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Revolutionary Health: Local Solutions for Global Health Problems

By Rick Docksai

Better health care doesn't have to be costlier, as a number of innovative health practitioners are showing. In India, Venezuela, and elsewhere, the strategic use of technology, community involvement, and resource reallocations are enabling health-care providers to treat more patients more effectively, all while spending less money.

Health-care cost hikes and soaring demands for services loom worldwide. Countries everywhere grapple with how to provide more care with fewer resources. Glimpses of hope are around us, however. At the community level, innovative health practitioners are finding ways to extend treatment to unprecedented new numbers of patients. Even better, they are doing so without raising their costs of care.

Pay-What-You-Can Medicine In India

In 1976, Indian surgeon Govindappa Venkataswamy resolved to make eye surgery affordable for even the poorest Indians. Toward that end, he opened an eye clinic that year, which he dubbed Aravind. One monumental trait set this clinic apart from any other eye clinic in India or, for that matter, the world: It did not require patients to pay.

Since then, Venkataswamy has expanded his one clinic into five and built a 3,200-person cadre of clinicians and nurses to run them. Like the first Aravind clinic, they make their services available to all who need them, regardless of income. Each clinic has separate wings—some wings for the middle-class patients who can pay in full, and others for the lower-income and destitute patients who cannot. The same doctors work in both. Patients may pay what they are able to, or not pay at all, if necessary. Roughly one-third pay nothing at all. Because about half of the patients pay in full, however, Aravind has money to set aside to provide free services for those who cannot.

To this network of clinics, Aravind later added a manufacturing facility. It is internationally certified and distributes transplant lenses to millions of patients in 120 countries. The lens price is about \$10, a tiny fraction of the \$150 that a typical lens would cost.

Despite charging so little for its products and services, Aravind exhibits remarkable fiscal solvency. Not one Aravind hospital receives even a rupee of private charity, public aid, or foreign funding. In 2009-2010, according to *Forbes* magazine, Aravind accumulated \$29 million in revenues and ran a surplus of \$13 million.

Its clinics thrive by constantly identifying the most-efficient means to perform every last task. A surgeon's salary is delinked from patient load—pay is based on results, not on procedures. Also, management routinely reviews every doctor's clinical protocols and any tests or medications that he or she has prescribed, in order to make sure that no doctor is ordering more tests or treatments than necessary. As a corollary, Aravind's physicians accept lower earnings than most practitioners in their fields. They receive fixed salaries with no bonuses for seeing extra patients or performing extra tests. On the other hand, they also carry far fewer debts: 90% of them complete their training at Aravind itself, not at medical schools.

That is not to say that Aravind doctors are less capable than their formally trained counterparts. Their patients on average fare even better, post-treatment, than patients who obtain similar services in Britain's hospital system, according to the charity-rating service Givewell. Some of this success may be attributable to positive peer pressure. The Aravind clinics compile weekly spreadsheets detailing each practitioner's patient case, actions taken, and outcome. All personnel review each other's data to learn lessons wherever possible, identify and solve any problems, and spur each other to do better.

The Aravind clinics also do not permit cost cutting to be a pretext for denying services or curbing time spent with patients. An Aravind surgeon conducts an average of 2,000 cataract surgeries a year, far above the typical Indian surgeon's average of 400 and the typical U.S. surgeon's average of 200. "Assembly-line" processes help to expedite patient intake by cutting the lag time between operations: Whereas a typical surgeon in India takes 15 minutes to shift from concluding an operation on one patient to commencing an operation on another, most Aravind surgeons move from the first patient to the next in just one to three minutes. Venkatesh Rangaraj, one of Aravind's higher-volume surgeons, completes 100 cataract operations a day, averaging 3.5 minutes per case.

"Health care delivery in much of the world is fundamentally driven by the notion of limitation—an underlying assumption that there is simply not enough to go around for everybody's needs. That its model defied this notion (even in the years when its own resources were scarce) is perhaps Aravind's most potent and paradoxical quality," write Pavithra K. Mehta and Suchitra Shenoy in their book, *Infinite Vision: How Aravind Became the World's Greatest Business Case for Compassion* (Berrett-Koehler, 2011).

Health professionals throughout India have taken note. Over the last decade, hundreds of Indian hospitals have personally consulted with Aravind and made efforts to emulate the Aravind mission. It is a far more admirable model, for sure, than U.S. hospitals, where patients on

Medicaid and Medicare are being turned away because the doctors will not accept the programs' low reimbursement rates. Discounted services are not yet an accepted course of action in the U.S. system. They are now in India, thanks to Aravind pointing the way.

A Larger-Scale Hospital Model

One Aravind-like model is now bringing low-cost cardiac treatment to India's poor. The first Narayana Hrudayalaya hospital, founded in Bangalore, India, in 2001 by Devi Shetty, ramped up patient intake to levels unheard of in most of the industrialized world. Whereas the average U.S. hospital has 160 beds, this hospital has 1,000. In 2008, its team of 42 surgeons completed 3,174 cardiac bypass surgeries, more than twice the 1,367 that the prestigious U.S. hospital Cleveland Clinic did that same year. And whereas the Children's Hospital in Boston operated on 1,026 children patients in 2008, the surgeons at Narayana Hrudayalaya operated on 2,777.

Like those at Aravind, the Narayana Hrudatalaya physicians work more hours than any of their counterparts in the United States. Shetty's surgeons perform two to three procedures daily, six days a week, and work 60 to 70 hours a week, compared with a typical U.S. surgeon's workload of one or two procedures a day, five days a week, and 60 hours a week.

Some skeptics might expect Shetty's surgeons to suffer exhaustion from these huge case loads, and for their work quality to consequently drop. Yet this is not the case. The mortality rate for the first 30 days following coronary artery bypass surgery at Narayana Hrudayalaya was 1.4%, compared with 1.9% in the United States, according to the Society of Thoracic Surgeons. Jack Lewin, chief executive of the American College of Cardiology, who visited the facility in 2009, argues that the Indian hospital's rate is all the more impressive, since its patient population has generally far less basic care than an American population and typically arrive at the hospital with their cardiac conditions at more severe and acute stages.

Lewin stated further that the high volumes at which the hospital sees patients are actually a great way to improve quality of care. Any given surgeon there operates on far more patients, so he or she naturally acquires more skill and expertise. Also, as Lewin noted, the high patient traffic leads to each of the hospital's doctors focusing on one or two specific types of cardiac surgeries and becoming masters at those particular treatments. By contrast, according to Lewin, an average U.S. or Indian hospital does not see enough patients per day for any one surgeon to focus exclusively on any one or two types of heart procedures. Narayana Hrudayalaya now performs more heart surgeries than any hospital on Earth.

Shetty's bulk-production method also substantially cuts costs. Building-maintenance expenses are lower, after all, given that more patients and personnel consolidate under one roof. Also, they require less equipment: Each machine that Shetty buys goes into use 15 to 20 times a day, versus the three or four times a day that is the norm in most U.S. hospitals.

The cost savings go directly to the patients. A cardiac bypass operation costs around \$2,000 at Shetty's facility, for instance, compared with \$5,000 at an average private Indian hospital and between \$20,000 and \$40,000 at a U.S. hospital. This puts Narayana Hrudayalaya's services within reach of struggling low-income Indian families.

Since \$2,000 is still a large sum for most low-income families, Shetty helped the Indian state Karnataka organize a farmers' insurance plan several years ago. The plan, one that now enrolls a third of his patients, costs each enrollee \$3 a year and reimburses the hospital \$1,200 for every cardiac surgery. The break-even cost per operation is \$1,500, but the hospital makes up the \$300 difference by charging slightly more to the patients not enrolled in the plan: 40% of the nonenrolled patients in the general ward pay \$2,400 each; an additional 30% of wealthier patients who choose private or semi-private rooms pay as much as \$5,000.

Shetty has since expanded Narayana Hrudayalaya into a network of 12 hospitals located throughout India, and he has plans for five more upcoming, including one for the Cayman Islands. This latter location will likely attract high numbers of U.S. patients, stated a November 2009 *Wall Street Journal* feature that approvingly called Shetty "the Henry Ford of heart surgery." The article lauded his record-breaking productivity, which it said "offers insights for countries worldwide that are struggling with soaring medical costs, including the U.S. as it debates major health-care overhaul." The article noted that the Cayman Islands site is a one-hour plane ride from Miami, Florida, and its procedures would be half the price or less of the same services at U.S. hospitals.

Shetty's hospitals are reaching out to volumes of patients beyond India, or even the Cayman Islands, by way of another huge cost-saving medical trend: telemedicine. Narayana Hrudayalaya sets yet another medical record as the world's largest telemedicine provider, courtesy of its array of 800 satellite centers, distributed throughout Malaysia, Pakistan, and 24 other countries. Shetty's telemedicine outreach began with videoconference facilities through which he would interface with residents of remote towns and villages in rural India. Mobile teams could travel to patients who needed work done in person and then relay the results—both electrocardiograms (electric monitoring of heart activity) and angiograms (imaging of blood vessels and organs) could be transmitted over fiber-optic and satellite links.

"In a country where a bus ticket to the nearest hospital can cost a month's wages, tele-consultations provide a low-cost solution for Indians who do not have access to medical specialists," writes the *Economist* magazine's Economist Intelligence Unit, adding that satellite link-ups have been enabling Narayana Hrudayalaya to serve many patients in sub-Saharan Africa since February 2009.

The hospital has conducted more than 30,000 tele-consultations so far. Yet Shetty has more progress to make: He intends to take on mobile telemedicine in years to come.

Community-Centered Medicine in Latin America

As journalist Steve Brouwer observes in *Revolutionary Doctors* (Monthly Review Press, 2011), quality medical care had been far too costly for working-class and lower-income Venezuelans in the twentieth century, and overly concentrated in major urban centers.

In 1998, President-elect Hugo Chávez set out to close the accessibility gap. In 2003, with extensive financial and personnel support from Cuba, he unfurled Misión Barrio Adentro ("Mission Within the Neighborhood"), a long-term plan to construct clinics, pharmacies, and

other types of medical centers in communities across Venezuela for citizens to receive free health services from doctors living in their own neighborhoods. Visitors at any one could receive checkups, a variety of basic treatments, and advice on healthy living. Another array of diagnostic centers, also distributed throughout at-need communities, would offer surgeries, 24-hour diagnostics, and intensive care, all free of charge.

To open clinics, Cuban envoys visited the Venezuelan neighborhoods and conferred with the community groups on places to house the doctors and to operate dispensaries. All arrangements took place in open-forum meetings, with townspeople actively involved. Community people would continue to be active participants in the clinics' administration and operations. They would also be a large segment of its workforce. As clinics opened up, residents took up training to be "health supporters" who would assist the doctors and nurses with their daily workloads.

In each community, a health committee—a popularly elected board that coordinates on community health matters—would advise and assist the clinic each step of the way. Thus the clinics operated with strong support from local leaders. Clinics also enjoyed staunch support from the residents themselves, and understandably so: The doctors made themselves available 24 hours a day and routinely made house calls, efforts unheard of among traditional health workers. Anecdotes even tell of high-crime communities where police presence was generally lacking, but clinics were able to work in safety, thanks to community groups volunteering to protect them.

Further clinic–community interaction would take place during the "health parties"—community social events, including sports and cultural events, that promote health. All parties take place with heavy participation from groups within the communities, such as youth groups, groups of grandparents, and addiction-recovery support groups.

"Because the existence of Barrio Adentro relies on community organization, it is undeniable that the program has created a new space for political participation and activism that has forcefully extended throughout Venezuela. ... The lives of many have taken paths that will be hard to reverse," wrote Arachu Castro, assistant professor of social medicine at Harvard University, in a paper for *ReVista: Harvard Review of Latin America*.

The emphasis on preventive care also makes Barrio Adentro significant. The clinics act as a first line of care that tackles multiple health risk factors before they morph into acute conditions that require costly hospitalizations.

Barrio Adentro has borne its share of setbacks. Staff shortages set in, due in part to the established doctors' associations shunning it. For political reasons—some traditional doctors viewed Barrio Adentro as a rival, and many were suspicious of communist Cuba's involvement in the project—numerous doctors' associations went so far as to forbid their members from applying for jobs at its clinics. Economic setbacks before and during the 2008 global financial crisis likewise cut hard into the Barrio Adentro bottom line. Approximately half of the clinics initially built were shut down, and many more laid off staff and cut back hours of operation.

But the mission continued. In 2004-2005, the program conducted more than 150 million consultations—four times as many as did Venezuela's conventional outpatient services. And in

2008, Venezuela achieved universal vaccination for the first time, affirmed Mirta Rosas, director of the Pan-American Health Organization (PAHO), during a visit to Caracas. Today, nearly 900 clinics are still running and are continuing an expansion of health-care availability that is nothing less than historic: Nearly 100% of the Venezuelan public now has access to health care.

In 2006, PAHO reported the significant improvement Venezuela made in 2004-2005 on diagnosing hypertension, ischemic heart disease, diabetes, cerebrovascular disease, and bronchial asthma—all thanks to Barrio Adentro, as Venezuela’s conventional health systems showed no improvement on diagnosing these five conditions during this time period. More importantly, the report found much progress on provision of post-diagnosis monitoring and follow-up for these five conditions.

UNICEF, meanwhile, reports progress on a range of key health indicators. Between 2000 and 2009, Venezuela’s infant mortality rate fell from 27 per 1,000 births to 15 (beating Brazil and Colombia). The mortality rate among children under age 5 fell from 32 to 17 per 1,000 (trumping Brazil, Colombia, and Peru), and the adult mortality rate fell from 148 to 146 (edging out both Brazil and Colombia).

Nor is the program prohibitively expensive. Venezuela’s health expenditures now stand at 9% of the government budget, which is low for Latin America. Even Henrique Capriles Radonski, Chávez’s conservative rival in the 2012 Venezuelan presidential election, has stated that he will keep the mission in place because it “belongs to the people.”

Cost-Savvier Consumers in North America

Consumers in the United States can lower their medical bills if they bargain for it, according to John Goodman, president of the National Center for Policy Analysis. In a February 2012 Health Care Blog article, he describes the online service Medibid, on which visitors who need specific medical procedures can search for hospitals that offer them and then contact the hospitals to request price bids and estimates. The hospitals retrieve the individuals’ medical records and have them fill out medical questionnaires. Any one visitor can receive as many bids as he or she pleases and then select one.

Medibid’s users can cut their health-care costs in half through such bidding processes, according to Goodman. The

For Further Information

- *Revolutionary Doctors: How Venezuela and Cuba are Changing the World’s Conception of Health Care* by Steve Brouwer. Monthly Review Press. 2011. 256 pages.
- *Infinite Vision: How Aravind Became the World’s Greatest Business Case for Compassion* by Pavithra K. Mehta and Suchitra Shenoy. Berrett-Koehler. 2011. 336 pages.
- “Aravind Eye Care System,” GiveWell, March 2012, www.givewell.org.
- Health of Nations, www.healthofnations.com.
- Pacific-American Health Organization, www.paho.org.
- UNICEF, www.unicef.org.
- The Health Care Blog, www.thehealthcareblog.com.
- “Barrio Adentro: A Look at the Origins of a Social Mission” by Arachu Castro, ReVista (Fall 2008), David Rockefeller Center for Latin-American Studies, www.drclas.harvard.edu.

site arranged for more than 50 knee replacements in 2011. Each replacement averaged around \$12,000; that is a third of what a private insurance company would normally pay and half of what Medicare would pay. Medibid also led to 66 colonoscopies in 2011, running at an average of \$500 to \$800 each—about half of what a patient would ordinarily pay. Other Medibid transactions in 2011 included 45 knee and shoulder arthroscopic surgeries, averaging \$4,000 to \$5,000, and 33 hernia repairs at an average of \$3,500 each.

One does not have to log onto Medibid to strike a better deal, however. Goodman notes that virtually any patient who is willing to travel to another city or state can locate a hospital that is willing to perform a procedure at a discount rate. There are even companies that connect patients with bargain procedures in medical facilities outside their immediate geographic areas. For example, North American Surgery, whose clientele include many Canadians looking for surgical procedures in U.S. facilities, negotiates the price of knee replacements down to \$16,000–\$19,000.

“The implications of all this are staggering. The United States is supposed to have the most expensive medical care found anywhere. Yet many U.S. hospitals are able to offer traveling patients package prices that are competitive with the prices charged by top-rated medical tourist facilities in such places as India, Thailand and Singapore,” Goodman writes.

Prospects for Resuscitating Health Care around the World

These success stories show local health teams learning to do more while using less. They run against the grain of health-care policy making at the national levels in their respective countries. Throughout the democratic world, national lawmakers’ general track records on health care entail doing the same (or less) while using more and more. The result is an upward trajectory of costs that experts across the globe warn is unsustainable.

Debate abounds over how Europe’s democracies will keep their health initiatives funded. The Organization for Economic Co-operation and Development projects that, whereas the European

Medical Recycling as Health “REMEDY”

Syringes, bandages, sutures, stretchers—hospitals throw out these and more en masse, even though many of them are still very usable, according to William Rosenblatt, a Yale Medical Group anesthesiologist. That’s why he started REMEDY (Recovering Medical Equipment for the Developing World), a nonprofit organization that collects medical garbage from hospitals, sanitizes and refurbishes it, and sends it to under-resourced health centers in the developing world.

It might surprise the average observer just how much of what hospitals throw out is salvageable, but between REMEDY’s launch in 1991 and 2011, Rosenblatt recycled about 30 tons of “waste” that had been thrown out mostly due to FDA requirements, expirations of the manufacturer warranties, or legal concerns. He has also inspired more than 600 similar medical-recycling initiatives in other communities across the United States.

The materials salvaged have decreased a bit in recent years, but that is due to surgeons actually using less equipment. They now scrutinize their “surgical kits”—the tools that they use at the operating table—to make

Union's member nations spent 8% of GDP on health in 2000, they will spend 14% in 2030, with further percent increases in the decades that follow. Aging populations, combined with the rising costs of new medical technologies and medical R&D, keep pushing the price of care upwards. Germany's health system alone ran a \$6 billion deficit in 2011. Great Britain's National Health Service is so strained to rein in its budget deficits, according to the *Guardian*, that British hospitals have been laying off personnel and reducing the numbers of surgeries, much to the grief of patients.

The U.S. health-care system is in even worse shape. It spends more than any nation on health and has a ballooning health budget crisis to show for it: Health spending eats up 16% of U.S. GDP and grows an estimated 3% a year. Not that the United States gets excellent health results in return—the country lags most of the industrialized world in life expectancy, infant and child mortality, and incidence of cancer and heart disease, as the World Health Organization and other international research bodies have duly recorded.

The correlation of a country's health expenditures to health outcomes is actually pretty weak. Many countries that spend comparatively paltry sums on health care turn out to have some of the healthiest populations on the planet, according to the Economist Intelligence Unit. Compare Russia, which has above-average numbers of doctors and hospital beds, with Chile, where doctors and hospital beds are both scarce. Chileans are, on average, immensely healthier in every key respect.

It's often said that throwing money at a problem doesn't solve it. That holds profoundly true in the health-care arena. As Aravind, Medibid, and other innovative models amply show, better health does not hinge upon societies pouring ever-larger sums of capital into health care, but rather, upon societies making best use of the health-care resources that they already have.

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