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WHAT WORKS

The ‘Frequent Flier’ Program That Grounded a Hospital’s Soaring Costs

In Dallas, Parkland Hospital created an information-sharing network that gets health care to the most vulnerable citizens—before they show up in the emergency room.

By **ARTHUR ALLEN** | December 18, 2017

DALLAS—On a recent afternoon at Parkland Memorial Hospital, social worker Sheryl Abraham and senior vice president Marilyn Callies reviewed a sheath of graphs, each representing a special kind of visitor to the hospital—the “frequent fliers,” as the nurses call them, or more politely, “high utilizers.” Sitting in Callies’ office—a shrine to the Louisiana native’s beloved New Orleans Saints—they worked through a list of 96 people who had visited the hospital at least 10 times over the previous month. Some had run up annual tabs of over $100,000 in unpaid bills. Nearly all of them were homeless at least part of the year. Here was a man in his late 40s, admitted to the emergency room 12 times over the past month, here a mentally ill woman who had visited 16 times. “Here’s one who comes in for her medication refills,” said Callies, leafing through the stack. “Maybe we could get a courier and get the medications to her?”

High utilizers are not a new problem at 872-bed Parkland Memorial, one of the 10 biggest hospitals in the United States. Parkland is best known as the place where President John F. Kennedy was pronounced dead 54 years ago after being shot while his motorcade passed through downtown. These days, its emergency room overflows with injuries and illnesses large and small: people with bullet wounds and heart attacks, strokes and pneumonia, and also chronically ill patients with nowhere else to go, for whom Parkland’s emergency room is a refuge from their disordered lives. And then there were patients whose medical emergencies could easily have been prevented with regular medical care, or housing or decent food.

Every big city has a hospital like Parkland Memorial, but Dallas, land of vast freeways, barbecue and suburban sprawl, is in a category all its own, and so is its safety net hospital. About 85 percent of the patients at Parkland are uninsured or on Medicaid; the hospital spent

$871 million on uncompensated care last year, which accounts for over half its budget and more than 2 percent of all the unpaid hospital care provided in the United States. The unpaid bills arise because only two-thirds of Dallas’s adult residents have health insurance of any kind, the lowest coverage rate of any big city in the country.

In parts of south Dallas, fewer than half of the adults are insured, and not because they don’t need health care. Asthma rates in these districts are nearly double the national average, as are obesity, diabetes, high cholesterol and mental illness. Generations of the poor and uninsured in Dallas and surrounding counties have followed a familiar routine: When you’re really sick or at wit’s end, call 911. Tell the EMS driver to take you to Parkland, which accepts everyone and won’t saddle you with a bill you can’t pay.

The “frequent fliers” account for the running red ink in the hospital’s finances. Parkland needed to do something about them, and beginning in 2015 it did. That year, the Parkland Health and Hospital System christened a new $1.3 billion hospital, a 17-story glass-and-steel behemoth, shiny on the outside and quiet on the inside, funded by municipal bonds and donations from local oil zillionaires. It also launched an innovative new initiative that would reset the hospital’s ledger by creating a safety net for the city’s most vulnerable citizens.

Parkland Center for Clinical Innovation (or PCCI) was a joint effort with community partners such as homeless shelters and food pantries to build a network of what was hoped would eventually be hundreds of community-based social services around Dallas County, with Parkland Memorial at the center of it. A sophisticated software platform would enable the hospital to easily refer homeless people discharged from its emergency room to shelters and pantries, and to let social workers at those places see what their clients were doing: whether they were filling their prescriptions, or getting healthy food, or had a place to sleep, or money for the bus. It would be so much cheaper to meet those needs outside the medical system than to pay for the consequences inside it. Two years into the program, evidence is mounting that PCCI is working.

Callies cites the case of a man with hypertension and a stressful situation at home whose hospital bills dropped from $108,500 in December 2016 to zero by April as his health stabilized. Callies says on average hospital visits for some of the highest utilizers have been cut by two-thirds or more, saving an estimated $12 million.

“I had a ‘Wow!’ moment when I saw these charts,” says Callies.

Less than two years after its launch, the PCCI portal contains 150,000-plus names and had been accessed nearly a million times by 98 community groups, including some, like the local community college, that officials never anticipated would participate. And the list is growing. The Dallas public school system has expressed interest in using the portal to detect whether kids’ asthma medications are getting filled by their parents. There has even been talk of hooking up the network with the city jail, or the fire department because most of its calls are health care-related. The goal is to link 300 community groups by the end of 2018.

“We need to have one plan for the patient,” says Abraham. “When all community organizations and hospitals communicate, we can have one plan, and the entire community can link arms through this technology to quickly facilitate that need for this patient, and something that takes six months to do we can do in one month, and have a better outcome."

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People who study health care have known for more than 40 years that most of what makes people healthy or sick takes place beyond a doctor's reach. Good sleep really does "knit up the raveled sleeve of care," as Shakespeare put it, and it's the stress of poor housing that aggravates a mental illness, the food desert that leads to a bad diet and diabetes complications, the cockroach-infested apartment that provokes asthma attacks, the feelings of low self-worth from an inadequate pay check that bring on depression and heart disease. Cumulatively, factors like these are known as the "social determinants of health."

Sir Michael Marmot, the British epidemiologist who first used the term in the 1970s, has said the best way to improve health is to close the vast inequalities of money, power and resources. "Every sector is a health sector," he wrote in 2014. "A toxic combination of unfair economic arrangements, poor social qualities and programs and bad governments, are responsible for these inequities in daily life which give rise to avoidable health differences. If we put fairness to the fore, it would reduce variable health inequalities. At the heart of this concern is one of social justice, but evidence really matters."

But addressing those inequalities depends on having resources available and in Dallas that was complicated by a conservative state's preference for low taxes and limited handouts. So officials turned to data to make the evidentiary case for how to fill the gaps in care.

The blueprint for the Parkland community's renovation originated with Ruben Amarasingham, a computer engineer and doctor supported by the prestigious Robert Wood Johnson Foundation's Young Leader Award. Amarasingham had seemingly been bred to undertake this complex task. He was the child of Sri Lankan immigrants—his father a doctor, his mother a social worker—and even as a high school student in Newark, Delaware, he set up with his brother a company that sold database programming to medical equipment suppliers. "It wasn't successful enough for me to skip college," he says with a laugh. So he studied science at Brown University and medicine at the University of Texas-Southwestern in Dallas.

In his third year there he got to know Ron Anderson, president of the Parkland system, who encouraged him to create a computer program for a network of vans that provided services to the homeless. After two years at Johns Hopkins University, Amarasingham returned to Parkland with further expertise in computers and health care systems, as well as an MBA, and began working on software to help the hospital predict which patients would require readmissions.

"As I worked on the math, the threads started to come together," he said. "If you can identify social factors your predictive powers increase significantly. Clinical factors only get you halfway there, or less."

One evening in 2011, during a shift at the hospital, it all sort of coalesced. He entered the room of a patient who seemed very familiar—his chart showed it was the sixth time he had been admitted to Parkland in the past nine months. The man was in his late 50s, homeless and mentally ill, and he'd been brought into the intensive care unit in a coma stemming from a condition called hypothyroidism. The entire expensive, terrifying episode could have been avoided if the patient had been regularly taking a drug called levothyroxine, which costs less than 50 cents a day.

But “he had no family and no social support; he was not very literate. He was a boarder at the Salvation Army, but gradually falling apart,” Amarasingham recalled. “We had a wonderful conversation and figured out how to prevent this cycle of readmissions and poor health.” The hospital helped the patient find permanent housing, and he stopped coming to the hospital. If they could multiply such solutions with better coordination between the hospital and community organizations, Amarasingham realized, patients could be protected far more cheaply and with better results.

The following year, the W.W. Caruth Jr. Fund, endowed by a real estate scion who owned 50 square miles of land within Dallas, gave Amarasingham’s new venture, the Parkland Center for Clinical Innovation (or PCCI), $1 million to explore the feasibility of a network that linked public health and community groups. After 18 months, Caruth kicked in $12 million more to implement the idea. Obamacare was just coming into place, with penalties for hospitals that had too many readmissions. There was a bipartisan consensus that the $3 trillion health care system was an iceberg that had to be towed into fresh waters. Society had to start paying for things that promised good health rather than health-related procedures—and good health, as people had been observing ad nauseam, required healthy communities.

Parkland was the natural place to start experiments in community health, because as the health care behemoth slowly shifted direction, the need to change was especially acute for a safety net hospital, which relied heavily on payments the government was intent on shrinking. “More and more health insurers and payers are starting to recognize that the social determinants of health are important,” Amarasingham said. “Parkland is highly disposed to this kind of thinking because they take care of so many uninsured patients. And because they think it’s the right thing to do.”

Amarasingham, still influenced by the stories his social worker mother had told him, saw it as a chance to transform Dallas and maybe other cities as well. “You could bring together all these shadow resources and organizations spread across cities and align them with health care,” he said. “I hope we’re strengthening the fabric of organizations that can help people with all their needs in a more profound way, in a more integrated, organized effort.”

Amarasingham called his case management software Iris, because it would allow everyone to keep watch over the most vulnerable people. As he conceived it, social agencies would use the software for their own case management efforts and to connect through an information exchange portal that would link them to each other and to Parkland.

Building Iris and the portal was a process of baby steps. Amarasingham and his colleagues at PCCI didn’t want to make the same mistake that organizations called health information exchanges had stumbled into when they were rolled out beginning in 2009. The exchanges, funded initially out of the Obama administration’s economic stimulus, were networks in which hospitals and medical practices could share information on patients to coordinate their care as they moved among primary and specialty care practices, hospitals and long-term care facilities. But many of the exchanges failed because they were put up without figuring out how or whether health care providers would use them. After the exchanges spent their seed money, many—including the Dallas exchange—found that not enough health care organizations were willing to pay to share data, and the exchanges flopped.

To avoid something similar, Parkland decided to give community groups a tangible benefit before asking them to share data—a step that made many leery, out of concern for the privacy of their clients. Amarasingham and colleagues would offer them a software platform they could use for internal needs, and only then ask them to connect with other agencies and the health care system. A fancy new software platform was a real asset to small, low-budget organizations that helped the poor. Some were still working with pen and paper on spreadsheets. “If it works initially, word of mouth spreads it, then you have grass-roots buy-in,” Amarasingham thought to himself.

His good intentions weren’t enough, at first. When he brought the first version of Iris to a community town hall meeting, “they destroyed it,” Amarasingham recalled. “They were like, ‘This sounds like a bunch of doctors put it together.’” The software was structured like an electronic health record, which not even doctors liked. Amarasingham quickly realized that the system needed to be flexible to meet the needs of community groups that each had its own mission, expertise and technical ability.

Cindy Crain, who runs an alliance of 38 federally funded homeless organizations in the Dallas area, explained to Amarasingham that any case management system had to be compliant with the requirements of the many health and housing agencies that fund homelessness;

they had to respect privacy and security requirements and demonstrate high data quality and integrity.

After the meeting it was back to the “bare bolts” of the software, Amarasingham said. But within a year, the portal had electronically tied together a handful of the larger community groups, says Steve Miff, who became chief executive of PCCI after Amarasingham stepped down to create a venture capital-backed partner company, Pieces Technology. To deal with the issue of sensitive information, the system would have three different levels of consent. “Stage 1” meant that an individual’s data could be used in the record system of an individual organization. “Stage 2” allowed general information about a person to be shared with the health care system and “Stage 3” meant health care providers and community organizations could share detailed information about a patient’s diagnoses and needs, and the services they were getting—even the specific foods they took home from a pantry. There were, to be sure, certain kinds of information, about things like addiction or sexual abuse, that remained protected. “The principle is only to access a patient’s data to help them,” said Dustin Perkins, director of programs at the Austin Street Center, a homeless shelter.

In June 2015, the center for clinical innovation turned on the software for the first time at Sharing Life, a food pantry that also provided clothing and counseling to 75,000 people every year at a church-owned warehouse 17 miles east of Parkland in the suburb of Mesquite. The project was en route to creating what Amarasingham called “this intelligent network of well-meaning, excellent providers all moving in the same direction.”

One of the advantages to the system, for Parkland, was that its patients were more willing to agree to share their personal data when they were asked to do so by a food pantry, rather than in the emergency room. “We had the hardest time recruiting people. In the ER you have more important things to do and you are sick,” said Yolande Pengetnze, PCCI’s medical director. “At the pantry, you know them, they’ve fed your family, there’s trust.” At the same time, the easily grasped value of the data helped overcome doubts and suspicions in the community-based organizations. Iris allowed them to easily refer clients to needed services, using a resource page that mapped out other local organizations. “You’ve got something in common now—this platform. So it’s a great step forward in doing population health as a community,” said Keith Kosel, a vice president at the innovation center.

Within a year, the software portal was having a powerful impact on overwhelmed homeless organizations in Dallas. By entering personal data from each of the 17,009 Dallas residents registered as having been homeless over the past year, homeless advocate Crain has created a triage system that allows her to make the best use of scarce resources. She maintains a housing list that ranks 700 of the neediest men and women in the city based on factors like level of disability, arrests and ER visits. Sir Michael Marmot might shake his head at the lack of resources that Texas made available for such desperate people.

But the portal at least could rank them by priority and find a home for the one at the top of the list when someone died or moved out—which happened an average of 24 times a month. “I use data science to make sure we make the best targeted choices based on vulnerability and the lack of independence,” says Crain.

The availability of data showed social workers in Dallas that homeless people were 167 percent more likely to have emergency room visits than the non-homeless population, and that from 300 to 400 homeless were arrested in Dallas each month. Neither of these pieces of information was shocking, but they gave Crain data she could take to officials to try to influence policy on homelessness. If she could show that housed people needed fewer EMS transports, ER visits and less time in jail, then, she reasoned, “I can make a business case to say, it’s not only the moral thing to bring housing to these homeless, mentally ill people. It’s going to save you money. If you don’t serve these people they’ll die in the street or eat you alive with these public response systems.”

It wasn’t long before some surprises emerged from the data that was being collected, said Vikas Chowdhry, who came to the innovation center to lead the data science team after 15 years at Epic Systems, the electronic health records giant. For one thing, the single most common group seeking services at different places around town was made up of people who had at least some college experience.

Chowdhry didn’t know why, but it certainly undercut the image people had of who was coming into shelters and pantries for help. The data revealed something else about the anatomy of what makes it so hard to be poor in Dallas: The services might be in the wrong parts of town. Poverty is concentrated on the south side of Dallas, but community organizations are concentrated in the north. And the organizations, with some exceptions, weren’t close to one another.

Being in communication through the database also helped homeless advocates figure out where to send people who came in seeking help. “People in encampments and tent cities are often there because they don’t know how to navigate the system and they got frustrated and quit,” said Perkins. “If we can make it a user-friendly system, folks won’t feel like they’re getting lost anymore.” Many sick homeless patients leave the hospital with medications that need refrigeration. The doctor doesn’t know they are homeless, or figures that a shelter will have a refrigerator. “If they can coordinate with us, that can be amazing,” he said. “It may change how we do things. Maybe I need a bigger refrigerator. Maybe I’ve got 23 people here who need refrigerated meds.”

At the hospital, officials see the database as key to getting accurate information from patients, who often give distorted accounts of their lives outside its walls because they are embarrassed, mentally ill, or “poor historians,” says Callies. “A patient will say, ‘Yes, I’m going to that pantry,’ but when I talk to the pantry they say, ‘No, we haven’t seen them.’” Such discrepancies can be solved by a phone call, but it’s easier to use a database that everyone can access. Follow-ups are already getting results. Callies points to the graph for a man we’ll call Mr. Johnson. Hypertension and a stressful situation at home gave him severe headaches, which he has dealt with by frequent visits to the emergency room. It cost the hospital $108,500 to care for him in December 2016. But last January, after they connected him with a community clinic and a mental health center, his bills dropped to $91,000 that month, and to $8,400 in February. In March he had a toothache—a $52 charge—and in April, he didn’t come in at all.

Case managers in hospitals have always sought to find resources for needy people when they leave, and the best case manager, the kind who has been in the business 25 years and has folders full of information about different services with phone numbers and names of friendly contacts scribbled on them, is probably better than any software. But such talented individuals can’t be everywhere. Software can.

Still, PCCI officials were cautious about using the system too ambitiously before they were confident it worked. To test whether it would be possible to share fairly detailed information through the portal, early this year they started a pilot project called Data Across Sectors for Health, or DASH. About 150 Parkland patients with diabetes or hypertension who also used food pantries or homeless shelters were enrolled in the pilot, after they had consented to the sharing of their health and other information. The goal was to see whether it could cut their emergency room visits.

Each time a DASH patients entered the Sharing Life pantry—they typically came twice a month—volunteers engaged them in a four- or five-minute interview. There might be a record in the portal that they had seen a physician in the past month. Had they filled the prescriptions the doctor ordered? If not, did they need a free pharmacy card to get it filled? Or a voucher to get bus fare? Then the volunteer would lead the DASH patient through Sharing Life’s three “shopping” aisles, which were stocked largely with canned and box foods but also frozen meats and fresh vegetables. The volunteer gave advice on healthy choices—and wrote down what the DASH client chose, although they were ostensibly free to pick any food they wanted.

Early data from the pilot showed that it had reduced emergency room visits by 8 percent in people who participated in the trial, while 46 percent of those in a control arm of the study, who got no dietary counseling, increased their ER visits. Ninety percent of the clients in the study said the program helped them manage their disease, fill prescriptions and keep doctor visits. The approach was clearly intrusive, but it wasn’t clear that bothered anyone much. “Someone goes through marking by hand what we buy,” said one of the DASH patients, 52-year-old Jeff Turner. “It’s a little big brotherish, a little strange.” But, he added, “It gives you a second thought reaching for that dessert, because someone’s writing that down.”

In a focus group, patients said the reminders were helpful and “made them feel held accountable that someone cared enough to remind them,” said Pengetnze, the PCCI medical director. “You’re responsible for this and you better take this seriously,” said Turner. “Others might see that different, but I see it as a benefit. They’re not there with a whip, although it’s clear what they want you to do. They don’t land a church on you, they’re just kicking ass and getting the job done.”

Losing privacy is “part of being vulnerable and homeless,” said Crain. “There is no privacy. Your living room is shared with a group of other people. You do offer informed consents, but what person who’s got nothing can refuse it?” She has no choice, Crain said; to use her resources wisely, she needs criteria for deciding who gets them. “That means collecting data on them.” For the most part, the homeless accept being tracked, officials say. Of the thousands of men and women who have come the past year to the Austin Street, two raised doubts about having their names put into the system, said Dustin

Perkins. They backed down when he told them he had no choice if they wanted to stay there.

Still, privacy concerns bleed into unease over the Trump adminstration’s plans to cut funding to agencies like Housing and Urban Development, whose leader, Ben Carson, visited with Dallas homeless officials for two hours this summer. “Until this president was elected, there was virtually no one who objected to being put into a database,” said Larry James, CEO of CitySquare, which provides long-term housing for the homeless. “Since then, we’ve had undocumented people who came by to ask us to erase them. They’ve grown very wary.”

In April, the federal government gave a powerful signal of approval to the Iris project by awarding the Parkland innovation center a $4.5 million grant from the Centers for Medicare & Medicaid Services. The Parkland health system, along with the Baylor, Methodist, Children’s and Dallas MetroCare systems, will host one of 22 demonstration projects in the Accountable Health Communities initiative, which is really just a more formal version of what Amarasingham and his colleagues have already started doing.

Several other communities were showing promise integrating health care with community services, said Patrick Conway, who led the federal agency’s innovation center and now heads Blue Cross Blue Shield North Carolina. Hennepin County, Minnesota, has had a similar, though less tech-heavy program for many years. In North Carolina, the Blue Cross Foundation has invested since 2014 in food, transport and homelessness programs aimed at improving health and lowering health care costs, in part to lower the insurer’s health are costs, Conway said.

If the pilot is successful in Dallas and other cities, it’s likely the government will start providing incentives, in the form of additional Medicare payments to health care systems that use approaches like Iris to keep track of their patients outside the health care system—and possibly even assess penalties for hospital systems that don’t do a good job at this.

With some evidence that the portal provides value, the PCCI team is considering expansion within Dallas and across the United States. Amarasingham’s spinoff, Pieces Tech, has also developed software that works inside the hospital, helping doctors predict when an infection is turning dangerous, or whether a patient is likely to need a readmission. The hope is to include data from Iris in those calculations. “In America we provide the best medical care,” he said. “It’s the 60 to 70 percent risk from nonmedical factors that we’re struggling with.”

Up until now, most of the PCCI work has been funded by by private or non-profit grants—$50 million worth to date—and there’s still a question whether hospitals and community groups that serve poor people will be able to pay to maintain the software and the labor involved in setting it up and running it. For now, PCCI is providing Iris to its Dallas partners for free, but at some point they may be asked to start paying licensing fees. “I’m not sure how we’ll pay,” said Sara Gorath of the North Texas Food Bank.

Another possible solution is to franchise the PCCI model to other parts of the country. The innovation center and Pieces Tech are building a similar system for Louisville and one for a city in North Carolina, and they’ve been talking to hospitals in Chicago and Atlanta. The idea even plays in Peoria, Illinois. In that city, OSF

Healthcare System will turn on the portal in January to connect a satellite clinic with the YMCA and other social agencies in nearby Streator.

Ultimately, though, most of the people involved in the Dallas experiment believe it can’t survive unless the federal government follows through with its movement to convert to “value-based” health care—something the current administration has shown slightly less interest in than did Obama’s officials. It needs a federal push, says Keith Kosel. “Most everything people are proposing in health care won’t happen quick enough without accommodating policy changes,” he said. “To think providers or community groups will do it without a push from the state or the feds is wishful thinking. I’ve been doing this for 31 years. People don’t do things until they are pushed.”