Editors’ Introduction

This year’s volume of the Anthology features two chapters that examine the Foundation’s efforts to improve the quality of medical care. In the following chapter, Irene Wielawski looks at the chronic care model, a systematic way of treating patients with chronic conditions. In this chapter, Carolyn Newbergh, a freelance writer specializing in health care, discusses The Dartmouth Atlas of Health Care and the other work of Dr. Jack Wennberg highlighting the capricious way that patients receive medical care depending on where they live.

Wennberg and his colleagues at the Center for Evaluative Clinical Sciences at Dartmouth Medical School have demonstrated that physicians in many communities are providing too much care that has little, if any, impact on health, and may even be harmful. They make the case that the health care system could save a considerable amount of money without sacrificing quality if excessive and unnecessary care were eliminated. At the same time, they have shown that many physicians do not deliver the kinds of basic care that are known to be beneficial to patients.

While Wennberg’s work on variation of health care has been widely recognized by health policy experts, it has had little influence on medical practice. The same is true of the chronic care model discussed in Chapter 3. This lack of acceptance points up the challenge of changing behavior and systems in ways that will provide high-quality care to patients and allocate limited health care resources wisely.
It turns out that in health care, as in real estate, it all boils down to location, location, location. This doesn’t mean you have to live near a world-class medical center to have the best shot at surviving a heart attack. What it does mean, surprisingly, is that where you live is an indicator of just how often you will see your doctor or a specialist, how many MRIs and other diagnostic tests you will have, and when your doctor will tell you that you need an operation. That’s the conclusion of a New Hampshire physician, epidemiologist, and professor, John “Jack” Wennberg, who has spent more than 33 years examining what’s going on in exam rooms and at hospital bedsides, building an ever-more sophisticated understanding of just how crucial geography is to the health care we all receive.

Along the way, Wennberg has shot gaping holes into some tenets of conventional medical wisdom. He dismisses the notion that more medical care is better medical care, that more diagnostic testing is in your best interest, and that the doctor almost always knows best. What’s really true, he says, is this:

- More health care can actually mean worse health care.
- There is enormous variation in communities throughout the nation in the kind and amount of health care services being given, with people in some areas receiving more than twice as much in terms of office visits, specialist care, testing, and hospitalization as residents of other areas.
- Much of this difference comes about because doctors have their own practice styles.
- The over-supply of hospital beds, specialists, and diagnostic testing facilities creates demand for these services.
- There is great uncertainty about how best to treat many conditions.
- Much of the excess unwarranted care could be reduced if patients were better informed about their treatment choices.

Wennberg’s work, much of it supported by the Robert Wood Johnson Foundation, has revealed some stunning facts. Medicare spends 2.5 times as much on its Miami enrollees as it does on those in Minneapolis—for no good reason and with apparently worse outcomes. The $50,000 more that Medicare spends on Miamians than it does on patients in Minneapolis is “equivalent to a new Lexus GS 400 with all the trimmings,” Wennberg wrote provocatively.

The 73-year-old Wennberg, something of a lone wolf and a maverick all these years, has been on a bit of a crusade since he and his colleague Alan Gittelsohn noticed something peculiar back in the early 1970s: kids in one Vermont town were having their tonsils removed in droves, but next door, where Wennberg lived with his wife and four children, hardly any tonsils were being pulled. (Wennberg’s own tonsils were removed twice when he was a child, he revealed with a raised eyebrow, and the reason remains something of a mystery to him.) This kind of marked disparity popped up all over the state, so that if you mapped it, a crazy-quilt pattern emerged with no reason for the differences. This was particularly telling in a small state whose residents at the time were demographically alike. Could the children in one town have more tonsillitis than those in the next town over, year
after year? Wennberg and Gittelsohn found that that wasn’t so. Could it be that parents in one town preferred having their kids undergo tonsillectomies while parents a town away didn’t? Not likely.

In 1973, Wennberg and Gittelsohn told this story in the pages of Science when no other peer-reviewed journal would publish it. In their landmark study, they linked patients’ zip codes to insurance claims records, dividing Vermont into 13 service areas, based on where people received hospital care. Then, introducing a method they called “small area analysis,” they examined rates of tonsillectomies and eight other operations that were adjusted for differences in age. What they discovered was striking: There was a 66 percent chance that a Vermont child living in the service area with the most tonsillectomies would have the operation by age 20, while the likelihood was just 16 to 22 percent in five nearby towns. Similar variations popped up in the eight other common surgeries studied, such as appendectomy, gall bladder, and prostate surgery—variations that could not be attributed to age or different illness levels.

They went on to find, in other studies, the same kind of geographical patterns for the nine common types of surgeries in Maine and then throughout the New England states. In one Maine city, for instance, they discovered that hysterectomies were so frequent that if they continued at the same pace, “70 percent of the women there will have had the operation by the time they reach the age of 75.” The authors observed, “In one city surgeons appear to be enthusiastic about hysterectomy; in the other, they appear to be skeptical of its value.” Similarly, some hospital service areas had four times as many prostatectomies as others.

It followed that where more health care was being given, more health care dollars were being spent, both in private insurance and in Medicare. Per-capita spending on hospital care in Boston, for instance, was $324 in 1975 while $225 was spent in Providence, $153 in New Haven, and $120 in Hanover, New Hampshire—all communities where care was delivered in prestigious teaching hospitals that one might presume to be of similar quality. The authors pointed out that although third parties, consumers, and the government contributed the same amount for health coverage in these areas, more money was actually being lavished on patients in the high-use areas. In other words, money was being shifted or transferred in what amounted to a subsidy of high-use areas by the low-use ones.

To top off the string of bad news, Wennberg and Gittelsohn found that there was no apparent health benefit to all this extra care. Those who received more health care services did not seem to be healthier or to live longer. A closer examination of this point would come years later.

Why was this pattern of treatment occurring? From these early studies, some theories emerged. Communities that delivered the most health care service tended to have more hospitals and specialists, leading the authors to conclude that greater supply inclines doctors to fill the beds or the appointment slots—because of pressure, incentives, or purely subliminal reasons. But the authors suggested that the biggest determining factor for the variations was the practice style of the doctors themselves. Where an operation was being performed more frequently, more of the doctors in that area were approaching the condition aggressively instead of taking a wait-and-see or medication approach, producing a “surgical signature.”
They also found a surprising amount of uncertainty about what the best course of treatment was in many instances. “It seems that the procedures whose rates vary the most are the ones whose risk and benefits are least well established in the medical profession,” they wrote. And they posited that the different physician opinions were often a sign that not all doctors were incorporating “new medical knowledge” into their practices. In too many other instances, medical knowledge was not developed enough and more clinical studies were needed to determine what was the best approach to, say, lower back pain or how extensive breast cancer surgery should be. “For many common illnesses, well-designed studies to test alternative forms of therapy have not been done,” they wrote. “Many diagnostic and therapeutic techniques are adopted or discarded on the basis of fashion or a physician’s personal experience rather than on more reliable grounds.” They called for the government to promote outcomes research to clear up the many uncertainties.

These controversial studies bucked the tide of mainstream medical practice and were a lot for the medical world to swallow. It didn’t react well. After all, the message was that doctors, who pride themselves on practicing a profession rooted in science, weren’t basing most of their decisions on science or clinical trials that had proved particular treatments to be highly effective. Rather, the authors were saying, doctors were more inclined to recommend an operation because of the number of hospital beds that were available or because they worked in a medical group that was aggressive about certain procedures. The many critics said that the studies’ findings of extreme variations in care must be wrong, that the differences probably weren’t so pronounced, and that there were likely obvious but overlooked explanations for the disparities.

“It used to be you couldn’t go to a medical meeting without being heckled, or maybe I should say without encountering people who were really pissed off,” says Wennberg, interviewed in his Hanover, New Hampshire, office on the Dartmouth College campus where he is a professor of medicine.

But Wennberg believed that he was on to something and persevered. In other research, he showed that Boston had 60 percent more hospital beds and hospitalized far more patients per capita than New Haven did—a striking illustration of the impact of supply on utilization, given that the two communities boast similar well-regarded medical systems. Although mortality rates were about the same for New Haven and Boston, the costs for hospitalization in Boston were almost double what they were in New Haven.⁵

With the nation’s health care costs spiraling ever higher, Wennberg insisted that instead of more and more health care, what we really needed to focus on was the quality of the health care, or value. Then, if the care that was of no value could be reduced or eliminated, a huge cost savings would result. Wennberg’s team of researchers estimated in 2003 that by lowering the spending level in high-use regions to that of the low-use regions, Medicare could save about 29 percent a year—which translates to approximately $59 billion—and thus freeing up money for prescription drug benefits for Medicare recipients, strengthening the Medicare system itself, delivering health care to the uninsured, or even meeting other social needs such as improving education.⁶
It would be a long, tough, single-minded fight, but the Robert Wood Johnson Foundation believed, too, that Wennberg was on to something that could make a difference. The Foundation lent crucial financial support to what may be his most ambitious endeavor, *The Dartmouth Atlas of Health Care*. A series of reports and maps that depict variations in health care nationwide over time, the *Atlas* extended Wennberg’s early findings from small area analysis in New England to the whole nation, breaking down how Medicare was functioning and finding similar patterns in the private health care market. The Foundation’s nearly $10 million in grants over 13 years also supported further analysis of what was beneath the variations and helped get the word out that something was very wrong.

It may have seemed as if the whole world was aligned against Wennberg and trying to resist his messages during the 1970s and 1980s, but there were many in the health care trenches treating patients who thought that he was hitting the nail squarely on the head. One of them was Steven Schroeder, a young doctor at George Washington University, who would be a champion of Wennberg’s work at the Robert Wood Johnson Foundation when he became its president in 1990. By then, Schroeder had been tracking Wennberg’s work for about 15 years and noting the high caliber of researchers he gathered around him.

“I felt the same way he did,” Schroeder said in an interview. “I had done similar work on a smaller scale at George Washington before I knew about Jack’s work. My research showed a 17-fold difference in use and costs of lab tests by internists at our medical clinic. I found there was a huge spectrum between people who ordered lots of expensive tests and procedures and those who didn’t. I noticed this in my clinical rotation, too. People had very, very different practice styles and the expense of the style didn’t correlate into better outcomes.”

Wennberg approached the Foundation in the early 1990s to ask for funding to support his efforts to help with the possible implementation of the Clinton health care reform plan. As envisioned at the time, regional insurance purchasing cooperatives might be asked to manage health care resources. Wennberg proposed to show state governments or the cooperatives how to use small area data in managing health care reform. He also had a sketchy idea of producing a series of reports in an “atlas format” that would describe oversupply in the system and the demographics of health before reform as well as track change as it occurred.

The request fell on receptive ears. Wennberg, whose earlier work had been supported largely by the federal government, the John A. Hartford Foundation, and the Commonwealth Fund, received a three-year $2.3 million grant from the Robert Wood Johnson Foundation in 1994. It covered the cost of acquiring and analyzing data as well as preparing policy-relevant reports. Former Foundation executive vice president Lewis Sandy, now an executive vice president with United Healthcare, recalls that this first grant was “less specifically started as furthering a Foundation objective and more as a project that really was betting on a strong horse and the track record of Jack Wennberg and his team.”
When President Clinton’s efforts to pass a health plan collapsed, the project was reconfigured to extend the small area analysis Wennberg and his associates had done for New England to the 306 hospital-referral regions and 3,436 “geographically distinct hospital service areas” his team had identified nationwide. The project would analyze how health care resources were distributed and used in each area, all based on Medicare claims data for hospital and outpatient care as well as some private insurance sources. A critical component, to both Wennberg and the Foundation, was finding a way to get the information out to policy-makers so that it would have a better chance of leading to change. It was again envisioned that this would be in a series of reports. The work evolved into what became known as *The Dartmouth Atlas of Health Care*, which was first published in 1996. “The *Atlas* was an afterthought, not the original thought, as the reports were,” Wennberg said.

Schroeder had high hopes that the project would make the public and policy-makers more aware of the differences in medical services throughout the nation, provide ammunition for efforts to improve quality of care, lead to less unnecessary care, and slow down the relentless climb of health care costs. “I expected Wennberg to create a resource others could use, especially people in communities where they could use the information to help make changes that were needed,” Schroeder said. “Additionally, I thought it was a powerful tool to argue that cost containment does not mean lower quality.”

The Foundation has supported what later became known as the Dartmouth Atlas Project with varying degrees of funding for the purchase of the Medicare database, the analysis by the working group at the Dartmouth-based Center for the Evaluative Clinical Sciences, which Wennberg directs, and the production of research reports. The Foundation’s funding also covered the redesign of the *Atlas* Web site and the hiring of a communications specialist. In the 2004 round of grantmaking, the Foundation insisted that financial partners from health plans be sought to help cover the cost of purchasing and analyzing the claims database. This was meant to nudge the Dartmouth Atlas Project toward sustainability and to involve health plans more actively. The health plans that joined in, contributing from $100,000 to $250,000 annually each from their philanthropic arms, were WellPoint, United Healthcare, and Aetna. The California HealthCare Foundation also contributed.

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**The Dartmouth Atlas**

Although *The Dartmouth Atlas of Health Care* was first envisioned as a series of state-by-state written reports on variations in the use of medical resources, it ultimately became a series of books that presented the data in a colorful way along with explanatory text. This was not intended to be a series of dreary medical journal articles with dry rundowns of multivariate analysis. With help from a member of the *Atlas* working group with expertise in mapping and a local firm talented at presenting information visually, what was unveiled after three years of research was a big $350 book with boldly shaded areas in various colors illustrating variations in care in a readily understood format. It was as though you could fly birdlike over the nation and see some locations that had, say, far more back surgeries or far fewer mastectomies than others. The *Atlas* measured resources such as hospitals, beds, and the supply of doctors and nurses, as well as Medicare spending, age-adjusted rates of surgery for every thousand Medicare enrollees in each hospital referral region, and much more. “The intention
was always to have practical applications,” Wennberg said in his cramped warren of offices at the Center for the Evaluative Clinical Sciences where he oversees the Atlas, an educational program, and other related endeavors.

Two more volumes of the Atlas, published in 1998 and 1999, explored end-of-life care, disparity in care, and quality of care measures—all areas of particular interest to the Robert Wood Johnson Foundation. The group would ultimately publish three state editions, nine regional editions, and three specialty care editions before the Atlas became exclusively a Web publication.

With a staff of about 20 economists, epidemiologists, statisticians, and other specialists putting it together, the Atlas has turned up numerous interesting facts. The cities of White Plains, New York, and San Francisco boast the most psychiatrists per capita, for example, and Boston, New York, Chicago, and Houston have the most physicians per capita. One statistic stands out above all others: medical spending is more than twice as high in some communities as it is in others—and not because people there are sicker or older. Particularly striking was a comparison between the $3,341 Medicare spent on each Minneapolis enrollee and the $8,414 it expended on each Miamian in 1996. Medicare recipients simply received more services and saw more doctors in Miami, which has become something of the poster child for the woes of too much hospitalization, diagnostic testing, specialist referrals, and office visits. The Atlas also found wide variation in mastectomies compared with lumpectomies for treatment of breast cancer and angioplasty versus bypass surgery to treat heart disease. In Birmingham, Alabama, for example, 7.7 per 1,000 Medicare recipients had bypass surgery, compared with 2.7 per 1,000 recipients in Albuquerque.

“It’s data that tells you something about the world,” said Megan McAndrew, editor of the Atlas.

“The desirable thing would be that a doctor tells me I need back surgery, and I go to look it up. Am I in a place where every third person is getting back surgery? Should I go to Rochester, Minnesota, home of the legendary Mayo Clinic, which is known to be at the low end of the care spectrum with high quality, and see what they say?”

The Atlas made a strong nationwide case for what had been observed only in regions before: the kind of care you receive depends on where you live rather than what is wrong with you. Furthermore, an examination of the death rates in low-use and high-use areas showed that people weren’t dying sooner in areas where less care was being given.

In its exploration of end-of-life care, the Atlas showed that depending on where a patient lived, there were enormous differences in the chance of dying in a hospital bed or in the amount of time spent in the intensive care unit. Death in a hospital bed was, for example, most likely in New Jersey, New York, southern California, and Miami. And the number of specialists seen, diagnostic tests, and office visits in high-use areas soared in the last six months of life when compared to low-use areas.
The Atlas also zeroed in on how well different locations were performing on quality indicators such as giving people older than 65 flu shots and checking lipid levels of people with diabetes. High-use and low-use areas alike fell short on these indicators. However, Rochester, Minnesota, boasted both low use of medical services and a high rate on quality measures.

In Michigan, the working group looked at private insurance data from Blue Cross Blue Shield of Michigan and found the same kinds of low-use and high-use patterns of health care services for patients with chronic health conditions. “The relationship between Medicare variations and variations for Blue Cross were the same,” Wennberg said. This was important to document because it is virtually impossible to analyze variations in the private insurance market across the entire nation. “You can’t get the data for the whole country,” Wennberg said. “Private insurance is broken into hundreds of different companies and systems with their own databases.”

In 2000, the Atlas became a free Web-based publication as a way to lower costs and make the data accessible much faster than book publishing allows. The Dartmouth Atlas Project Web site posts topic papers, data quality measures, datasets, and downloads of previous editions of the book-form of the Atlas and is moving toward becoming more interactive. With the site’s data, users can make their own tables and graphs comparing various hospitals or regions on a range of variables—just as the Atlas books did. With funding from the Robert Wood Johnson Foundation, the Web site is being remodeled to become even simpler and more useful. It will take fewer clicks to produce graphic displays of, say, the heart surgery rate for your region compared to the rest of the country. “We want to get this into a form that would enable your 82-year-old father in Miami with prostate cancer to look up whether people are getting different answers in Fort Myers,” McAndrew said.

In 2005, the Dartmouth Atlas Project moved in a new direction—one that it hoped would bring the case for corralling variation closer to home. Data pinpointed how individual California hospitals and hospital chains were performing and how they compared with each other from 1999 through 2003. This first hospital-specific data showed that the numbers of doctor visits and hospitalizations for chronically ill Medicare patients in Los Angeles were far higher than anywhere else in the state. Medicare spent $43,500 on hospitalized patients in the last two years of life in Los Angeles, the fifth-highest regional tab in the country. In contrast, it spent 20 percent less on patients in San Francisco, 36 percent less in San Diego, and 67 percent less in Sacramento. The Atlas provided detailed data on individual hospitals as well. For example, within the Los Angeles region, Medicare spent the most for hospitalizations and doctors at Garfield Medical Center in Monterey Park and the least at Foothill Presbyterian Hospital in Glendora. This kind of information, Wennberg states in a report, might be used to “stimulate major employers and payers to use data to direct their chronic disease populations away from high cost, high utilization hospitals to those that spend less and use less resources.” The financial benefits could be substantial. Consider this: Medicare could have saved $1.7 billion if Los Angeles’s spending per person had been the same as Sacramento’s, he wrote. The project planned to release the same kind of information for hospitals throughout the country in 2006.
The existence of variation raises a number of important issues,” the introduction to the first *Atlas* stated. “Foremost is the question ‘Which rate is right?’ Which pattern of resource allocation, and which pattern of utilization, is correct?” Although Wennberg has speculated from the data that patients in high-use areas fare no better, an important related question also needed to be answered: If more health care isn’t better care, could it possibly be worse?

Elliott Fisher, a Dartmouth Medical School professor and the co-principal investigator of the *Atlas*, set out to find the answer. Fisher submitted a grant request for the study to the Robert Wood Johnson Foundation, which awarded it in 1997. (Funding also came from the National Institute on Aging and the National Cancer Institute.)

In a highly noted study published in the *Annals of Internal Medicine* in 2003, Fisher and his colleagues looked at the costs and health results of end-of-life care for people with hip fractures, colorectal cancer, or acute myocardial infarctions. He found patients in the study's highest-spending areas got approximately 60 percent more health care—for minor procedures, physician visits, tests, and hospital and specialist use—but experienced no better health outcomes, satisfaction with their care, or superior functioning as a result. In fact, the extra care increased mortality by 2 to 5 percent—probably from patients’ being subjected to the dangers inherent in being hospitalized such as increased risk of infection, Wennberg, Fisher, and others have theorized. The authors pointed out that if spending everywhere could be safely brought to the level of the low-use regions, Medicare spending would decline up to 30 percent annually—an enormous savings. “You know, it could have been that more was better—people in the higher spending areas could be getting all this care because they’re sicker,” Fisher said. “Or maybe they are benefiting from more health care. Now, as the result of our study, on the cross-sectional level, no one is arguing this is true anymore.”

In 2002, Wennberg, Fisher, and Jonathan Skinner, a Dartmouth professor of economics and community and family medicine, laid out an analysis of the kinds of care that have a bearing on both quality and efficiency. In a paper of far-reaching impact funded by the National Institute on Aging and the Robert Wood Johnson Foundation, they divided health care services into three categories: effective care, preference-sensitive care, and supply-sensitive care.

Effective care, the authors explained, is what people often mean by quality. These are the diagnostic tests and treatments that are accepted as standards of practice based on clinical trials or cohort studies, peer-reviewed articles, and general agreement. It is what people mean by evidence-based medicine, and is the minimum in quality care that all patients should expect from their health plans. Examples of effective care include a mammogram for breast cancer screening, tests for colon cancer, eye exams and HgA1c blood tests for diabetics, and prescribing aspirin and beta blockers for heart attack patients. The authors used Health Plan Employer Data and Information Set, or HEDIS, measures as indicators for effective medical care.

Unfortunately, the authors say, effective care services are underused all over the nation—and, surprisingly, patients in higher-spending Medicare regions underuse them just as much as those in...
lower-spending ones. Among the wide disparities in use of proven effective care that were cited: 5 to 92 percent of heart attack patients across the nation who would be ideal candidates for beta blockers actually received them; and the percentage of women between the ages of 65 and 69 who had a mammogram once in a two-year period, the standard recommended by the United States Preventive Services Task Force, ranged between 21 and 77 percent.

Why aren’t doctors following the evidence-based standards for medical practice and ensuring that their patients get immunizations, routine screenings, and treatments? The authors suggest that most doctors lack a system to track who needs them and then to get in touch with those patients.

Preference-sensitive care occurs when there is more than one treatment option for a health problem, with varying risks, benefits, and trade-offs to weigh. Patients in these situations need to acquire information to help them make a choice based on the best clinical evidence. However, the authors found, local medical opinion seems to be the determining factor most often. They pointed out that cardiac bypass surgery rates varied up to four times, from three per thousand in Albuquerque, New Mexico, to more than eleven per thousand in Redding, California. “The rates are strongly correlated with the numbers of per capita cardiac catheterization labs in the regions but not with illness rates as measured by the incidence of heart attacks in the region,” they wrote. In other words, people get more bypass surgery in areas where there are more doctors and hospitals set up to treat heart attacks, not in areas where more people had heart attacks.

Decision-making is often difficult when there is scant medical literature about a condition. Patients suffering from lower back pain, for example, don’t have clinical trials to look to for guidance on treatment alternatives. “It seems likely that individual physicians’ opinions, rather than patients’ preferences, explain the more than sixfold variation in surgery rates” found across the nation for lower back pain, the authors wrote. Moreover, the patterns for use of these preference-sensitive elective surgeries vary in idiosyncratic ways across the country, with a particular region being high in one type of surgery and low in another.

The best way to reduce unnecessary preference-sensitive care would be to inform patients of the various treatment options for their conditions so they can base a decision on their own values and preferences, the authors wrote. Shared decision-making, which Wennberg would always champion, can help patients understand their choices. Essential to this approach is a continued effort to expand the evidence base of medicine.

But the lion’s share of excess medical care, where the stakes are the highest for finding a solution, was in what Wennberg, Fisher, and Skinner called supply-sensitive care, primarily for people with chronic diseases. More than 20 percent of what Medicare spends each year is on care for people who are in the last six months of their lives. The authors found that 41 percent of the wide variations in hospitalization, office visits, and diagnostic testing is determined by the local supply of specialists and hospital capacity. Doctors can find little guidance in medical texts and journals about how often to see chronically ill patients, when to hospitalize them, or when diagnostic tests should be ordered for them. Mostly, doctors are on their own, and the result is that end-of-life treatment is all over the
map. For example, in Ogden, Utah, end-of-life patients were hospitalized an average of 4.6 days, while those in Newark, New Jersey, stayed in the hospital an average of 21.4 days.

The authors quantify the savings if high-spending areas were to receive the same amount of care as the low-spending areas: $40 billion in 1996 alone. They argued that although reducing disparities in this way would certainly upset many who would believe services were being taken away from them, patients would lose care of “little, or possibly negative, value.” But simply putting a cap on services for each region is too simplistic and wouldn’t tackle the bigger problem of improving the quality of care for Medicare patients. The authors’ prescription for remediying Medicare’s quality and efficiency problems includes improving systems to make sure effective care is given, expanding the knowledge base of medicine, developing a shared decision-making process, and having doctors practice medicine more conservatively.

Two other areas of study supported by the Foundation concerned health care disparities between African Americans and whites, and whether pronounced variation exists in the best of American hospitals, its academic medical centers.

In 2003, an Institute of Medicine study, Unequal Treatment: Confronting the Racial and Ethnic Disparities in Health Care, found marked disparities in the health care treatment and outcomes of black patients, especially for heart disease. Probing further, in a 2005 study, Jonathan Skinner and his co-authors found that heart attack patients admitted to hospitals that care for a disproportionate number of African Americans stood an 18 percent higher chance of dying within three months than if they had gone to a hospital that serves disproportionately white patients. “We’re saying a very important source of the disparity is what hospital you go to, at least in relation to 30-day survival rates after a heart attack,” Skinner said in an interview. “All the disparity is because black people went to different hospitals than whites. We’re not talking about disparity or treatment within hospitals.” Skinner described this as a “neglected form of discrimination” much akin to how school segregation led to lesser schools for black students.

Another study reported that the kind of variation found generally throughout the country even occurs at the 77 hospitals U.S. News & World Report anointed the nation’s “best” for 2001. This study found “extensive variation” in end-of-life care among these highly respected hospitals. The difference was attributed to the availability of more hospital beds and physicians per capita.

By 2006, Wennberg had become something of a legend. He is invariably described as indefatigable, stubborn, brilliant, and fearless. He brought us the counterintuitive conclusion that more health care can be worse health care. He has waged a lifelong campaign of making people aware of the variations in health care occurring in town after town. Today he is considered a towering figure, his work regarded as seminal and an underpinning of the movement to improve the quality of health care, base medicine on solid proof of what works, and bring patients into the decision-making loop about their own medical care. “His work is the most important health services work of his generation,” said

Variations in Care between Blacks and Whites and among Academic Medical Centers

The Practical Application of the Dartmouth Atlas
the Institute for Healthcare Improvement’s Donald Berwick, the institute’s president and chief executive officer and himself a pillar in the ongoing quality quest. “He was the guy who first started to turn the lights on variation, which was not a popular inquiry when he started…He has shown the chaos of medical care that is not committed to evidence.”

So powerful is the basic message of the Dartmouth Atlas that it has become part of the DNA of those in health policy and services today. As it has evolved, the Atlas has been recognized as providing superb data and analyses and as an asset to the medical field. Few people quibble any longer with the basic contention that there are huge, nonsensical variations in office visits to doctors and specialists, surgeries, hospital stays, lab tests, and the like, and that they represent a mammoth amount of waste. “What Wennberg has done with the Atlas is extraordinarily important,” said physician Robert Brook, a corporate fellow at RAND and director of RAND’s Health Sciences Program, who himself is a prominent leader in the movement to improve the quality of care. “He called our attention, when nobody wanted to do it, to the notion that you need to look at what things are being done on a geographic basis, controlling for age, sex, and race. There are huge differences. Something there is wrong.”

Jack Hadley, a principal research associate at the Urban Institute, also offers high praise. “The Atlas has been very influential and persuasive mainly because it’s very easy to understand most of what they found,” he said. “The variations and amount of spending per Medicare beneficiary across the country appear to be much larger than any variation in health. They’ve been hammering away at this theme over and over. It seems to consistently find the same results. That has added to its persuasiveness.”

But Brook, Hadley, and others do have substantive bones to pick as well. While Wennberg asserts that decreasing the supply of care in the high-intensity areas would be beneficial, Brook and his colleagues have conducted studies showing that the level of use of a medical service does not correlate to whether it’s appropriate. “Simply cutting supply therefore would cut out things that are both needed and unneeded and we ought to be able to do better than that,” Brook said. He advocates coupling the geographic disparity data with a look at the clinical appropriateness of the care that is either going to be or has been delivered. This means stepping into the clinical environment or going back and reading patients’ charts. By reviewing the clinical evidence for a procedure and the physician’s judgment, as Brook and his colleagues have done, one can tell whether the health benefit of performing that procedure exceeds the health risk—and determine whether care was appropriate and thus warranted. In his own work with colleagues, Brook found that the same proportion of people get care they need and don’t need in both high-use and low-use areas. “The net impact is very little impact on health.”

Hadley, too, believes that Wennberg and the Atlas have not definitively answered what causes the variations, and says he’s unconvinced that their theories will prove correct. With some Atlas hospital referral areas far larger than others, Hadley wonders if much of the individual variation is being lumped all together—some patients getting much more care and some very little within the hospital referral areas—and thus distorting the average.
“To say that nobody should spend more than what is spent in the median area could mean very dramatic changes for individuals who would in fact benefit from more care,” said David Cutler, a Harvard University health economist. Cutler observes that Wennberg’s work doesn’t take into account the last 30 years of remarkable medical advances that have improved survival rates for many serious conditions, such as heart disease and cancer. To him, too much care is just fine.

Wennberg’s footprints can be detected in a number of policy areas. He advocated for a federal agency that would fund outcomes research to increase the evidence base for medicine, which resulted in the establishment of the Agency for Health Care Policy and Research, now called the Agency for Healthcare Research and Quality, or AHRQ, in 1989. He pushed for the Patient Outcomes Research Teams that during the 1990s recommended how to treat patients with common high-risk and costly health conditions for which options weren’t clear. Although AHRQ does less of this kind of research now, other federal agencies such as the National Institutes of Health have picked up some of it. His inspiration can also be seen in pay-for-performance experiments, both in government and some private insurance plans, that reward doctors for using quality measures and providing fewer services.

Yet a nagging doubt remains. Why hasn’t the Atlas had more impact? While some health plans, such as Intermountain Healthcare, a Salt Lake City-based managed care system, are beginning to use the Atlas’s data to reduce their own variations, the Atlas has been far less influential in the real world of health care than its supporters expected it to be. This raises the question: After so many years of showing ever more precisely just how much unwarranted variation and wasteful care is being given to Medicare patients, why do the same patterns of disparity persist year after year?

To most observers, it is a matter of politics, entrenched interests, and the complexity of changing the status quo. “If you’re a congressman, what should you do about this?” David Cutler asked. “It’s all about when there are too many doctors and hospitals, bad things happen. What do you do about that? Close hospitals? Restrict the numbers of doctors that can practice in South Florida? And how do you do that—issue something like taxi medallions for them?”

David Durenberger, the former Republican senator from Minnesota and a health policy expert, said that if the Atlas data had been as developed as it is today back in the 1980s, when several dozen senators and representatives were making changes to Medicare policy, it could have provided direction and answers. But the time has not been right in the early 2000s for national political leaders to take on variations in spending on chronic illness and care in the last two years of life. “The problem is not that the data is obscure but that the leadership is not there in Congress,” Durenberger said. “What preoccupies the politicians is the elections.”

Margaret O’Kane, president of the National Committee for Quality Assurance, has spent considerable time with Wennberg on Capitol Hill as he has urged elected representatives to recognize the disparities in health care services in the nation and make changes in Medicare. “The notion of shifting medical spending so that high-use areas are put on a ‘diet’ is a nonstarter in Congress, where lobbyists for hospitals and physician organizations are highly influential,” she said. “I can’t imagine that happening unless there were an extremely powerful constituency pushing for it.”
According to O’Kane, the Dartmouth Atlas Project should look beyond preparing its good “wonky” papers for medical and health policy research journals. “They need to use a different communications strategy,” she said. “It needs to be a broader campaign—in the business press where employers will read about it and say, ‘Why are we putting up with this?’ I think a lot of large corporations don’t know about this. If they read about it in Fortune or Business Week, they’ll pay more attention. The business press is an unexploited opportunity.”

The Urban Institute’s Jack Hadley summed up what the program has accomplished. “Wennberg’s impact is not so much in policies implemented but in raising very key questions that policy-makers are now trying to better understand and potentially use to make policy changes,” he said.

### Conclusion

Despite these concerns, there is little doubt of the influence of Wennberg and the *Dartmouth Atlas* in health policy circles. “He has very patiently and thoroughly dealt with all of the ‘yes, buts,’ and what he’s got is a set of findings that are too large in size and carefully done to brush off,” said Henry Aaron, a senior fellow in economic studies with the Brookings Institution.

Not only that, Wennberg has built an outstanding team of health services researchers at the Center for the Evaluative Clinical Sciences. Researchers such as Elliott Fisher and Jonathan Skinner are already highly regarded in their own right and have branched out in important new directions.

After all these years, Wennberg, who says he won’t retire until “the variations go away,” is philosophical about the prospects of seeing that happening. “It depends on whether you’re viewing the glass as nine-tenths empty or one-tenth full,” he told the *Wall Street Journal* in 2002.14 “Changing the health care system is like changing the Catholic Church. It takes a long time.”

### Notes


