaching skills have made him a household name in the field. Having also chaired the panel that developed the practice guidelines for cataract surgery, now used worldwide, Chang is a voice of considerable authority.

"Many eye surgeons in the United States perform 200 to 300 cases a year, averaging 30 to 45 minutes per case, including turnaround time in

the operating room," says Chang, who is a clinical professor of ophthalmology at the University of California, San Francisco (UCSF).[19] "Some, of course, are faster or slower, and the case volumes certainly vary, but these numbers wouldn't be atypical." By contrast, Chang averages 30 cataract surgeries a day, four surgeries an hour. "When Dr. Venkatesh Rengaraj, one of Aravind's top surgeons, visited us in San Francisco and wanted to watch a top cataract surgeon operate, he was pointed to me," explains Chang. He pauses for a moment and then adds matter-of-factly, "In the U.S., I am considered very, very high volume."

In 2003, on his first trip to India, roles were reversed when Chang visited Aravind's hospital in the seaside town of Pondicherry and watched Venkatesh operate. "And of course, my own concept of high-volume surgery was laughable in comparison," he concludes wryly.

Because there is no universal definition for "high volume" in the context of cataract surgery, Aravind formulated its own; in its system, doctors who consistently perform more than 80 surgeries per day in six operating hours are "high-volume surgeons." Venkatesh is one of the faster high-volume surgeons at Aravind. For him, performing 100 operations in the span of a single day is not uncommon. He averages 3.5 minutes a case.[20]

"I've been involved with every aspect of cataract surgery as it is performed in the U.S. and in the Western world," says Chang, "and I really did not expect to see the efficiency, speed, skill, and stamina with which surgery is performed at Aravind. I watched their surgical teams with amazement."

And more than anything, it is the model itself that David Chang believes has tremendous implications. "Aravind is not just about what one ophthalmologist or one eye hospital can do," he says firmly. "This model provides hope that we can solve the huge problem of cataract in the developing world. Unlike other seemingly hopeless challenges, here is a very tangible, affordable, and proven solution. Aravind is one of the greatest success stories in all of medicine."

It is a story that Chang tells as often and as widely as he can. In 2005, he published an article provocatively titled, "A 5-Minute, $15 Cure for Blindness," which describes and validates the quality of M-SICS, a special type of cataract surgery that doctors at Aravind routinely perform on their nonpaying patients.[21]

By 2010, 75 percent of Aravind's paying patients were opting for phaco as their cataract surgery procedure of choice.[22] But phaco machines are expensive to purchase and maintain, the cost of disposable supplies per case is substantial, and the tiny incision requires using high-cost foldable lenses to replace the natural clouded lens that is extracted. For these reasons, scaling the technique to *all* of Aravind's patients posed several challenges. But compromising on outcome quality by using an inferior surgical technique on nonpaying patients was not an option.

In the early 1990s, Aravind addressed the high-cost challenge posed by the phaco method by adapting an alternative surgical technique for its free and deeply subsidized patients. The manual, sutureless, small-incision cataract surgery (M-SICS) that surgeons at Aravind perfected uses relatively inexpensive equipment and supplies, including nonfoldable lens implants (costing a fraction of their foldable counterparts). Like phaco, the modified M-SICS technique adapts the shape and size of the incision, removing the need for sutures, and ensures a self-sealing recovery.

Postoperative vision recovery for the patient is typically faster with phaco surgery, and it is considered a more sophisticated technique (which is often why paying patients choose it). But experts like Chang deem M-SICS comparable in terms of both recovery speed and clinical outcomes. Interestingly, the M-SICS technique has also proved less prone to complications on mature cataracts (an advanced stage of cataract rare in the West but common among the poor in the developing world).[23] Additional benefits are that M-SICS is easier to learn and faster to perform—qualities well suited to Aravind's high-volume

setting. Having this technique in its repertoire definitively supports Aravind's broader model and its mission to provide equitable, high-quality care to all its patients.

But there is more to the Aravind story that impresses Chang. He recalls meeting Dr. V during his first visit to Aravind. "He has an amazing aura. It was like being in the presence of a living legend. He brings a lot of energy and purpose to everyone he comes in contact with." Then the man who is arguably one of America's best-known eye surgeons throws in a rather anomalous observation. "I really think Dr. V's spirituality is an important driving force at Aravind."

Spirituality. It is an unusual element to surface in a discussion of comparative surgical techniques. But Chang is not the only person to pick up on this undercurrent to Aravind's work.

this material has been excerpted from

Infinite Vision:
How Aravind Became the World's Greatest Business Case for Compassion

by Pavithra K. Mehta & Suchitra Shenoy
Published by Berrett-Koehler Publishers

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