CHAPTER 9

Project ECHO: Bringing Specialists’ Expertise to Underserved Rural Areas

Sara Solovitch

Editors’ Introduction

One of the enduring problems of American medicine is how to provide care for people living in isolated, rural areas where medical resources are scarce. The problem is particularly acute for those with conditions requiring the skills of a specialist, most of whom tend to live in cities or near major medical centers. In many rural areas, if there is a doctor available at all, he or she is likely to be a general practitioner.

In this chapter, Sara Solovitch, a California-based journalist and freelance writer, tells the story of an innovative way of providing medical expertise in the treatment of complex illnesses suffered by people living in rural areas. Developed by Sanjeev Arora, a physician affiliated with the University of New Mexico School of Medicine and a leading expert on liver diseases, Project ECHO enables primary care physicians and nurses in rural New Mexico to consult, via videoconference, with specialists at the University of New Mexico Medical School about how best to treat their patients with hepatitis C. The project, whose scope
has expanded to other diseases and other states, has been widely hailed as a breakthrough. Most recently, the Center for Medicare & Medicaid Innovation singled out Project ECHO for a Health Care Innovation Award, which comes with $8.5 million to enable further expansion of the project.

The partnership between Dr. Arora and the University of New Mexico School of Medicine is grounded in an extensive history of outreach to rural and low-income communities by the University of New Mexico. Its various initiatives include Vision 2020, a commitment to work with community partners to improve population health and health equity by 2020; a combined BA/MD program to encourage native New Mexicans to become physicians and to practice in rural and underserved areas; and a home visiting program for patients suffering from mental illness.

The Robert Wood Johnson Foundation has had a long interest in improving access to health care in rural areas, dating back to 1975 when it launched the Rural Practice Project to establish primary care practices in rural areas, and continuing through the mid-2000s with the Southern Rural Access Program that tested a range of approaches in a particularly difficult region. Over the past forty years, the Foundation has strengthened institutions, such as hospitals and nursing homes in rural areas; supported the development of health professionals such as nurse practitioners and community health aides who would serve in rural communities; provided incentives for physicians to practice in rural areas; and utilized distance learning via the Internet to train rural health professionals.

In the case of Project ECHO, the Foundation played a small but significant role. Project ECHO received its initial funding from the federal government’s Agency for Healthcare Research and Quality and from the State of New Mexico. Through its pioneer team, which looks for groundbreaking ideas, the Foundation discovered the project and provided it with funds to expand beyond New Mexico and to address other diseases. The expansion is now under way, and the story is still unfolding.
Clustered at one end of a long Albuquerque conference table, a team of medical specialists from the University of New Mexico gaze up at two 90-inch flat-screen TVs and welcome a coterie of doctors, nurses, and physician assistants—all plugged in from remote areas across the state, all waiting expectantly, their patient files before them. Modeled on the idea of a “virtual grand round,” the specialists—a pharmacist, a psychiatrist, an infectious disease specialist, and a nurse—sit flanked around Sanjeev Arora, a gastroenterologist and hepatologist (liver specialist) and the force behind Project ECHO, a pioneering approach that brings the expertise of an academic medical center to general practitioners working in rural areas, coaching them to manage a particularly difficult disease—hepatitis C.

One by one, the primary care providers present their cases. Among them is Nii Tetteh Addy, a physician originally from Ghana, now practicing in the backwater city of Carlsbad, near the Texas border. Addy sits in his jam-packed office kitchenette, squeezed up against a little table heaped with boxes of day-old donuts and half-eaten bags of chips. It’s been a long day. It is now past five o’clock, and there are still patients waiting to see him.

When it is his turn, Addy turns off the mute button and begins describing JD, a longtime heroin addict, who finally quit only to discover that he has hepatitis C and cirrhosis of the liver. The doctor continues on with the case of SS, a thirty-four-year-old woman just diagnosed with hepatitis C. A few months before, she managed to stop using meth. Now she’s working on quitting smoking. Addy recognizes that it is premature to seriously consider treating either one of these patients for hepatitis C.

Earlier that day, he had checked in with Brad L., a patient he had presented repeatedly to Project ECHO before finally obtaining approval to treat. Brad was a handful, Addy acknowledged: a fifty-seven-year-old with hepatitis C, Type 3 Genotype. Brain injury sustained as a combat veteran in Vietnam. Seizures as a
result of that head trauma. Impulsive. Unstable. Smoked two packs a day. Drank 18–24 beers a day. Occasional blackouts from drinking binges.

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**The Case of Brad L.**

Brad has no reluctance talking about his past or the fact that for a couple of decades he shot up a daily cocktail of cocaine and methamphetamine. But that, he insists, is not what gave him the hepatitis C—because he always knew better than to use a dirty needle. As a kid growing up in New Mexico, Brad got his First Aid certification by the time he was thirteen. During all those years that he shot meth, he made it his business to know exactly what he was injecting into his veins: usually a high-quality prescription pill obtained from one of the doctors he knew in Carlsbad.

Brad has long gray hair, a mouthful of missing teeth, and one eye that squints and looks a little bigger than the other. His body is covered with tattoos, most of them homemade blue, but here again he rejects the idea that this may have been how he got the disease. Instead, he points to his two-year stint in Vietnam, where, he says, “They used to line us up like cattle and give us the same hypodermic device for our vaccinations.”

He gets riled up, squints rapidly, then catches himself, smiles self-deprecatingly, and forces himself to slow down. *Doesn’t matter.* He got the diagnosis back in 2000, when he checked into rehab at a community-based outpatient clinic with the Department of Veterans Affairs in Colorado Springs. Even then, Brad knew what it signified. His mother had died of the same disease some years back. Now, facing the same risk, he wasn’t so sure he wanted the treatment.

Not that it would be so easy to come by in his neck of the woods. Carlsbad is an isolated town in the southeast corner of New Mexico, better known as a geological nuclear-waste site than as a nucleus for high-end medical care. Thirty-two of the state’s thirty-three counties are officially listed as Medically Underserved
Areas by the federal Health Resources and Services Administration, and Eddy County, of which Carlsbad is the seat, is one. As a state, New Mexico is one of the poorest in the nation. It also happens to have one of the nation’s highest rates of hepatitis C, a viral disease that leads to inflammation of the liver. In its early stages, most people don’t even know they have it. The virus can fester in the liver for up to a couple of decades, doing its damage while giving few, if any, symptoms. Left untreated, it can lead to cirrhosis of the liver, liver cancer, and liver failure. In the United States, 3.2 million people have hepatitis C. Thirty-two thousand of them live in New Mexico, but fewer than 5 percent receive treatment.

More people in America die from hepatitis C than from AIDS—in 2007, for example, there were more than 15,000 hepatitis C deaths, higher than previous estimates and surpassing the nearly 13,000 AIDS deaths. Hepatitis C is a silent disease in the early years. The Centers for Disease Control and Prevention is considering recommending that all Americans born between 1945 and 1965 get a one-time blood test to check if their livers harbor the virus.

In medical sociology parlance, hepatitis C is what is known as a shame-based disease. Many of the people who have it are America’s untouchables. Transmitted through the blood of an infected person (often by way of shared needles), the disease frequently infects drug addicts, sex workers, the homeless, and the incarcerated. Primary care providers generally refrain from treating hepatitis C, regarding it as a disease that requires a specialist’s expertise—largely because the treatment regimen is so complex and grueling.

The main drug, interferon—a protein that boosts the immune system—is associated with a host of physical, psychiatric, and neurological side effects, including depression and thoughts of suicide. Substance abuse, smoking, and mental-health issues are common problems among hepatitis C patients, and each one
needs to be addressed before treatment can begin. In Brad’s case, he had to be weaned off alcohol, regularly attending Twelve Step meetings and getting six months’ sobriety under his belt. He had to quit smoking (tobacco depletes red blood cells and lowers the body’s oxygen levels), undergo psychiatric testing, and agree to take antidepressants. “For a long time, he resisted all these things,” Addy tells his listeners. “But it got to the point where he realized we wouldn’t treat him unless he got help.”

By the time Brad got around to seeking treatment, there weren’t many choices. Carlsbad had only one gastroenterologist, and as far as anybody knew, he didn’t treat hepatitis. He left town in 2004, the same year Addy arrived as an employee of Presbyterian Medical Services—a nonprofit organization of primary care clinics throughout New Mexico. Addy had left Ghana to attend medical school at New York College of Osteopathic Medicine, and then trained at Bay Regional Medical Center in Bay City, Michigan. Of the ten or so newly minted primary care physicians who arrived in Carlsbad that year, he says he is the only one who remains. A little formal, he carries himself in an erect posture and speaks softly, in a heavy but understandable West African accent. After four years, he has managed to buck the prevailing winds and open his own clinic, a nondescript building sandwiched between two auto supply stores, where he sees patients twelve hours a day, five days a week. His colleagues around the state quietly wonder how he manages to pay his nurse and office staff and still make a living, because Addy is known far and wide for never turning anyone away.

He still remembers his first day on the job at Presbyterian, when, going through charts, he discovered he had been assigned eight patients with hepatitis C. “One after the other,” he says, still awed at the number. “I said to myself, ‘How could this be?’” I didn’t think you would see this unless you went to a hepatitis C clinic.

“Continuity of care was lacking,” Addy continues. “Providers came and went. It was overwhelming. I began to keep track of my
hepatitis C cases and in three months I had about 120 patients. I went to the health department to inquire about prevalence. They said yes, it was very prevalent, but nothing was being done about it. There didn’t seem to be any interest.”

After a couple false starts, he found his way to Project ECHO, a new program based out of the University of New Mexico in Albuquerque. It was the brainchild of another transplanted doctor, Sanjeev Arora, who, like Addy, had been jolted by the sheer number of hepatitis C patients he was seeing—and turning away.

——— The Development of Project ECHO

“There was an eight-month wait to see me,” says Arora, a professor and former executive vice chairman of the department of internal medicine at the University of New Mexico School of Medicine and one of the world’s experts in hepatitis C. “People would have to drive 250 miles each way, and if it was genotype 1, they’d have to make eighteen trips... I treated as many as I could. But people were basically dying from lack of expertise.”

In 2004, Arora launched a program to treat those patients in an entirely different way. Dubbed Project ECHO (Extension for Community Healthcare Outcomes), it has evolved within just a few years into an innovative model for transforming a deeply troubled health care system. It has been adopted by major academic medical centers around the country and been embraced by the Veterans Health Administration for a variety of diseases, including diabetes, asthma, and chronic-pain management.

At age fifty-five, Arora is a private, reserved man who rarely raises his voice. But when the subject turns to Project ECHO—as it inevitably does—he is passionate and charismatic. As one of fifty-four gastroenterologists (and only three hepatologists) in New Mexico, Arora was frustrated by the fact that he could see just a fraction of the hepatitis C patients referred to him. There had to be a better way, he thought—a way to make himself a “force multiplier,” as he puts it, employing a military term...
describing a factor that significantly increases the effectiveness of a combat unit.

But it wasn’t until 2003, when his younger daughter went off to college, that he found the time to tackle a long-term solution. As Arora describes it, he and his wife, Madhu Arora, an internal medicine physician, went away on a weekend retreat. During that brief getaway, Arora found himself reflecting on the issues most important to him—and how he wanted to spend the rest of his life. “Was there a way I could amplify my own expertise so that my decades of experience could be applied to many more people?” he wondered. “My goal was to serve every person in New Mexico with hepatitis C. And I thought, my god, if I could do that I would have a model to serve complex diseases around the world!”

By the end of the weekend, he had his answer. Though he didn’t have a name for it yet, it was in every important way the prototype for Project ECHO—a “knowledge network” in which primary care doctors, nurses, physician assistants, and nurse practitioners from around the state could join in on a weekly videoconference with a team of hepatitis C experts from the University of New Mexico. Arora saw it as a means of sharing best practices with a larger community of providers, modeled on the close supervision that young doctors routinely get in medical school and residency programs.

“You cannot make gastroenterologists with lectures,” he explains. “But if a mentor holds your hand, that process is extraordinarily facilitated. So I said, why should we not bring case-based learning back into the lives of the rural provider by comanaging patients with them?”

For the next couple of years, Arora logged thousands of miles, visiting the four corners of New Mexico from its mountains and buttes in the north to the gray desert in the south. Every two weeks, he got in his car, a 1993 Lexus, and drove. He visited hospitals where he talked to CEOs and offered free grand rounds in gastroenterology. He called upon primary care providers in
their offices, often waiting for them to finish with their patients so they could join him at a local restaurant, where he would continue his pitch with a portable projector in tow. Once he got a commitment from providers, he followed up with calls to their bosses to open up a couple hours a week in their schedule when they could be freed from seeing patients. “I would say, ‘Let’s find a day that causes the least disruption for you.’ I fitted my schedule around theirs.”

In this dogged, implacable way, he attracted a core of passionate idealists, physicians who, like himself, were committed to bringing health care to the poor and underserved. In fact, some of those doctors had come to New Mexico for exactly that purpose. Arora certainly had. Prior to moving to Albuquerque in 1993, he had been a staff physician at New England Medical Center and an associate professor at Tufts University School of Medicine. “I knew that if I left Boston not many patients would suffer,” he says, shrugging. “I came to New Mexico because I was told that 20 percent of the people here have no health insurance.”

That idealism was planted in childhood, when Arora accompanied his physician father, Ramrakha, a leader in the Indian government’s eradication of smallpox, in his travels to remote towns and villages throughout the entire subcontinent. As a child himself, young Sanjeev witnessed the sight of children who were dehydrated and dying from cholera. The poverty and social disparities horrified him, and he knew he would commit his life to making a difference.

His mother, Sudarshan Arora, served as an additional role model. A retired obstetrician/gynecologist, she owns a private maternity hospital in Delhi, where it’s her custom to treat poor patients free of charge—while billing the wealthy ones a hefty fee. In 1947, the fifteen-year-old Sudarshan had fled the newly created state of Pakistan and arrived in Delhi with her family. Her school records had been left behind in the rush and she had no papers to document her education. Determined to go to medical school, she took matters into her own hands. She tracked down
the residence of Prime Minister Jawaharlal Nehru, and when Nehru emerged from the house and got into his chauffeur-driven Hindustan Ambassador, the teenage girl stepped in front of it and refused to move until he opened the car window and heard her out. He signed her school admission papers on the spot, and she began her premedical studies.

Smiling a little self-consciously, Arora acknowledges that he probably inherited his mother’s self-confidence. “People believe that the walls of the system are impenetrable and that you have to live within them,” he says. “I don’t believe that. I believe in tinkering with the knowledge monopoly.”

Project ECHO and the Treatment of Hepatitis C in New Mexico

Arora launched Project ECHO with $1.5 million in funding from the federal Agency for Healthcare Research and Quality (AHRQ) in 2004. With this grant, he recruited a group of specialists: a pharmacist, a psychiatrist, an infectious-disease expert, and an information technology consultant. The core of the project is the weekly videoconference linking primary care providers in the countryside with specialists at the University of New Mexico. In addition, Project ECHO holds a biweekly orientation meeting that is intended to spread the word, drum up interest, and tutor potential converts.

In these biweekly meetings, Arora draws freely from theories garnered from the business and academic worlds, holding forth on such ideas as “the Pareto Principle” (also known as the 80–20 rule or law of the vital few); “adult learning theory” (upon which Project ECHO is based); the “self-efficacy theory” (advanced by Stanford University psychologist Albert Bandura); and “the zone of proximal development,” a concept—attributed to Soviet psychologist Lev Vygotsky—which states that a child follows an adult’s example until it develops the ability to do certain tasks without help.
Arora, who holds a master’s degree in management science from Tulane University, has obviously assimilated the concepts that tie these principles together in a meaningful way. But when young doctors attend Project ECHO’s orientation meetings, their typical response isn’t so much “But of course, this bears out Vygotsky’s theories of how a young surgeon learns her craft”; it’s more like, “Well, duh, this is social networking as applied to medicine.”

“Chronic disease management is a team sport, more like soccer than golf,” says Arora, turning, as he often does, to metaphor. “The data demands collaboration. Something magic happens when you bring a nurse, psychiatrist, and doctor together.” He pauses a thoughtful moment. “It’s like if you eat sugar and then flour. It doesn’t make cake.”

Sometimes, to the surprise of even those directly involved in the process, the most difficult patients—people like Brad L., who for decades struggled with substance abuse, high-stress relationships, and personal demons—eventually come around. An outside observer may well question how it happens, but the answer is obvious to those who watch from the sidelines, week after week. “Good solid advice,” asserts Davin Quinn, a psychiatrist and psychosomatic medicine specialist with Project ECHO. “It’s someone planting the idea that you can change. It sounds ridiculously simple, but that’s what they teach you in medical school. If you just tell the patient repeatedly, it sinks in.”

At its core, too, the idea of Project ECHO, like all good ideas, is simple and elegant—an almost organic use of available technology. Arora is interested in nothing less than worldwide replication: if he teaches ten centers how to do a Project ECHO, and each of them teaches ten more centers, before long there are a hundred new Project ECHOs. And, that, he says, is how you change the world.

But first, Arora had to bring about change in New Mexico. That is now well under way. Partnerships have quickly developed between the University of New Mexico and the state’s
prisons, its health department, the Indian Health Service, and numerous primary care providers. By 2012, there were 250 clinicians throughout New Mexico logging in on a weekly basis to the Project ECHO videoconferencing line, using a secure, Internet-based audiovisual network. And it was happening in places in the state as distant geographically and sociologically as the outskirts of Albuquerque, Carlsbad, and Española.

**South Valley**

First Choice Community Healthcare lies just a few miles from the University of New Mexico, in South Valley, but it seems more like country than city. Dr. Vanessa Jacobsohn eats lunch, a cold bagel and cream cheese, at her desk. A rooster crows in the distance. Jacobsohn, a soft-spoken woman of thirty-five, her dark hair pulled back in a ponytail, is waiting for a call from an insurance company that she hopes will give her authorization to treat a hepatitis C patient already approved by Project ECHO. But the company has been holding up treatment for days, insisting that the treating physician be either a gastroenterologist or a hepatitis C specialist.

A family medicine doctor just four years out of residency, Jacobsohn still remembers one of her first hepatitis C cases: a sixty-year-old Hispanic man who had been infected with the virus for decades and was well along in cirrhosis. His family convinced him to disregard doctors’ advice—better, they told him, to go back to Mexico. And so he did, opting for an alternative therapy involving some kind of shock treatment. By the time he returned to his young doctor in Albuquerque, his virus load had significantly increased.

“We convinced him to begin treatment,” Jacobsohn says. “I was really nervous because we convinced this man to put his trust in us.” The man’s trust was well earned. Six months after treatment, he was free of the virus.
These days, about half of Jacobsohn’s caseload involves hepatitis C, but she still occasionally catches the raised eyebrows among older specialists, including her uncle, a California gastroenterologist. “Really, interferon?” Granted, it is not an easy medication to control. Things can go bad fast. But oversight from Project ECHO is so consistent that Jacobsohn says she’s never felt like she was working without a safety net. “From the beginning, they made it so clear about how the protocol works. And they are so cautious. I honestly never felt afraid, like it was a big risk. There is always a pharmacist, a psychiatrist, and a hepatologist guiding you, backing up the major decisions.”

And unlike the intimidation she felt in medical school—the fear that by speaking up and asking a stupid question she might be ridiculed and shot down—Jacobsohn marvels at the nurturing environment she has met online. “Not long after I started with Project ECHO, I realized it wasn’t going to be like that. These physicians are world renowned and brilliant, but they never make you feel stupid for asking a question.”

It is not easy to create a warm and supportive videoconference atmosphere, but Project ECHO has made it its business to do just that. Before speaking, the participating specialists are encouraged to pause, count to five seconds, enough time to allow the presenters to unmute their phones and ask their questions.

“It is very frightening to present to people in a remote place,” notes Quinn. “You’re afraid that someone is listening to and assessing your clinical presentation. There’s a fear of judgment and inadequacy, of falling on one’s face and everyone hearing it. Plus, you don’t have the nonverbal cues you get when you’re in a room full of people.”

But though Arora is a world expert on hepatitis, he never speaks down to the providers who tune in each week. Instead, says Quinn, he addresses them in a clear and concise way, explaining what’s happening to their patients as they go through treatment. “He’s extremely compelling,” says Quinn.
Española

Just shy of ninety miles to the northeast of Albuquerque is Española, where physician assistant Debra Newman also serves as part of the ECHO team. Española lies in Georgia O’Keeffe country, but it’s equally famous, at least within New Mexico, as the heroin capital of the United States. Doctors and nurses describe a town where opiate use is the cultural norm, where some families set aside an “injection room” the way other families have a music room, and where it’s not unheard of for grandmothers to teach their fifteen-year-old granddaughters how to tie off their arms and shoot up. Rio Arriba County has long held the highest ranking of drug overdose fatalities in the nation: 51.1 per 100,000, compared with a national average of 7.3.

The Rio Arriba Health Clinic, on the edge of town, is surrounded by a seven-foot wire fence topped with barbed wire; signs posted throughout the lobby and examination rooms declare that “Narcotic drugs are not stocked at this facility.” For the past four years, Newman has been making the twenty-mile weekly commute from Santa Fe to the clinic, where her caseload has consisted mostly of substance abuse and hepatitis C patients. She says she could easily see twenty-five patients a week instead of the two permitted for time’s sake. In January 2012, she had twelve hepatitis C patients on interferon and ribavirin (an antiviral drug that prevents the virus from replicating itself), and saw many more on an almost daily basis. “Half the patients know they have it, the other half don’t know,” she says. “And the half who know they have it don’t want treatment. I hear things like, ‘My neighbor had it and it’s terrible. It’s going to kill me, it’s going to make me sick.’”

“Our strategy is this,” Newman said. “We have a great captive audience because we have a huge problem with addiction and a lot of people who want to get on Suboxone. The minute they ask, we test them for hepatitis.” Suboxone, a form of buprenorphine, approved in 2002 as an opiate replacement, is widely preferred to
methadone, which must be given in a clinic setting and is itself an addictive, sedating drug. Suboxone can be prescribed by primary care physicians and taken at home; the potential for overdose is nonexistent, and it is nonsedating.

On a recent Monday morning, almost all of Newman’s patients have or suspect they have hepatitis. Carlos T., a fifty-nine-year-old man with advanced cirrhosis of the liver, is waiting stoically. He has proved a difficult patient, though he seems inordinately pleasant and happy to see Newman. Months earlier, before beginning treatment, he assured her that—as required—he had seen a dentist in Mexico and been given a clean bill of oral health. He hadn’t. Now, all his teeth were falling out. He had also ignored the doctors’ advice to consume a high-fat diet for the first twelve weeks of treatment; the protease inhibitor he was taking required such a diet to enhance its absorption. A dietician had been called in to work with him. She had recommended a daily snack of guacamole and chips, but Carlos had opted instead for an afternoon banana.

As a result, four weeks after treatment he still had signs of the virus in his bloodstream, while others on the same regimen were free of it. Newman was disturbed to see that his blood pressure had shot up and his potassium had plunged. Carlos’s wife had called to report that he was depressed and rarely left the house. After a few minutes, Newman discovered that he was taking only two ribavirin tablets each morning. “No, you have to take three or you won’t clear the virus in your body,” she tells him, before phoning his grown daughter, who translated to make sure he understood.

Then Newman gave Carlos a short questionnaire, the CES-D, a self-reporting survey for measuring depressive symptoms. While he checked the questions off in Spanish, she moved next door, where a thirty-two-year-old named Ricardo was waiting to see her for the first time. He was a large, imposing man with several homemade tattoos, including two prominent ones: on his right hand, “13 SUR”—Southern United Raza, the Surenos gang; and under his right eye, a little blue tear.
The tear, he explained, was in commemoration of his grandfather, who had died of hepatitis C while Ricardo was doing time in a juvenile facility twelve years before. Ricardo volunteered that the tear was also symbolic of having killed someone. In prison, he explained, tattoos were kind of like a suit and tie on Wall Street; you needed them to hold your own. Now that he was out, he was considering having it removed. “It’s hard to get a job if people think I killed someone,” he said.

He ran through his history in unapologetic fashion, admitting that yes, he used to inject cocaine and methamphetamine—but he stopped at least seven years ago. He was diagnosed with hepatitis C in 2001 and didn’t think too much about it. But then, just seven months ago, he had flu symptoms and went to the local emergency room where a standard blood test reconfirmed the original diagnosis. Ricardo was a different person now—a Christian rapper at his church; a family man with a one-year-old daughter (“the light of my life”) and a girlfriend, who also had hepatitis C. “We’ve been together two years. We heard it was curable,” he said.

“Up to six months ago, genotype 1 was the hardest to treat,” Newman said, “but there are new medications available and it’s curable 75 percent of the time. But you have to be really on top of it. I don’t know if I could do it, to be honest,” she added, looking him square in the eye. “You have to be very organized. You have to take the medications every eight hours for twelve weeks, and if you miss a few doses you’re done with the treatment.”

Ricardo met her gaze. “I am definitely committed to the program. You don’t have to worry about that.”

His BMI was 32, a little high for the treatment. He would need to drop at least fifteen pounds. Not a problem, he said. Smoking? Maybe a puff a week. What about alcohol? Never touched the stuff. Depression? “I’m the kind of person who cheers others up.”

Newman ordered a battery of tests but she was clearly impressed by the way he presented himself. He appeared a strong candidate for treatment and she imagined that she would
be presenting his case at the next Project ECHO clinic. She shook his hand as she left the room, but halfway down the hall, she was suddenly struck with a realization: she knew the girlfriend.

“It’s Leslie! She came in with her mother and tested positive for benzodiazepine—which she flatly denied. She has significant psychological issues and needs to lose at least seventy pounds before we can treat her.” Back in her office, Newman pulled out her files and saw that Leslie had recently visited the local ER following a physical “altercation” with her boyfriend. Ricardo’s case was suddenly looking more complicated.

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**Beyond Hepatitis C and New Mexico**

As the idea took off and word about this new program grew, Project ECHO began holding biweekly orientation meetings. A recent one was attended by a disparate group of visitors, including an anesthesiologist and a family practice physician (both assigned to the U.S. Army in Fort Campbell, Kentucky); a chronic pain nurse from Cleveland, Virginia; the president of the World Gastroenterology Organization (who traveled from Uruguay to learn about the program); two high-level executives from Molina Healthcare, a California-based national insurance company that works with low-income families and individuals; a grant writer; and a technology engineer.

The model has spread to other academic centers, including the University of Washington, the University of Chicago, the University of Utah, Harvard University, and the University of Nevada. Eleven regions of the Veterans Administration—including Cleveland, Ohio; New Haven, Connecticut; and Ann Arbor, Michigan—have adopted Project ECHO, and medical emissaries have come to Albuquerque from India and Uruguay. Arora is also in discussions with medical leaders in Brazil and Ireland.

Meanwhile, Project ECHO has expanded beyond hepatitis C and now covers additional diseases, including asthma, mental
illness, chronic pain, diabetes, cardiovascular risk reduction, high-risk pregnancy, HIV/AIDS, pediatric obesity, autism, rheumatology, and substance abuse. The VA uses the model to treat chronic pain, diabetes, hepatitis C, and heart failure.

Arora’s staff clearly holds him in high regard. “As a gastroenterologist, Sanjeev could walk out of here and make half a million a year giving colonoscopies to fifty-year-old men,” declares John Brown, the project’s operations director. “Most people like him are working their way up to the National Institutes of Health. He’s taken a huge risk in his career. He was executive vice chair of internal medicine. The next step was chancellorship. He threw all that away to get involved with Project ECHO.”

In fact, it was a risk that has paid off handsomely. In 2009, the Ashoka Foundation, an international association of social entrepreneurs, named Arora an honorary fellow and credited Project ECHO as a disruptive innovation that is changing the way health care is delivered. The Robert Wood Johnson Foundation followed shortly after, awarding Project ECHO a $5 million grant to replicate the ECHO model in academic medical centers outside of New Mexico, beginning with the University of Washington Medical School—and also to expand its work to include asthma, diabetes, chronic pain and headache, high-risk pregnancy, integrated addictions, psychiatry, and rheumatology.

The Foundation urged Project ECHO leaders to take those clinics to “industrial strength” throughout New Mexico. “At the heart of this,” says Risa Lavizzo-Mourey, president and CEO of the Robert Wood Johnson Foundation, “is a team approach to delivering care, one that depends on a lot of different providers bringing their expertise to the case of very complex, chronically ill patients.”

Adds Nancy Barrand, who, as special adviser for program development, oversees Project ECHO at the Foundation: “It is significant that Dr. Arora started with hepatitis C, working with patients whom no one else treated or wanted to treat. He started
in a part of the market that no one else was paying attention to, and built a model that worked. And because it worked so well, it just naturally started to infuse into the rest of the system and we have what we have today.”

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**The Significance of Project ECHO**

Project ECHO has grown from an organization of five people in 2004 to a staff of more than seventy in 2012. With that kind of growth, there have been some growing pains. But throughout, Arora has freely bestowed the ECHO logo and method to any organization that wants to use it. “As long as you want to monopolize knowledge, it has little impact,” he says. “We have to be willing to break the monopoly of knowledge that exists. Breaking that monopoly and sharing it freely for public benefit, without necessarily charging anybody for it, doing it at low cost on public dollars, would be much more cost effective.”

He is arguing, he says, for a new kind of health care system—one that will reconfigure the role of the primary care doctor in America. Arora wants to create a network of primary care doctors, each with a subspecialty or interest in rheumatology, chronic pain, or hepatitis C, who will build relationships with academic centers. “We think primary care is an embattled specialty,” says Arora. “But you cannot encourage a system where all are specialists.” In this vision of a new health care order, there is a lot of room, too, for nurse practitioners and physician assistants.

“He’s changed the rules of the game,” says the Foundation’s Barrand. Though traditional telemedicine was once touted as a game changer, it failed to change the actual delivery of health care. Indeed, says Barrand, telemedicine is a “limiting technology” that locked health care delivery in place. As typically practiced, she says, telemedicine allows a physician to see patients only on a one-to-one basis, thus restricting the number they can treat. Project ECHO, in contrast, changes the entire paradigm, allowing a
specialist to consult on up to a dozen or more complicated cases in a couple of hours—while leaving the primary care provider in control of his or her own patient.

Barrand credits Arora’s skill in team building as one of the main reasons for Project ECHO’s success. “We have too many specialists and too few primary care doctors, and this is one of the better ways—if not the only way—we’ll be able to expand capacity and improve quality of care at the same time. He does a lot of work with the paraprofessionals to make the primary care physicians more effective. It’s why he’s able to change the organization of care. It’s how he passes knowledge all the way down the chain.”

The model’s effectiveness was demonstrated in a prospective cohort study, published in the *New England Journal of Medicine* in June 2011, which reported that patients treated under Project ECHO had similar and even slightly better outcomes than patients treated at an academic medical center. According to that article, 58.2 percent of the 261 patients treated at rural sites showed a sustained viral response (a complete and permanent cure), as compared with 57.5 percent of those treated at the University of New Mexico’s hepatitis C clinic.5

**Coda**

In early 2012, with the guidance of Project ECHO specialists, Dr. Addy was able to instruct Brad L. in how to inject himself in the stomach once a week with interferon and ribavirin. “Today’s my third injection and by tonight I will be hurting like total hell,” Brad says, almost cheerfully. “Every part of my body will hurt. My bones will ache, my nose will run, my throat’ll be dry. It usually lasts three days.” But within four weeks, his system was free of the virus. His treatment would continue another six months before he could be declared cured.

And after four years of working in Española’s Rio Arriba Clinic, physician assistant Debra Newman decided she had had
enough. Lacking the administrative or nursing support she felt she needed to do her job, in early 2012 she gave notice and began packing up. She would continue to work with Project ECHO in Santa Fe, where she had accepted a hospital job managing chronic pain.

Even so, in her voice there was the slight sound of regret. “You never quite know what’s going to happen one day to the next,” Newman said on her second to last day at the clinic. “I had a woman in today who’d been on Suboxone. She was the hero of Suboxone therapy—she weaned herself off Suboxone, started eight Narcotics Anonymous groups in this town, and was going to school to become a therapist. A lovely, lovely person!”

“She came in today for what I thought was going to be her first hepatitis C visit. And as soon as I walked into the room, she fell into my arms sobbing. Her back had been hurting and someone gave her a Percocet. Now she’s back on opiates, as bad as ever. I held her and told her, this just isn’t your time.”

Later that day, Newman sat at her desk, under a Happy Hanukkah banner, and made her final call-in to Project ECHO’s hepatitis C clinic. She related what had just happened, said her good-byes, thanked everyone for their help, and promised to stay in touch.

Three hundred miles away, in his crowded Carlsbad office kitchenette, Nii Tetteh Addy pushed himself away from his little table, faced the webcam mounted on the wall, and saluted her.

Notes

1. In the interest of confidentiality, names and initials of patients have been changed.
2. There are three main kinds of hepatitis in the United States: Hepatitis A, B, and C. Hepatitis C is actually the name given to a range of similar viruses, categorized by genotypes 1, 2, and 3. Genotype 1 is by far the most common.
3. Every county except Los Alamos has at least one medically underserved area in it, but not all of every county is designated as medically underserved.
4. The federal grant required a match, which was met by a three-year $900,000 grant from the New Mexico Legislature and a three-year $600,000 commitment of in-kind services from the University of New Mexico School of Medicine. In 2006, the New Mexico Legislature agreed to provide recurring funding—now at $900,000 per year—for Project ECHO. AHRQ provided another $1.5 million in 2007 and again in 2008. In 2012, Project ECHO won a Health Care Innovation Award from the Center for Medicare & Medicaid Innovation; it comes with $8.5 million over a three-year period.