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MEDICAL REPORT

# THE HOT SPOTTERS

*Can we lower medical costs by giving the neediest patients better care?*

by Atul Gawande

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If Camden, New Jersey, becomes the first American community to lower its medical costs, it will have a murder to thank. At nine-fifty on a February night in 2001, a twenty-two-year-old black man was shot while driving his Ford Taurus station wagon through a neighborhood on the edge of the Rutgers University campus. The victim lay motionless in the street beside the open door on the driver's side, as if the car had ejected him. A neighborhood couple, a physical therapist and a volunteer firefighter, approached to see if they could help, but police waved them back.

*In Camden, New Jersey, one per cent of patients account for a third of the city's medical costs. Photograph by Phillip Toledano.*

"He's not going to make it," an officer reportedly told the physical therapist. "He's pretty much dead." She called a physician, Jeffrey Brenner, who lived a few doors up the street, and he ran to the scene with a stethoscope and a pocket ventilation mask. After some discussion, the police let him enter the crime scene and attend to the victim. Witnesses told the local newspaper that he was the first person to lay hands on the man.

"He was slightly overweight, turned on his side," Brenner recalls. There was glass everywhere. Although the victim had been shot several times and many minutes had passed, his body felt warm. Brenner checked his neck for a carotid pulse. The man was alive. Brenner began the chest compressions and rescue breathing that should have been started long before. But the young man, who turned out to be a Rutgers student, died soon afterward.

The incident became a local scandal. The student's injuries may not have been survivable, but the police couldn't have known that. After the ambulance came, Brenner confronted one of the officers to ask why they hadn't tried to rescue him.

"We didn't want to dislodge the bullet," he recalls the policeman saying. It was a ridiculous answer, a brushoff, and Brenner couldn't let it go.

He was thirty-one years old at the time, a skinny, thick-bearded, soft-spoken family physician who had grown up in a bedroom suburb of Philadelphia. As a medical student at Robert Wood Johnson Medical School, in Piscataway, he had planned to become a neuroscientist. But he volunteered once a week in a free primary-care clinic for poor immigrants, and he found the work there more challenging than anything he was doing in the laboratory. The guy studying neuronal stem cells soon became the guy studying Spanish and training to become one of the few family physicians in his class. Once he completed his residency, in 1998, he joined the staff of a family-medicine practice in Camden. It was in a cheaply constructed, boxlike, one-story building on a desolate street of bars, car-repair shops, and empty lots. But he was young and eager to recapture the sense of purpose he'd felt volunteering at the clinic during medical school.

Few people shared his sense of possibility. Camden was in civic free fall, on its way to becoming one of the poorest, most crime-ridden cities in the nation. The local school system had gone into receivership. Corruption and mismanagement soon prompted a state takeover of the entire city. Just getting the sewage system to work could be a problem. The neglect of this anonymous shooting victim on Brenner's street was another instance of a city that had given up, and Brenner was tired of wondering why it had to be that way.

Around that time, a police reform commission was created, and Brenner was asked to serve as one of its two citizen members. He agreed and, to his surprise, became completely absorbed. The experts they called in explained the basic principles of effective community policing. He learned about George Kelling and James Q. Wilson's "broken-windows" theory, which argued that minor, visible neighborhood disorder breeds major crime. He learned about the former New York City police commissioner William Bratton and the Compstat approach to policing that he had championed in the nineties, which centered on mapping crime and focussing resources on the hot spots. The reform panel pushed the Camden Police Department to create computerized crime maps, and to change police beats and shifts to focus on the worst areas and times.

When the police wouldn't make the crime maps, Brenner made his own. He persuaded Camden's three main hospitals to let him have access to their medical billing records. He transferred the reams of data files onto a desktop computer, spent weeks figuring out how to pull the chaos of information into a searchable database, and then started tabulating the emergency-room visits of victims of serious assault. He created maps showing where the crime victims lived. He pushed for policies that would let the Camden police chief assign shifts based on the crime statistics—only to find himself in a showdown with the police unions.

"He has no clue," the president of the city police superiors' union said to the *Philadelphia Inquirer*. "I just think that his comments about what kind of schedule we should be on, how we should be deployed, are laughable."

The unions kept the provisions out of the contract. The reform commission disbanded; Brenner withdrew from the cause, beaten. But he continued to dig into the database on his computer, now mostly out of idle interest.

Besides looking at assault patterns, he began studying patterns in the way patients flowed into and out of Camden's hospitals. "I'd just sit there and play with the data for hours," he says, and the more he played the more he found. For instance, he ran the data on the locations where ambulances picked up patients with fall injuries, and discovered that a single building in central Camden sent more people to the hospital with serious falls—fifty-seven elderly in two years—than any other in the city, resulting in almost three million dollars in health-care bills. "It was just this amazing window into the health-care delivery system," he says.

So he took what he learned from police reform and tried a Compstat approach to the city's health-care performance—a Healthstat, so to speak. He made block-by-block maps of the city, color-coded by the hospital costs of its residents, and looked for the hot spots. The two most expensive city blocks were in north Camden, one that had a large nursing home called Abigail House and one that had a low-income housing tower called Northgate II. He found that between January of 2002 and June of 2008 some nine hundred people in the two buildings accounted for more than four thousand hospital visits and about two hundred million dollars in health-care bills. One patient had three hundred and twenty-four admissions in five years. The most expensive patient cost insurers $3.5 million.

Brenner wasn't all that interested in costs; he was more interested in helping people who received bad health care. But in his experience the people with the highest medical costs—the people cycling in and out of the hospital—were usually the people receiving the worst care. "Emergency-room visits and hospital admissions should be considered failures of the health-care system until proven otherwise," he told me—failures of prevention and of timely, effective care.

If he could find the people whose use of medical care was highest, he figured, he could do something to help them. If he helped them, he would also be lowering their health-care costs. And, if the stats approach to crime was right, targeting those with the highest health-care costs would help lower the entire city's health-care costs. His calculations revealed that just one per cent of the hundred thousand people who made use of Camden's medical facilities accounted for thirty per cent of its costs. That's only a thousand people—about half the size of a typical family physician's panel of patients.

Things, of course, got complicated. It would have taken months to get the approvals needed to pull names out of the data and approach people, and he was impatient to get started. So, in the spring of 2007, he held a meeting with a few social workers and emergency-room doctors from hospitals around the city. He showed them the cost statistics and use patterns of the most expensive one per cent. "These are the people I want to help you with," he said. He asked for assistance reaching them. "Introduce me to your worst-of-the-worst patients," he said.

They did. Then he got permission to look up the patients' data to confirm where they were on his cost map. "For all the stupid, expensive, predictive-modelling software that the big venders sell," he says, "you just ask the doctors, 'Who are your most difficult patients?,' and they can identify them."

The first person they found for him was a man in his mid-forties whom I'll call Frank Hendricks.

Hendricks had severe congestive heart failure, chronic asthma, uncontrolled diabetes, hypothyroidism, gout, and a history of smoking and alcohol abuse. He weighed five hundred and sixty pounds. In the previous three years, he had spent as much time in hospitals as out. When Brenner met him, he was in intensive care with a tracheotomy and a feeding tube, having developed septic shock from a gallbladder infection.

Brenner visited him daily. “I just basically sat in his room like I was a third-year med student, hanging out with him for an hour, hour and a half every day, trying to figure out what makes the guy tick,” he recalled. He learned that Hendricks used to be an auto detailer and a cook. He had a longtime girlfriend and two children, now grown. A toxic combination of poor health, Johnnie Walker Red, and, it emerged, cocaine addiction had left him unreliably employed, uninsured, and living in a welfare motel. He had no consistent set of doctors, and almost no prospects for turning his situation around.

After several months, he had recovered enough to be discharged. But, out in the world, his life was simply another hospitalization waiting to happen. By then, however, Brenner had figured out a few things he could do to help. Some of it was simple doctor stuff. He made sure he followed Hendricks closely enough to recognize when serious problems were emerging. He double-checked that the plans and prescriptions the specialists had made for Hendricks’s many problems actually fit together—and, when they didn’t, he got on the phone to sort things out. He teamed up with a nurse practitioner who could make home visits to check blood-sugar levels and blood pressure, teach Hendricks about what he could do to stay healthy, and make sure he was getting his medications.

A lot of what Brenner had to do, though, went beyond the usual doctor stuff. Brenner got a social worker to help Hendricks apply for disability insurance, so that he could leave the chaos of welfare motels, and have access to a consistent set of physicians. The team also pushed him to find sources of stability and value in his life. They got him to return to Alcoholics Anonymous, and, when Brenner found out that he was a devout Christian, he urged him to return to church. He told Hendricks that he needed to cook his own food once in a while, so he could get back in the habit of doing it. The main thing he was up against was Hendricks’s hopelessness. He’d given up. “Can you imagine being in the hospital that long, what that does to you?” Brenner asked.

I spoke to Hendricks recently. He has gone without alcohol for a year, cocaine for two years, and smoking for three years. He lives with his girlfriend in a safer neighborhood, goes to church, and weathers family crises. He cooks his own meals now. His diabetes and congestive heart failure are under much better control. He’s lost two hundred and twenty pounds, which means, among other things, that if he falls he can pick himself up, rather than having to call for an ambulance.

“The fun thing about this work is that you can be there when the light switch goes on for a patient,” Brenner told me. “It doesn’t happen at the pace we want. But you can see it happen.”

With Hendricks, there was no miraculous turnaround. “Working with him didn’t feel any different from working with any patient on smoking, bad diet, not exercising—working on any particular rut someone has gotten into,” Brenner said. “People are people, and they get into

situations they don't necessarily plan on. My philosophy about primary care is that the only person who has changed anyone's life is their mother. The reason is that she cares about them, and she says the same simple thing over and over and over." So he tries to care, and to say a few simple things over and over and over.

I asked Hendricks what he made of Brenner when they first met.

"He struck me as odd," Hendricks said. "His appearance was not what I expected of a young, clean-cut doctor." There was that beard. There was his manner, too. "His whole premise was 'I'm here for you. I'm not here to be a part of the medical system. I'm here to get you back on your feet.' "

An ordinary cold can still be a major setback for Hendricks. He told me that he'd been in the hospital four times this past summer. But the stays were a few days at most, and he's had no more cataclysmic, weeks-long I.C.U. stays.

Was this kind of success replicable? As word went out about Brenner's interest in patients like Hendricks, he received more referrals. Camden doctors were delighted to have someone help with their "worst of the worst." He took on half a dozen patients, then two dozen, then more. It became increasingly difficult to do this work alongside his regular medical practice. The clinic was already under financial strain, and received nothing for assisting these patients. If it were up to him, he'd recruit a whole staff of primary-care doctors and nurses and social workers, based right in the neighborhoods where the costliest patients lived. With the tens of millions of dollars in hospital bills they could save, he'd pay the staff double to serve as Camden's élite medical force and to rescue the city's health-care system.

But that's not how the health-insurance system is built. So he applied for small grants from philanthropies like the Robert Wood Johnson Foundation and the Merck Foundation. The money allowed him to ramp up his data system and hire a few people, like the nurse practitioner and the social worker who had helped him with Hendricks. He had some desk space at Cooper Hospital, and he turned it over to what he named the Camden Coalition of Healthcare Providers. He spoke to people who had been doing similar work, studied "medical home" programs for the chronically ill in Seattle, San Francisco, and Pennsylvania, and adopted some of their lessons. By late 2010, his team had provided care for more than three hundred people on his "super-utilizer" map.

I spent a day with Kathy Jackson, the nurse practitioner, and Jessica Cordero, a medical assistant, to see what they did. The Camden Coalition doesn't have enough money for a clinic where they can see patients. They rely exclusively on home visits and phone calls.

Over the phone, they inquire about emerging health issues, check for insurance or housing problems, ask about unfilled prescriptions. All the patients get the team's urgent-call number, which is covered by someone who can help them through a health crisis. Usually, the issue can be resolved on the spot—it's a headache or a cough or the like—but sometimes it requires an unplanned home visit, to perform an examination, order some tests, provide a prescription. Only occasionally does it require an emergency room.

Patients wouldn't make the call in the first place if the person picking up weren't someone like Jackson or Brenner—someone they already knew and trusted. Even so, patients can disappear for days or weeks at a time. "High-utilizer work is about building relationships with people who are in crisis," Brenner said. "The ones you build a relationship with, you can change behavior. Half we can build a relationship with. Half we can't."

One patient I spent time with illustrated the challenges. If you were a doctor meeting him in your office, you would quickly figure out that his major problems were moderate developmental deficits and out-of-control hypertension and diabetes. His blood pressure and blood sugars were so high that, at the age of thirty-nine, he was already developing blindness and advanced kidney disease. Unless something changed, he was perhaps six months away from complete kidney failure.

You might decide to increase his insulin dose and change his blood-pressure medicine. But you wouldn't grasp what the real problem was until you walked up the cracked concrete steps of the two-story brownstone where he lives with his mother, waited for him to shove aside the old newspapers and unopened mail blocking the door, noticed Cordero's shake of the head warning you not to take the rumpled seat he's offering because of the ant trail running across it, and took in the stack of dead computer monitors, the barking mutt chained to an inner doorway, and the rotten fruit on a newspaper-covered tabletop. According to a state evaluation, he was capable of handling his medications, and, besides, he lived with his mother, who could help. But one look made it clear that they were both incapable.

Jackson asked him whether he was taking his blood-pressure pills each day. Yes, he said. Could he show her the pill bottles? As it turned out, he hadn't taken any pills since she'd last visited, the week before. His finger-stick blood sugar was twice the normal level. He needed a better living situation. The state had turned him down for placement in supervised housing, pointing to his test scores. But after months of paperwork—during which he steadily worsened, passing in and out of hospitals—the team was finally able to get him into housing where his medications could be dispensed on a schedule. He had made an overnight visit the previous weekend to test the place out.

"I liked it," he said. He moved in the next week. And, with that, he got a chance to avert dialysis—and its tens of thousands of dollars in annual costs—at least for a while.

Not everyone lets the team members into his or her life. One of their patients is a young woman of no fixed address, with asthma and a crack-cocaine habit. The crack causes severe asthma attacks and puts her in the hospital over and over again. The team members have managed occasionally to track her down in emergency rooms or recognize her on street corners. All they can do is give her their number, and offer their help if she ever wanted it. She hasn't.

Work like this has proved all-consuming. In May, 2009, Brenner closed his regular medical practice to focus on the program full time. It remains unclear how the program will make ends meet. But he and his team appear to be having a major impact. The Camden Coalition has been able to measure its long-term effect on its first thirty-six super-utilizers. They averaged sixty-two hospital and E.R. visits per month before joining the program and thirty-seven visits after—a forty-per-cent

reduction. Their hospital bills averaged $1.2 million per month before and just over half a million after—a fifty-six-per-cent reduction.

These results don't take into account Brenner's personnel costs, or the costs of the medications the patients are now taking as prescribed, or the fact that some of the patients might have improved on their own (or died, reducing their costs permanently). The net savings are undoubtedly lower, but they remain, almost certainly, revolutionary. Brenner and his team are out there on the boulevards of Camden demonstrating the possibilities of a strange new approach to health care: to look for the most expensive patients in the system and then direct resources and brainpower toward helping them.

Jeff Brenner has not been the only one to recognize the possibilities in focussing on the hot spots of medicine. One Friday afternoon, I drove to an industrial park on the outskirts of Boston, where a rapidly growing data-analysis company called Verisk Health occupies a floor of a nondescript office complex. It supplies "medical intelligence" to organizations that pay for health benefits—self-insured businesses, many public employers, even the government of Abu Dhabi.

Privacy laws prevent U.S. employers from looking at the details of their employees' medical spending. So they hand their health-care payment data over to companies that analyze the patterns and tell them how to reduce their health-insurance spending. Mostly, these companies give financial advice on changing benefits—telling them, say, to increase employee co-payments for brand-name drugs or emergency-room visits. But even employers who cut benefits find that their costs continue to outpace their earnings. Verisk, whose clients pay health-care bills for fifteen million patients, is among the data companies that are trying a more sophisticated approach.

Besides the usual statisticians and economists, Verisk recruited doctors to dive into the data. I met one of them, Nathan Gunn, who was thirty-six years old, had completed his medical training at the University of California, San Francisco, and was practicing as an internist part time. The rest of his time he worked as Verisk's head of research. Mostly, he was in meetings or at his desk poring through "data runs" from clients. He insisted that it was every bit as absorbing as seeing sick patients—sometimes more so. Every data run tells a different human story, he said.

At his computer, he pulled up a data set for me, scrubbed of identifying information, from a client that manages health-care benefits for some two hundred and fifty employers—school districts, a large church association, a bus company, and the like. They had a hundred thousand "covered lives" in all. Payouts for those people rose eight per cent a year, at least three times as fast as the employers' earnings. This wasn't good, but the numbers seemed pretty dry and abstract so far. Then he narrowed the list to the top five per cent of spenders—just five thousand people accounted for almost sixty per cent of the spending—and he began parsing further.

"Take two ten-year-old boys with asthma," he said. "From a disease standpoint, they're exactly the same cost, right? Wrong. Imagine one of those kids never fills his inhalers and has been in urgent care with asthma attacks three times over the last year, probably because Mom and Dad aren't really on top of it." That's the sort of patient Gunn uses his company's medical-intelligence software program to zero in on—a patient who is sick and getting inadequate care. "That's really the sweet

spot for preventive care," Gunn said.

He pulled up patients with known coronary-artery disease. There were nine hundred and twenty-one, he said, reading off the screen. He clicked a few more times and raised his eyebrows. One in seven of them had not had a full office visit with a physician in more than a year. "You can do something about that," he said.

"Let's do the E.R.-visit game," he went on. "This is a fun one." He sorted the patients by number of visits, much as Jeff Brenner had done for Camden. In this employed population, the No. 1 patient was a twenty-five-year-old woman. In the past ten months, she'd had twenty-nine E.R. visits, fifty-one doctor's office visits, and a hospital admission.

"I can actually drill into these claims," he said, squinting at the screen. "All these claims here are migraine, migraine, migraine, migraine, headache, headache, headache." For a twenty-five-year-old with her profile, he said, medical payments for the previous ten months would be expected to total twenty-eight hundred dollars. Her actual payments came to more than fifty-two thousand dollars—for "headaches."

Was she a drug seeker? He pulled up her prescription profile, looking for narcotic prescriptions. Instead, he found prescriptions for insulin (she was apparently diabetic) and imipramine, an anti-migraine treatment. Gunn was struck by how faithfully she filled her prescriptions. She hadn't missed a single renewal—"which is actually interesting," he said. That's not what you usually find at the extreme of the cost curve.

The story now became clear to him. She suffered from terrible migraines. She took her medicine, but it wasn't working. When the headaches got bad, she'd go to the emergency room or to urgent care. The doctors would do CT and MRI scans, satisfy themselves that she didn't have a brain tumor or an aneurysm, give her a narcotic injection to stop the headache temporarily, maybe renew her imipramine prescription, and send her home, only to have her return a couple of weeks later and see whoever the next doctor on duty was. She wasn't getting what she needed for adequate migraine care—a primary physician taking her in hand, trying different medications in a systematic way, and figuring out how to better keep her headaches at bay.

As he sorts through such stories, Gunn usually finds larger patterns, too. He told me about an analysis he had recently done for a big information-technology company on the East Coast. It provided health benefits to seven thousand employees and family members, and had forty million dollars in "spend." The firm had already raised the employees' insurance co-payments considerably, hoping to give employees a reason to think twice about unnecessary medical visits, tests, and procedures—make them have some "skin in the game," as they say. Indeed, almost every category of costly medical care went down: doctor visits, emergency-room and hospital visits, drug prescriptions. Yet employee health costs continued to rise—climbing almost ten per cent each year. The company was baffled.

Gunn's team took a look at the hot spots. The outliers, it turned out, were predominantly early retirees. Most had multiple chronic conditions—in particular, coronary-artery disease, asthma, and

complex mental illness. One had badly worsening heart disease and diabetes, and medical bills over two years in excess of eighty thousand dollars. The man, dealing with higher co-payments on a fixed income, had cut back to filling only half his medication prescriptions for his high cholesterol and diabetes. He made few doctor visits. He avoided the E.R.—until a heart attack necessitated emergency surgery and left him disabled with chronic heart failure.

The higher co-payments had backfired, Gunn said. While medical costs for most employees flattened out, those for early retirees jumped seventeen per cent. The sickest patients became much more expensive because they put off care and prevention until it was too late.

The critical flaw in our health-care system that people like Gunn and Brenner are finding is that it was never designed for the kind of patients who incur the highest costs. Medicine's primary mechanism of service is the doctor visit and the E.R. visit. (Americans make more than a billion such visits each year, according to the Centers for Disease Control.) For a thirty-year-old with a fever, a twenty-minute visit to the doctor's office may be just the thing. For a pedestrian hit by a minivan, there's nowhere better than an emergency room. But these institutions are vastly inadequate for people with complex problems: the forty-year-old with drug and alcohol addiction; the eighty-four-year-old with advanced Alzheimer's disease and a pneumonia; the sixty-year-old with heart failure, obesity, gout, a bad memory for his eleven medications, and half a dozen specialists recommending different tests and procedures. It's like arriving at a major construction project with nothing but a screwdriver and a crane.

Outsiders tend to be the first to recognize the inadequacies of our social institutions. But, precisely because they are outsiders, they are usually in a poor position to fix them. Gunn, though a doctor, mostly works for people who do not run health systems—employers and insurers. So he counsels them about ways to tinker with the existing system. He tells them how to change co-payments and deductibles so they at least aren't making their cost problems worse. He identifies doctors and hospitals that seem to be providing particularly ineffective care for high-needs patients, and encourages clients to shift contracts. And he often suggests that clients hire case-management companies—a fast-growing industry with telephone banks of nurses offering high-cost patients advice in the hope of making up for the deficiencies of the system.

The strategy works, sort of. Verisk reports that most of its clients can slow the rate at which their health costs rise, at least to some extent. But few have seen decreases, and it's not obvious that the improvements can be sustained. Brenner, by contrast, is reinventing medicine from the inside. But he does not run a health-care system, and had to give up his practice to sustain his work. He is an outsider on the inside. So you might wonder whether medical hot-spotting can really succeed on a scale that would help large populations. Yet there are signs that it can.

A recent Medicare demonstration program, given substantial additional resources under the new health-care-reform law, offers medical institutions an extra monthly payment to finance the coördination of care for their most chronically expensive beneficiaries. If total costs fall more than five per cent compared with those of a matched set of control patients, the program allows

institutions to keep part of the savings. If costs fail to decline, the institutions have to return the monthly payments.

Several hospitals took the deal when the program was offered, in 2006. One was the Massachusetts General Hospital, in Boston. It asked a general internist named Tim Ferris to design the effort. The hospital had twenty-six hundred chronically high-cost patients, who together accounted for sixty million dollars in annual Medicare spending. They were in nineteen primary-care practices, and Ferris and his team made sure that each had a nurse whose sole job was to improve the coördination of care for these patients. The doctors saw the patients as usual. In between, the nurses saw them for longer visits, made surveillance phone calls, and, in consultation with the doctors, tried to recognize and address problems before they resulted in a hospital visit.

Three years later, hospital stays and trips to the emergency room have dropped more than fifteen per cent. The hospital hit its five-per-cent cost-reduction target. And the team is just getting the hang of what it can do.

Recently, I visited an even more radically redesigned physician practice, in Atlantic City. Cross the bridge into town (Atlantic City is on an island, I learned), ignore the Trump Plaza and Caesars casinos looming ahead of you, drive a few blocks along the Monopoly-board streets (the game took its street names from here), turn onto Tennessee Avenue, and enter the doctors' office building that's across the street from the ninety-nine-cent store and the city's long-shuttered supermarket. On the second floor, just past the occupational-health clinic, you will find the Special Care Center. The reception area, with its rustic taupe upholstery and tasteful lighting, looks like any other doctors' office. But it houses an experiment started in 2007 by the health-benefit programs of the casino workers' union and of a hospital, AtlantiCare Medical Center, the city's two largest pools of employees.

Both are self-insured—they are large enough to pay for their workers' health care directly—and both have been hammered by the exploding costs. Yes, even hospitals are having a hard time paying their employees' medical bills. As for the union, its contracts are frequently for workers' total compensation—wages plus benefits. It gets a fixed pot. Year after year, the low-wage busboys, hotel cleaners, and kitchen staff voted against sacrificing their health benefits. As a result, they have gone without a wage increase for years. Out of desperation, the union's health fund and the hospital decided to try something new. They got a young Harvard internist named Rushika Fernandopulle to run a clinic exclusively for workers with exceptionally high medical expenses.

Fernandopulle, who was born in Sri Lanka and raised in Baltimore, doesn't seem like a radical when you meet him. He's short and round-faced, smiles a lot, and displays two cute rabbit teeth as he tells you how ridiculous the health-care system is and how he plans to change it all. Jeff Brenner was on his advisory board, along with others who have pioneered the concept of intensive outpatient care for complex high-needs patients. The hospital provided the floor space. Fernandopulle created a point system to identify employees likely to have high recurrent costs, and they were offered the chance to join the new clinic.

The Special Care Center reinvented the idea of a primary-care clinic in almost every way. The union's and the hospital's health funds agreed to switch from paying the doctors for every individual office visit and treatment to paying a flat monthly fee for each patient. That cut the huge expense that most clinics incur from billing paperwork. The patients were given unlimited access to the clinic without charges—no co-payments, no insurance bills. This, Fernandopulle explained, would force doctors on staff to focus on service, in order to retain their patients and the fees they would bring.

The payment scheme also allowed him to design the clinic around the things that sick, expensive patients most need and value, rather than the ones that pay the best. He adopted an open-access scheduling system to guarantee same-day appointments for the acutely ill. He customized an electronic information system that tracks whether patients are meeting their goals. And he staffed the clinic with people who would help them do it. One nurse practitioner, for instance, was responsible for trying to get every smoker to quit.

I got a glimpse of how unusual the clinic is when I sat in on the staff meeting it holds each morning to review the medical issues of the patients on the appointment books. There was, for starters, the very existence of the meeting. I had never seen this kind of daily huddle at a doctor's office, with clinicians popping open their laptops and pulling up their patient lists together. Then there was the particular mixture of people who squeezed around the conference table. As in many primary-care offices, the staff had two physicians and two nurse practitioners. But a full-time social worker and the front-desk receptionist joined in for the patient review, too. And, outnumbering them all, there were eight full-time "health coaches."

Fernandopulle created the position. Each health coach works with patients—in person, by phone, by e-mail—to help them manage their health. Fernandopulle got the idea from the *promotoras*, community health workers, whom he had seen on a medical mission in the Dominican Republic. The coaches work with the doctors but see their patients far more frequently than the doctors do, at least once every two weeks. Their most important attribute, Fernandopulle explained, is a knack for connecting with sick people, and understanding their difficulties. Most of the coaches come from their patients' communities and speak their languages. Many have experience with chronic illness in their own families. (One was himself a patient in the clinic.) Few had clinical experience. I asked each of the coaches what he or she had done before working in the Special Care Center. One worked the register at a Dunkin' Donuts. Another was a Sears retail manager. A third was an administrative assistant at a casino.

"We recruit for attitude and train for skill," Fernandopulle said. "We don't recruit from health care. This kind of care requires a very different mind-set from usual care. For example, what is the answer for a patient who walks up to the front desk with a question? The answer is 'Yes.' 'Can I see a doctor?' 'Yes.' 'Can I get help making my ultrasound appointment?' 'Yes.' Health care trains people to say no to patients." He told me that he'd had to replace half of the clinic's initial hires—including a doctor—because they didn't grasp the focus on patient service.

In forty-five minutes, the staff did a rapid run-through of everyone's patients. They reviewed the

requests that patients had made by e-mail or telephone, the plans for the ones who had appointments that day. Staff members made sure that all patients who made a sick visit the day before got a follow-up call within twenty-four hours, that every test ordered was reviewed, that every unexpected problem was addressed.

Most patients required no more than a ten-second mention. Mr. Green didn't turn up for his cardiac testing or return calls about it. "I know where his wife works. I'll track her down," the receptionist said. Ms. Blue is pregnant and on a high-blood-pressure medication that's unsafe in pregnancy. "I'll change her prescription right now," her doctor said, and keyed it in. A handful of patients required longer discussion. One forty-five-year-old heart-disease patient had just had blood tests that showed worsening kidney failure. The team decided to repeat the blood tests that morning, organize a kidney ultrasound in the afternoon if the tests confirmed the finding, and have him seen in the office at the end of the day.

A staff member read out the hospital census. Of the clinic's twelve hundred chronically ill patients, just one was in the hospital, and she was being discharged. The clinic's patients had gone four days without a single E.R. visit. On hearing this news, staffers cheered and broke into applause.

Afterward, I met a patient, Vibha Gandhi. She was fifty-seven years old and had joined the clinic after suffering a third heart attack. She and her husband, Bharat, are Indian immigrants. He cleans casino bathrooms for thirteen dollars an hour on the night shift. Vibha has long had poor health, with diabetes, obesity, and congestive heart failure, but things got much worse in the summer of 2009. A heart attack landed her in intensive care, and her coronary-artery disease proved so advanced as to be inoperable. She arrived in a wheelchair for her first clinic visit. She could not walk more than a few steps without losing her breath and getting a viselike chest pain. The next step for such patients is often a heart transplant.

A year and a half later, she is out of her wheelchair. She attends the clinic's Tuesday yoga classes. With the help of a walker, she can go a quarter mile without stopping. Although her condition is still fragile—she takes a purseful of medications, and a bout of the flu would send her back to an intensive-care unit—her daily life is far better than she once imagined.

"I didn't think I would live this long," Vibha said through Bharat, who translated her Gujarati for me. "I didn't want to live."

I asked her what had made her better. The couple credited exercise, dietary changes, medication adjustments, and strict monitoring of her diabetes.

But surely she had been encouraged to do these things after her first two heart attacks. What made the difference this time?

"Jayshree," Vibha said, naming the health coach from Dunkin' Donuts, who also speaks Gujarati.

"Jayshree pushes her, and she listens to her only and not to me," Bharat said.

"Why do you listen to Jayshree?" I asked Vibha.

"Because she talks like my mother," she said.

Fernandopulle carefully tracks the statistics of those twelve hundred patients. After twelve months

in the program, he found, their emergency-room visits and hospital admissions were reduced by more than forty per cent. Surgical procedures were down by a quarter. The patients were also markedly healthier. Among five hundred and three patients with high blood pressure, only two were in poor control. Patients with high cholesterol had, on average, a fifty-point drop in their levels. A stunning sixty-three per cent of smokers with heart and lung disease quit smoking. In surveys, service and quality ratings were high.

But was the program saving money? The team, after all, was more expensive than typical primary care. And certain costs shot up. Because patients took their medications more consistently, drug costs were higher. The doctors ordered more mammograms and diagnostic tests, and caught and treated more cancers and other conditions. There's also the statistical phenomenon known as "regression to the mean": the super-high-cost patients may have been on their way to getting better (and less costly) on their own.

So the union's health fund enlisted an independent economist to evaluate the clinic's one-year results. According to the data, these workers made up a third of the local union's costliest ten per cent of members. To determine if the clinic was really making a difference, the economist compared their costs over twelve months with those of a similar group of Las Vegas casino workers. The results, he cautioned, are still preliminary. The sample was small. One patient requiring a heart transplant could wipe away any savings overnight. Nonetheless, compared with the Las Vegas workers, the Atlantic City workers in Fernandopulle's program experienced a twenty-five-per-cent drop in costs.

And this was just the start. The program, Fernandopulle told me, is still discovering new tricks. His team just recently figured out, for instance, that one reason some patients call 911 for problems the clinic would handle better is that they don't have the clinic's twenty-four-hour call number at hand when they need it. The health coaches told the patients to program it into their cell-phone speed dial, but many didn't know how to do that. So the health coaches began doing it for them, and the number of 911 calls fell. High-cost habits are sticky; staff members are still learning the subtleties of unsticking them.

Their most difficult obstacle, however, has been the waywardness not of patients but of doctors—the doctors whom the patients see outside the clinic. Jeff Brenner's Camden patients are usually uninsured or on welfare; their doctors were happy to have someone else deal with them. The Atlantic City casino workers and hospital staff, on the other hand, had the best-paying insurance in town. Some doctors weren't about to let that business slip away.

Fernandopulle told me about a woman who had seen a cardiologist for chest pain two decades ago, when she was in her twenties. It was the result of a temporary, inflammatory condition, but he continued to have her see him for an examination and an electrocardiogram every three months, and a cardiac ultrasound every year. The results were always normal. After the clinic doctors advised her to stop, the cardiologist called her at home to say that her health was at risk if she didn't keep seeing him. She went back.

The clinic encountered similar troubles with some of the doctors who saw its hospitalized patients. One group of hospital-based internists was excellent, and coördinated its care plans with the clinic. But the others refused, resulting in longer stays and higher costs (and a fee for every visit, while the better group happened to be the only salaried one). When Fernandopulle arranged to direct the patients to the preferred doctors, the others retaliated, trolling the emergency department and persuading the patients to choose them instead.

" 'Rogues,' we call them," Fernandopulle said. He and his colleagues tried warning the patients about the rogue doctors and contacting the E.R. staff to make sure they knew which doctors were preferred. "One time, we literally pinned a note to a patient, like he was Paddington Bear," he said. They've ended up going to the hospital, and changing the doctors themselves when they have to. As the saying goes, one man's cost is another man's income.

The AtlantiCare hospital system is in a curious position in all this. Can it really make sense for a hospital to invest in a program, like the Special Care Center, that aims at reducing hospitalizations, even if its employees are included? I asked David Tilton, the president and C.E.O. of the system, why he was doing it. He had several answers. Some were of the it's-the-right-thing-to-do variety. But I was interested in the hard-nosed reasons. The Atlantic City economy, he said, could not sustain his health system's perpetually rising costs. His hospital either fought the pressure to control costs and went down with the local economy or learned how to benefit from cost control.

And there *are* ways to benefit. At a minimum, a successful hospital could attract patients from competitors, cushioning it against a future in which people need hospitals less. Two decades ago, for instance, Denmark had more than a hundred and fifty hospitals for its five million people. The country then made changes to strengthen the quality and availability of outpatient primary-care services (including payments to encourage physicians to provide e-mail access, off-hours consultation, and nurse managers for complex care). Today, the number of hospitals has shrunk to seventy-one. Within five years, fewer than forty are expected to be required. A smart hospital might position itself to be one of the last ones standing.

Could anything that dramatic happen here? An important idea is getting its test run in America: the creation of intensive outpatient care to target hot spots, and thereby reduce over-all health-care costs. But, if it works, hospitals will lose revenue and some will have to close. Medical companies and specialists profiting from the excess of scans and procedures will get squeezed. This will provoke retaliation, counter-campaigns, intense lobbying for Washington to obstruct reform.

The stats-and-stethoscope upstarts are nonetheless making their dash. Rushika Fernandopulle has set up a version of his Special Care program in Seattle, for Boeing workers, and is developing one in Las Vegas, for casino workers. Nathan Gunn and Verisk Health have landed new contracts during the past year with companies providing health benefits to more than four million employees and family members. Tim Ferris has obtained federal approval to spread his program for Medicare patients to two other hospitals in the Partners Healthcare System, in Boston (including my own). Jeff Brenner, meanwhile, is seeking to lower health-care costs for all of Camden, by getting its

primary-care physicians to extend the hot-spot strategy citywide. We've been looking to Washington to find out how health-care reform will happen. But people like these are its real leaders.

During my visit to Camden, I attended a meeting that Brenner and several community groups had organized with residents of Northgate II, the building with the highest hospital billing in the city. He wanted to run an idea by them. The meeting took place in the building's ground-floor lounge. There was juice in Styrofoam cups and potato chips on little red plastic plates. A pastor with the Camden Bible Tabernacle started things off with a prayer. Brenner let one of the other coalition members do the talking.

How much money, he asked, did the residents think had been spent on emergency-room and hospital visits in the past five years for the people in this one building? They had no idea. He wrote out the numbers on an easel pad, but they were imponderable abstractions. The residents' eyes widened only when he said that the payments, even accounting for unpaid bills, added up to almost sixty thousand dollars per person. He asked how many of them believed that they had received sixty thousand dollars' worth of health care. That was when the stories came out: the doctors who wouldn't give anyone on Medicaid an office appointment; the ten-hour emergency-room waits for ten minutes with an intern.

Brenner was proposing to open a doctor's office right in their building, which would reduce their need for hospital visits. If it delivered better care and saved money, the doctor's office would receive part of the money that it saved Medicare and Medicaid, and would be able to add services—services that the residents could help choose. With enough savings, they could have same-day doctor visits, nurse practitioners at night, a social worker, a psychologist. When Brenner's scenario was described, residents murmured approval, but the mention of a social worker brought questions.

"Is she going to be all up in my business?" a woman asked. "I don't know if I like that. I'm not sure I want a social worker hanging around here."

This doctor's office, people were slowly realizing, would be involved in their lives—a medical professional would be after them about their smoking, drinking, diet, medications. That was O.K. if the person were Dr. Brenner. They knew him. They believed that he cared about them. Acceptance, however, would clearly depend upon execution; it wasn't guaranteed. There was similar ambivalence in the neighborhoods that Compstat strategists targeted for additional—and potentially intrusive —policing.

Yet the stakes in health-care hot-spotting are enormous, and go far beyond health care. A recent report on more than a decade of education-reform spending in Massachusetts detailed a story found in every state. Massachusetts sent nearly a billion dollars to school districts to finance smaller class sizes and better teachers' pay, yet every dollar ended up being diverted to covering rising health-care costs. For each dollar added to school budgets, the costs of maintaining teacher health benefits took a dollar and forty cents.

Every country in the world is battling the rising cost of health care. No community anywhere has demonstrably lowered its health-care costs (not just slowed their rate of increase) by improving

medical services. They've lowered costs only by cutting or rationing them. To many people, the problem of health-care costs is best encapsulated in a basic third-grade lesson: you can't have it all. You want higher wages, lower taxes, less debt? Then cut health-care services.

People like Jeff Brenner are saying that we *can* have it all—teachers *and* health care. To be sure, uncertainties remain. Their small, localized successes have not yet been replicated in large populations. Up to a fourth of their patients face problems of a kind they have avoided tackling so far: catastrophic conditions. These are the patients who are in the top one per cent of costs because they were in a car crash that resulted in a hundred thousand dollars in surgery and intensive-care expenses, or had a cancer requiring seven thousand dollars a week for chemo and radiation. There's nothing much to be done for those patients, you'd think. Yet they are also victims of poor and disjointed service. Improving the value of the services—rewarding better results per dollar spent—could lead to dramatic innovations in catastrophic care, too.

The new health-reform law—Obamacare—is betting big on the Brenners of the world. It says that we can afford to subsidize insurance for millions, remove the ability of private and public insurers to cut high-cost patients from their rolls, *and* improve the quality of care. The law authorizes new forms of Medicare and Medicaid payment to encourage the development of "medical homes" and "accountable care organizations"—doctors' offices and medical systems that get financial benefits for being more accessible to patients, better organized, and accountable for reducing the over-all costs of care. Backers believe that, given this support, innovators like Brenner will transform health care everywhere.

Critics say that it's a pipe dream—more money down the health-care sinkhole. They could turn out to be right, Brenner told me; a well-organized opposition could scuttle efforts like his. "In the next few years, we're going to have absolutely irrefutable evidence that there are ways to reduce health-care costs, and they are 'high touch' and they are at the level of care," he said. "We are going to know that, hands down, this is possible." From that point onward, he said, "it's a political problem." The struggle will be to survive the obstruction of lobbies, and the partisan tendency to view success as victory for the other side.

Already, these forces of resistance have become Brenner's prime concern. He needs state legislative approval to bring his program to Medicaid patients at Northgate II and across Camden. He needs federal approval to qualify as an accountable care organization for the city's Medicare patients. In Camden, he has built support across a range of groups, from the state Chamber of Commerce to local hospitals to activist organizations. But for months—even as rising health costs and shrinking state aid have forced the city to contemplate further school cuts and the layoff of almost half of its police—he has been stalled. With divided branches at both the state and the federal level, "government just gets paralyzed," he says.

In the meantime, though, he's forging ahead. In December, he introduced an expanded computer database that lets Camden doctors view laboratory results, radiology reports, emergency-room visits, and discharge summaries for their patients from all the hospitals in town—and could show cost

patterns, too. The absence of this sort of information is a daily impediment to the care of patients in Boston, where I practice. Right now, we're nowhere close to having such data. But this, I'm sure, will change. For in places like Camden, New Jersey, one of the poorest cities in America, there are people showing the way. ♦

Medical Report, "The Hot Spotters," The New Yorker, January 24, 2011, p. 41