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TESTING, TESTING

The health-care bill has no master plan for curbing costs. Is that a bad thing?

by Atul Gawande December 14, 2009

In medicine, as in agriculture, efficiency cannot be achieved by fiat.

Cost is the spectre haunting health reform. For many decades, the great flaw in the American health-care system was its unconscionable gaps in coverage. Those gaps have widened to become graves—resulting in an estimated forty-five thousand premature deaths each year—and have forced more than a million people into bankruptcy. The emerging health-reform package has a master plan for this problem. By establishing insurance exchanges, mandates, and tax credits, it would guarantee that at least ninety-four per cent of Americans had decent medical coverage. This is historic, and it is necessary. But the legislation has no master plan for dealing with the problem of soaring medical costs. And this is a source of deep unease.

Health-care costs are strangling our country. Medical care now absorbs eighteen per cent of every dollar we earn. Between 1999 and 2009, the average annual premium for employer-sponsored family insurance coverage rose from \$5,800 to \$13,400, and the average cost per Medicare beneficiary went from \$5,500 to \$11,900. The costs of our dysfunctional health-care system have already helped sink our auto industry, are draining state and federal coffers, and could ultimately imperil our ability to sustain universal coverage.

What have we gained by paying more than twice as much for medical care as we did a decade ago? The health-care sector certainly employs more people and more machines than it did. But there have been no great strides in service. In Western Europe, most primary-care practices now use electronic health records and offer after-hours care; in the United States, most don't. Improvement in demonstrated medical outcomes has been modest in most fields. The reason the system is a money drain is not that it's so successful but that it's fragmented, disorganized, and inconsistent; it's neglectful of low-profit services like mental-health care, geriatrics, and primary care, and almost giddy in its overuse of high-cost technologies such as radiology imaging, brand-name drugs, and many elective procedures.

At the current rate of increase, the cost of family insurance will reach twenty-seven thousand dollars or more in a decade, taking more than a fifth of every dollar that people earn. Businesses will see their health-coverage expenses rise from ten per cent of total labor costs to seventeen per cent. Health-care spending will essentially devour all our future wage increases and economic growth. State budget costs for health care will more than double, and Medicare will run out of money in just eight years. The cost problem, people have come to realize, threatens not just our prosperity but our solvency.

So what does the reform package do about it? Turn to page 621 of the Senate version, the section entitled "Transforming the Health Care Delivery System," and start reading. Does the bill end medicine's destructive piecemeal payment system? Does it replace paying for quantity with paying for quality? Does it institute nationwide structural changes that curb costs and raise quality? It does not. Instead, what it offers is . . . pilot programs.

This has provided a soft target for critics. "Two thousand seventy-four pages and trillions of dollars later," Mitch McConnell, the Senate Minority Leader, said recently, "this bill doesn't even meet the basic goal that the American people had in mind and what they thought this debate was all about: to lower costs." According to the Congressional Budget Office, the bill makes no significant long-term cost reductions. Even Democrats have become nervous. For many,

the hope of reform was to *re-form* the health-care system. If nothing is done, the United States is on track to spend an unimaginable ten trillion dollars more on health care in the next decade than it currently spends, hobbling government, growth, and employment. Where we crave sweeping transformation, however, all the current bill offers is those pilot programs, a battery of small-scale experiments. The strategy seems hopelessly inadequate to solve a problem of this magnitude. And yet—here’s the interesting thing—history suggests otherwise.

At the start of the twentieth century, another indispensable but unmanageably costly sector was strangling the country: agriculture. In 1900, more than forty per cent of a family’s income went to paying for food. At the same time, farming was hugely labor-intensive, tying up almost half the American workforce. We were, partly as a result, still a poor nation. Only by improving the productivity of farming could we raise our standard of living and emerge as an industrial power. We had to reduce food costs, so that families could spend money on other goods, and resources could flow to other economic sectors. And we had to make farming less labor-dependent, so that more of the population could enter non-farming occupations and support economic growth and development.

America’s agricultural crisis gave rise to deep national frustration. The inefficiency of farms meant low crop yields, high prices, limited choice, and uneven quality. The agricultural system was fragmented and disorganized, and ignored evidence showing how things could be done better. Shallow plowing, no crop rotation, inadequate seedbeds, and other habits sustained by lore and tradition resulted in poor production and soil exhaustion. And lack of coordination led to local shortages of many crops and overproduction of others.

You might think that the invisible hand of market competition would have solved these problems, that the prospect of higher income from improved practices would have encouraged change. But *laissez-faire* had not worked. Farmers relied so much on human muscle because it was cheap and didn’t require the long-term investment that animal power and machinery did. The fact that land, too, was cheap encouraged extensive, almost careless cultivation. When the soil became exhausted, farmers simply moved; most tracts of farmland were occupied for five years or less. Those who didn’t move tended to be tenant farmers, who paid rent to their landlords in either cash or crops, which also discouraged long-term investment. And there was a deep-seated fear of risk and the uncertainties of change; many farmers dismissed new ideas as “book farming.”

Things were no better elsewhere in the world. For industrializing nations in the first half of the twentieth century, food was the fundamental problem. The desire for a once-and-for-all fix led Communist governments to take over and run vast “scientific” farms and collectives. We know what that led to: widespread famines and tens of millions of deaths.

The United States did not seek a grand solution. Private farms remained, along with the considerable advantages of individual initiative. Still, government was enlisted to help millions of farmers change the way they worked. The approach succeeded almost shockingly well. The resulting abundance of goods in our grocery stores and the leaps in our standard of living became the greatest argument for America around the world. And, as the agricultural historian Roy V. Scott recounted, four decades ago, in his remarkable study “The Reluctant Farmer,” it all started with a pilot program. In February, 1903, Seaman Knapp arrived in the East Texas town of Terrell to talk to the local farmers. He was what we’d today deride as a government bureaucrat; he worked for the United States Department of Agriculture. Earlier in his life, he had been a farmer himself and a professor of agriculture at Iowa State College. He had also been a pastor, a bank president, and an entrepreneur, who once brought twenty-five thousand settlers to southwest Louisiana to farm for an English company that had bought a million and a half acres of land there. Then he got a position at the U.S.D.A. as an “agricultural explorer,” travelling across Asia and collecting seeds for everything from alfalfa to persimmons, not to mention a variety of rice that proved more productive than any that we’d had. The U.S.D.A. now wanted him to get farmers to farm differently. And he had an idea.

Knapp knew that the local farmers were not going to trust some outsider who told them to adopt a “better” way of doing their jobs. So he asked Terrell’s leaders to find just one farmer who would be willing to try some “scientific” methods and see what happened. The group chose Walter C. Porter, and he volunteered seventy acres of land where he

had grown only cotton or corn for twenty-eight years, applied no fertilizer, and almost completely depleted the humus layer. Knapp gave him a list of simple innovations to follow—things like deeper plowing and better soil preparation, the use of only the best seed, the liberal application of fertilizer, and more thorough cultivation to remove weeds and aerate the soil around the plants. The local leaders stopped by periodically to confirm that he was able to do what he had been asked to.

The year 1903 proved to be the most disastrous for cotton in a quarter century, because of the spread of the boll weevil. Nonetheless, at the end of the season Porter reported a substantial increase in profit, clearing an extra seven hundred dollars. He announced that he would apply the lessons he had learned to his entire, eight-hundred-acre property, and many other farmers did the same. Knapp had discovered a simple but critical rule for gaining coöperation: “What a man hears he may doubt, what he sees he may possibly doubt, but what he does himself he cannot doubt.”

The following year, the U.S.D.A. got funding to ramp up his activities. Knapp appointed thirty-three “extension agents” to set up similar demonstration farms across Texas and into Louisiana. The agents provided farmers with technical assistance and information, including comparative data on what they and others were achieving. As experience accrued, Knapp revised and refined his list of recommended practices for an expanding range of crops and livestock. The approach proved just as successful on a larger scale.

The program had no shortage of critics. *Southern Farm Magazine* denounced it as government control of agriculture. But, in 1914, after two years of stiff opposition, Congress passed the Smith-Lever Act, establishing the U.S.D.A. Cooperative Extension Service. By 1920, there were seven thousand federal extension agents, working in almost every county in the nation, and by 1930 they had set up more than seven hundred and fifty thousand demonstration farms.

As Daniel Carpenter, a professor of government at Harvard, points out, the demonstration-farm program was just one of a hodgepodge of successful U.S.D.A. initiatives that began as pilots. Another was devoted to comparative-effectiveness research: experimental stations were established—eventually, in every state—that set about determining the most productive methods for growing plants and raising livestock. There was a pilot investigation program, which, among other things, traced a 1904 fruit-decay crisis in California to cuts in the fruit from stem clippers and the fingernails of handlers (and, along the way, introduced modern packing methods industry-wide). The U.S.D.A.’s scientific capabilities grew into the world’s greatest biological-discovery machine of the time.

The department invested heavily in providing timely data to farmers, so that they could make more rational planting decisions. It ran the country’s weather-forecasting system. And its statistics service adopted crop-reporting systems from Europe that allowed it to provide independent crop forecasts—forecasts that, among other things, dramatically reduced speculation bubbles. (In 1927, Republicans, prompted by aggrieved New York speculators, managed to prohibit the U.S.D.A. from releasing the forecasts; the program was reinstated three years later, following an outcry from farmers.) The department continuously updated its storehouse of technical assistance, so that when new technologies arrived—new hybrid varieties, new kinds of fertilizer, new forms of mechanization—farmers were able to make use of them more swiftly and effectively. The U.S.D.A. established an information-broadcasting service. A hundred and seventeen commercial and forty-six military radio stations carried crop reports; printed reports were distributed to fifteen million farmers a year. It also introduced a grading system for food—meat, eggs, dairy products, and fresh fruits and vegetables—to flag and discourage substandard quality.

What seemed like a hodgepodge eventually cohered into a whole. The government never took over agriculture, but the government didn’t leave it alone, either. It shaped a feedback loop of experiment and learning and encouragement for farmers across the country. The results were beyond what anyone could have imagined. Productivity went way up, outpacing that of other Western countries. Prices fell by half. By 1930, food absorbed just twenty-four per cent of family spending and twenty per cent of the workforce. Today, food accounts for just eight per cent of household income and two per cent of the labor force. It is produced on no more land than was devoted to it a century ago, and with far greater variety and abundance than ever before in history.

This transformation, though critical to America's rise as a superpower, involved some painful dislocations: farms were consolidated; unproductive farmers were winnowed out. As the historian Sally Clarke, of the University of Texas at Austin, has pointed out, it's astonishing that the revolution took place without vast numbers of farm foreclosures and social unrest. We cushioned the impact of the transformation—with, for instance, price supports that smoothed out the price decline and avoided wholesale bankruptcies. There were compromises and concessions and wrong turns. But the strategy worked, because United States agencies were allowed to proceed by trial and error, continually adjusting their policies over time in response not to ideology but to hard measurement of the results against societal goals. Could something like this happen with health care?

There are, in human affairs, two kinds of problems: those which are amenable to a technical solution and those which are not. Universal health-care coverage belongs to the first category: you can pick one of several possible solutions, pass a bill, and (allowing for some tinkering around the edges) it will happen. Problems of the second kind, by contrast, are never solved, exactly; they are *managed*. Reforming the agricultural system so that it serves the country's needs has been a process, involving millions of farmers pursuing their individual interests. This could not happen by fiat. There was no one-time fix. The same goes for reforming the health-care system so that it serves the country's needs. No nation has escaped the cost problem: the expenditure curves have outpaced inflation around the world. Nobody has found a master switch that you can flip to make the problem go away. If we want to start solving it, we first need to recognize that there is no technical solution.

Much like farming, medicine involves hundreds of thousands of local entities across the country—hospitals, clinics, pharmacies, home-health agencies, drug and device suppliers. They provide complex services for the thousands of diseases, conditions, and injuries that afflict us. They want to provide good care, but they also measure their success by the amount of revenue they take in, and, as each pursues its individual interests, the net result has been disastrous. Our fee-for-service system, doling out separate payments for everything and everyone involved in a patient's care, has all the wrong incentives: it rewards doing more over doing right, it increases paperwork and the duplication of efforts, and it discourages clinicians from working together for the best possible results. Knowledge diffuses too slowly. Our information systems are primitive. The malpractice system is wasteful and counterproductive. And the best way to fix all this is—well, plenty of people have plenty of ideas. It's just that nobody knows for sure.

The history of American agriculture suggests that you can have transformation without a master plan, without knowing all the answers up front. Government has a crucial role to play here—not running the system but guiding it, by looking for the best strategies and practices and finding ways to get them adopted, county by county. Transforming health care everywhere starts with transforming it somewhere. But how?

We have our models, to be sure. There are places like the Mayo Clinic, in Minnesota; Intermountain Healthcare, in Utah; the Kaiser Permanente health-care system in California; and Scott & White Healthcare, in Texas, that reliably deliver higher quality for lower costs than elsewhere. Yet they have had years to develop their organizations and institutional cultures. We don't yet know how to replicate what they do. Even they have difficulties. Kaiser Permanente has struggled to bring California-calibre results to North Carolina, for instance. Each area has its own history and traditions, its own gaps in infrastructure, and its own distinctive patient population. To figure out how to transform medical communities, with all their diversity and complexity, is going to involve trial and error. And this will require pilot programs—a lot of them.

Pick up the Senate health-care bill—yes, all 2,074 pages—and leaf through it. Almost half of it is devoted to programs that would test various ways to curb costs and increase quality. The bill is a hodgepodge. And it should be.

The bill tests, for instance, a number of ways that federal insurers could pay for care. Medicare and Medicaid currently pay clinicians the same amount regardless of results. But there is a pilot program to increase payments for doctors who deliver high-quality care at lower cost, while reducing payments for those who deliver low-quality care at higher cost. There's a program that would pay bonuses to hospitals that improve patient results after heart failure,

pneumonia, and surgery. There's a program that would impose financial penalties on institutions with high rates of infections transmitted by health-care workers. Still another would test a system of penalties and rewards scaled to the quality of home health and rehabilitation care.

Other experiments try moving medicine away from fee-for-service payment altogether. A bundled-payment provision would pay medical teams just one thirty-day fee for all the outpatient and inpatient services related to, say, an operation. This would give clinicians an incentive to work together to smooth care and reduce complications. One pilot would go even further, encouraging clinicians to band together into "Accountable Care Organizations" that take responsibility for all their patients' needs, including prevention—so that fewer patients need operations in the first place. These groups would be permitted to keep part of the savings they generate, as long as they meet quality and service thresholds.

The bill has ideas for changes in other parts of the system, too. Some provisions attempt to improve efficiency through administrative reforms, by, for example, requiring insurance companies to create a single standardized form for insurance reimbursement, to alleviate the clerical burden on clinicians. There are tests of various kinds of community wellness programs. The legislation also continues a stimulus-package program that funds comparative-effectiveness research—testing existing treatments for a condition against one another—because fewer treatment failures should mean lower costs.

There are hundreds of pages of these programs, almost all of which appear in the House bill as well. But the Senate reform package goes a few U.S.D.A.-like steps further. It creates a center to generate innovations in paying for and organizing care. It creates an independent Medicare advisory commission, which would sort through all the pilot results and make recommendations that would automatically take effect unless Congress blocks them. It also takes a decisive step in changing how insurance companies deal with the costs of health care. In the nineteen-eighties, H.M.O.s tried to control costs by directly overruling doctors' recommendations (through requiring pre-authorization and denying payment); the backlash taught them that it was far easier to avoid sicker patients and pass along cost increases to employers. Both the House and the Senate bills prevent insurance companies from excluding patients. But the Senate plan also imposes an excise tax on the most expensive, "Cadillac" insurance plans. This pushes private insurers to make the same efforts that public insurers will make to test incentives and programs that encourage clinicians to keep costs down.

Which of these programs will work? We can't know. That's why the Congressional Budget Office doesn't credit any of them with substantial savings. The package relies on taxes and short-term payment cuts to providers in order to pay for subsidies. But, in the end, it contains a test of almost every approach that leading health-care experts have suggested. (The only one missing is malpractice reform. This is where the Republicans could be helpful.) None of this is as satisfying as a master plan. But there can't be a master plan. That's a crucial lesson of our agricultural experience. And there's another: with problems that don't have technical solutions, the struggle never ends.

Recently, I spoke with the agricultural extension agent for my home town, Athens, Ohio. His name is Rory Lewandowski. He is fifty-one and has been the extension agent there for nine years. He grew up on a Minnesota dairy farm, and got a bachelor's degree in animal science and agronomy from the University of Minnesota and a master's degree in agronomy from the University of Wisconsin. He spent most of his career in farm education, including eight years in Bolivia, where, as a volunteer for the Mennonite Central Committee, he created demonstration farms in an area where the mining economy had collapsed.

I had a vague childhood memory of the extension office, on West Union Street, near downtown Athens; kids in my school used to go to 4-H meetings there. But I had no idea what the agent really did. So I asked Lewandowski. "I just try to help make farming better in Athens County," he said.

Athens is a green, hilly county at the edge of the Appalachian Mountains, and the farms there are small—an average of a hundred and fifty acres, Lewandowski said. There are six hundred and sixty of them, with, he estimated, as many as

a hundred kinds of produce and livestock. His primary task is to help farmers improve the productivity and quality of their farms and to reduce environmental harm. A hundred years after Seaman Knapp, the difficulties have changed but they haven't gone away.

I'd caught Lewandowski in his office on a Saturday. He routinely puts in sixty-five to eighty hours a week at his job. He has a five-week small-ruminant course for sheep and goat producers; a ten-week master-gardener course; and a grazing school. His wife, Marcia, who has written two knitting books, handles registration at the door. He sends out a monthly newsletter. He speaks with about half the farmers in the county in the course of a year.

Mostly, the farmers come to him—for guidance and troubleshooting. He told me about a desperate message that a farmer left him the other day. The man's spinach plants had been afflicted with downy mildew and were collapsing. "He said he was going to lose his whole crop by the weekend and all the markets that he depended on," Lewandowski said. He called the farmer back and explained that the disease gets started with cooler temperatures and high humidity. Had the farmer been using overhead watering?

Yes, he said, but he had poked around the Internet and was thinking about switching to misting.

Not a good idea. "That still leaves too much moisture on the leaf," Lewandowski said. He recommended that the farmer switch to drip irrigation, and get some fans in his greenhouse, too.

The farmer said that he'd thought about fans but worried that they would spread the spores around.

They will, Lewandowski said. "But you need wetness on the leaves for four to six hours to get penetration through the leaf cuticle," he explained. If the plants were dried out, it wouldn't be a problem. "You've got to understand the biology of this," he said to me.

He doesn't always understand the biology himself. He told me about a beef farmer who had been offered distiller's grain from a microbrewery, and wanted to know whether he could feed it to his cows. Lewandowski had no idea, but he called the program's beef extension expert and got the answer. (Yes, with some limits on how much he put in a ration.) A large organic farm called with questions about growing vegetables in high tunnels, a relatively new innovation that the farm had adopted to extend its growing season. Lewandowski had no experience with this, but an extension agent in Wooster, Ohio, was able to supply information on what had worked best elsewhere.

"You have to be able to say, 'I don't know, but I can figure that out for you.'" Lewandowski said.

If he could change one thing about farming in Athens, I asked, what would it be? "Grazing management," he said. "Think about how the grass grows in your lawn. A grass plant needs at least a few days after a mowing to grow." If you mowed your lawn every day, the grass would become thin and patchy. That's what happens when farmers leave their animals out in one big pasture—which is what most small farmers do—or rotate them too slowly. In his grazing school and in demonstrations, he asks farmers to keep their animals in a given area for only a few days, then move them to a section where the grass is eight inches tall and has reached its highest nutrient value. This way, the pastures won't erode, and the cattle will grow better, yielding higher-quality meat and more of it. The technique requires discipline, though, and extra work, and farmers have been slow to give it a try.

I asked him if he has had any victories. All the time, he said. But he had no illusions: his job will never end. Cynicism about government can seem ingrained in the American character. It was, ironically, in a speech to the Future Farmers of America that President Ronald Reagan said, "The ten most dangerous words in the English language are 'Hi, I'm from the government, and I'm here to help.'" Well, Lewandowski is from the government, and he's here to help. And small farms in Athens County are surviving because of him. What he does involves continual improvisation and education; problems keep changing, and better methods of managing them keep emerging—as in medicine.

In fact, when I spoke with Lewandowski about farming in Athens, I was struck by how much it's like the health-care system there. Doctors typically work in small offices, with only a few colleagues, as in most of the country. The hospital in Athens has less than a tenth the number of beds that my hospital in Boston has. The county's clinicians could do much more to control costs and improve quality of care, and they will have to. But it will be an ongoing struggle.

My parents recently retired from medical practice in Athens. My mother was a pediatrician and my father was a urologist. I tried to imagine what it would be like for them if they were still practicing. They would be asked to switch from paper to electronic medical records, to organize with other doctors to reduce medical complications and unnecessary costs, to try to arrive at a package price for a child with asthma or a man with kidney stones. These are the kinds of changes that everyone in medicine has to start making. And I have no idea how my parents would do it.

I work in an academic medical group in Boston with more than a thousand doctors and a vastly greater infrastructure of support, and we don't know the answers to half these questions, either. Recently, I had a conversation with a few of my colleagues about whether we could accept a bundled payment for patients with thyroid cancer, one of the cancers I commonly treat in my practice as a surgeon. It seemed feasible until we started thinking about patients who wanted to get their imaging or radiation done elsewhere. There was also the matter of how we'd divide the money among the surgeons, endocrinologists, radiologists, and others involved. "Maybe we'd have to switch to salaries," someone said. Things were getting thorny. Then I went off to do an operation in which we opened up about a thousand dollars' worth of disposable materials that we never used.

Surely we can solve such problems; the reform bill sets out to find ways that we can. And, in the next several years, as the knowledge accumulates, I suspect that we'll need our own Seaman Knapps and Rory Lewandowskis to help spread these practices county by county.

We'll also need data, if we're going to know what is succeeding. Among the most important, and least noticed, provisions in the reform legislation is one in the House bill to expand our ability to collect national health statistics. The poverty of our health-care information is an embarrassment. At the end of each month, we have county-by-county data on unemployment, and we have prompt and detailed data on the price of goods and commodities; we can use these indicators to guide our economic policies. But try to look up information on your community's medical costs and utilization—or simply try to find out how many people died from heart attacks or pneumonia or surgical complications—and you will discover that the most recent data are at least three years old, if they exist at all, and aren't broken down to a county level that communities can learn from. It's like driving a car with a speedometer that tells you only how fast all cars were driving, on average, three years ago. We have better information about crops and cows than we do about patients. If health-care reform is to succeed, the final legislation must do something about this.

Getting our medical communities, town by town, to improve care and control costs isn't a task that we've asked government to take on before. But we have no choice. At this point, we can't afford any illusions: the system won't fix itself, and there's no piece of legislation that will have all the answers, either. The task will require dedicated and talented people in government agencies and in communities who recognize that the country's future depends on their sidestepping the ideological battles, encouraging local change, and following the results. But if we're willing to accept an arduous, messy, and continuous process we can come to grips with a problem even of this immensity. We've done it before.

ILLUSTRATION: FRANCESCO BONGIORNI