

Recently named the most influential health-policy researcher of the past 25 years, Jack Wennberg took a lot of barbs early on for his work on geographic variations in health care.

BRAVEHEART

Jack Wennberg has battled uncertainty in medicine—and foes of his findings—for 35 years. His weapons have been intellectual bravery and a dogged sense of doing the right thing. Now hailed nationwide for his iconoclastic ideas, he has just stepped down from leading the troops he assembled at Dartmouth.

By Maggie Mahar

“For half a century,” Dr. John Wennberg declared in a 1977 issue of *Pediatrics*, “the tonsil has been the target of a large-scale, uncontrolled surgical experiment—tonsillectomy.” Jack Wennberg had just taken the pin out of a grenade—and he knew it. With the phrase “uncontrolled surgical experiment,” he acknowledged what few doctors at that time would admit: they operated on people without knowing, with certainty, whether the procedure would do the patients any good. And in this case the patients were children.

During the 1930s and 1940s, half of the nation’s children had their tonsils removed, but “since World War II,” Wennberg reported in that article, “*opinion* has swung away from mass use” (emphasis added). By 1973, he added, only 25% of the nation’s children were undergoing the procedure. (Nevertheless, though its popularity had ebbed, tonsillectomy remained the second most common procedure in the United States, after circumcision.)

The word “opinion” in that passage is jarring. What could Wennberg mean? After all, by 1977 medicine was firmly established as a science. Wasn’t it? Surely doctors would not subject millions of children to a painful and potentially risky operation unless they had solid evidence that the surgery was truly needed.

Not according to Wennberg. With a boldness that is surprising, even today, he went on to compare doctors to meteorologists: “Pedi-

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It was his children—specifically their tonsils—from whom Wennberg got his first insight into health-care variations. This photo dates from his Vermont years.

atricians have been the weathermen in the change of clinical climate, pressing for reduction in use of tonsillectomy in their journal articles.

“Among a sample of California physicians, the offspring of pediatricians underwent fewer tonsillectomies than the children of other types of physicians. Unless, as seems highly unlikely, the children of pediatricians are healthier than the children of other physicians, this seems to reflect specialty-related differences in opinion on the value of tonsillectomy.”

There is that word “opinion,” cropping up once again. In the meantime—this was the really strange part—Wennberg had discovered that tonsillectomies were much more common in some communities than in others. But why?

Geography is destiny

In the early 1970s, when Wennberg began puzzling over tonsillectomies, he was working at the University of Vermont as the director of the state’s Regional Medical Program. The role involved studying the health-care system and analyzing how resources were used in different parts of the state. What he found, as he combed through hospital discharge data, was wide variation in how doctors practiced in communities right next to each other.

In the case of tonsillectomies, the research struck home. Literally.

Wennberg at that time lived on the line between Stowe, Vt., and Waterbury, Vt. His children went to school in Waterbury, 10 miles down the road, but had the family lived about 100 yards father north, they would have been in the Stowe school system. When he looked at the health-care data for the two towns, he realized that 70% of the Stowe children had had their tonsils out by the time they were 15 years old, as opposed to only 20% of those in Waterbury. Were his kids in danger of being undertreated? Or were the children of Stowe being overtreated?

“The communities were very similar,” Wennberg explains, recalling his surprise at the finding. “It was implausible that the need for tonsillectomies varied by that degree.”

In *Pediatrics* in 1977, he noted that physicians defended geographic variation as “inevitable” in cases where there is “professional uncertainty” and physicians “do not know which level of use is ‘appropriate.’” Wennberg was not satisfied with the explanation: “This defense, while explaining the past, cannot justify the future,” he declared. “For one thing, the dollar costs of uncertainty are too great.”

By then, Wennberg had branched out to study geographic variations in the delivery of care in Maine. There, he calculated that in communities where few children had their tonsils out, the cost per capita for tonsillectomy was 85¢. In areas where tonsillectomies were popular, the cost per capita was \$4.55. “Projected nationally, the low-rate strategy costs less than \$200 million; the high-rate strategy costs nearly \$1 billion,” he observed. And that was in 1975 dollars.

“But the costs, of course, are not only in dollars,” Wennberg continued. They could also be measured in lives. In Vermont from 1969 to 1973 and in Maine in 1973, “three postoperative deaths followed tonsillectomy,” he wrote. “For so costly a procedure, ambiguity concerning its value will likely become increasingly intolerable.”

For years, even medical students had recognized the dearth of scientific evidence behind the procedure. “When I was in medical school, I remember one professor—a particularly arrogant Park Avenue practitioner—asking: ‘What are the indications for a tonsillectomy?’” recalls Dr. James Strickler, who was dean of Dartmouth Medical School when Wennberg joined the Dartmouth faculty. “And one of my more provocative classmates responded: ‘A hundred dollars and a pair of tonsils.’”

Wennberg went on to show that tonsillectomies were just one of many procedures done far more often in some locales than in others. He identified geographic variation in the rate of other common operations, including appendectomies, hysterectomies, prostate surgeries, and gall bladder removals.

Moreover, Wennberg had begun to demonstrate a clear connection between a community’s supply of health-care resources—such as sur-

geons and hospital beds—and how much surgery the residents of that community received. More surgeons and more beds equaled more procedures. Put simply, supply seemed to drive demand.

Four years before his article appeared in *Pediatrics*, Wennberg had published, in the journal *Science*, his first study about geographic variations in health care. There, he and his coauthor, Dr. Alan Gittelsohn, established a firm connection between the supply of health-care resources in a community and how much care its citizens received. At the same time, they acknowledged that they could not say which rate of care represented “a better allocation of resources.” For a given surgery, it was not clear whether patients in communities where surgeons were in relatively short supply received too little care, or whether those in areas with a surfeit of surgeons got too much.

Few studies had been done “comparing outcomes under controlled circumstances,” Wennberg explained at the time. Sadly, the situation hasn’t improved much. “Jack’s first paper in *Science* was so on target,” says Dr. James Weinstein, an orthopaedic surgeon at Dartmouth. “This is what we are working on today.” Weinstein, in fact, heads the largest randomized surgical trial ever funded by the National Institutes of Health—a comparison of surgical and nonsurgical treatments for various kinds of back pain. And it is Weinstein who has been named to succeed Wennberg as the leader of the people and projects Wennberg assembled at Dartmouth.

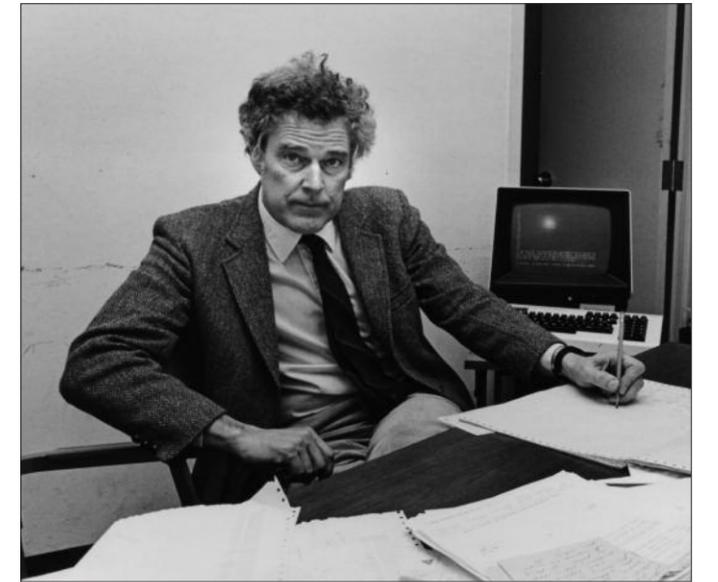
More harm than good

But before those people and projects existed, even before Wennberg’s arrival at Dartmouth, he began to realize just how much was at stake: “Given the magnitude of the variations,” he wrote in 1973 in *Science*, “the possibility of too much medical care and the attendant possibility of iatrogenic illness [illness that is caused by medical care] is presumably as strong as the possibility of not enough service and unattended morbidity and mortality.” In other words, in towns blessed with many surgeons, the extra surgeons actually might be doing more harm than good.

This is not what Wennberg’s peers in the medical profession wanted to hear. In fact, he almost didn’t get that first paper published. “We tried the *New England Journal of Medicine*, we tried the *Journal of the American Medical Association*. . . . We tried all of the medical journals,” he recalls.

What did the reviewers at those journals say? Wennberg chuckles: “They didn’t say anything. We got form rejection letters.” (“This still happens,” he noted in an interview in *Health Affairs* in 2004. “Generally we don’t bring good news.”)

Back in 1973, he recalls, “*Science* was the journal of last resort, but we were delighted to get the paper accepted.” *Science* wasn’t a med-



Wennberg is pictured here in 1984, a few years after coming to Dartmouth. Through the decades, the computer has remained his primary investigative tool.

ical journal, so its reviewers were less likely to be clinicians who might be stung by Wennberg’s suggestion that they could be overtreating their patients. Moreover, at *Science* the author of a study was able to suggest potential reviewers, and Wennberg suggested people who were both prominent and aware of his work. If *Science* had not given writers that opportunity, it is not clear when Wennberg’s work would have seen the light of day.

“The problem is that all of this stuff is so antithetical to the dominant ideology in the medical community—so antithetical that they can’t bear to talk about it,” Wennberg reflected a few months ago. The fact that he spoke in the present tense suggests that the “dominant ideology” lingers still. But what exactly is that ideology?

“Manifest efficacy,” Wennberg says, smiling. “Everything we do [in medicine] is effective.” His smile isn’t smug; it’s rueful. “It’s not just doctors,” he adds. “Patients want to believe in manifest efficacy. It places medicine closer to a religion than a science.”

Today, “such manifest confidence is grounded in a fervent belief in medical technology,” Wennberg continues. “In the past, this wasn’t so important. And it didn’t cost so much. But now it’s expensive. It’s costly not just in dollars, but in the cost for patients.” In today’s “uncontrolled experiments,” patients who undergo surgical treatments run a serious risk of life-changing side effects—in the case of early-

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Eventually Wennberg made converts. With him here, in 1989, are two—Maine surgeon Bob Keller (left) and Hal Sox (right), then chair of medicine at DMS.

stage prostate cancer, for instance, incontinence and/or impotence. Urologists may recommend surgery for such patients reflexively, and patients may assume it is their best option. Yet the National Cancer Institute's position is that although "screening tests are able to detect prostate cancer at an early stage, it is not clear whether this earlier detection and consequent earlier treatment leads to any change in the natural history and outcome of the disease."

But patients need to believe, must believe, that whatever treatment they get is effective, Wennberg explains. "At one point, Jack Fowler, the president of the Foundation for Informed Medical Decision Making and a friend from my Vermont days, interviewed patients who had been treated for prostate cancer. . . . They believed their lives had been saved," Wennberg says. "And so they were bearing the burden of their surgery—and whatever side effects they suffered—very well. That's part of the dynamic that prevents change. The committed patient is committed to the treatment and the ideology. That circle stands in the way of change."

The birth of a skeptic

Jack Wennberg probably brought more skepticism to his career than most doctors. After earning his M.D. at McGill in Montreal, he did his residency at Johns Hopkins, where he also earned a master's of

public health and began a Ph.D. in sociology. "I was interested in social systems and how societies addressed large questions," Wennberg remembers. "At the time, the Vietnam War and the civil rights movement were important drivers in my thinking." His interest in social change translated into a fascination with public health and epidemiology, the root causes of illness, and even the health of the health-care system itself. "I was interested in measuring process, structure, and outcomes," he explains.

From Johns Hopkins, Wennberg headed for Vermont. Back then, "I still believed in the general paradigm that science was advancing and that it was being translated rationally into effective care," Wennberg recalled in a 2004 interview published in the journal *Health Affairs*. "At that time, economists and sociologists as well as patients and doctors believed . . . that the central tendency of the market was rational. . . . I had read enough sociology and was aware [enough] of the overt and covert functions within systems that I came [to Vermont] armed with some skepticism about human behavior. Having read that literature, I was prepared for interpreting what we found. But I don't think I went into it thinking we would find such a marked variation in medical practice."

If Wennberg was surprised by what he found, others in the medical profession resolutely refused to believe his findings of seemingly arbitrary variations in medical practice—variations driven by little more than the number of surgeons and beds available. Both the 1973 paper in *Science* and a similar 1977 article published in the *Journal of the Maine Medical Association* drew fire from critics such as Dr. Francis Moore.

Now deceased, Moore was a professor of surgery at Harvard and the chief of surgery at Boston's Peter Bent Brigham Hospital (now Brigham and Women's). Moore was horrified by the possibility that Wennberg's work might have some impact in the political arena: "Both of the articles in question have recently been quoted in Washington hearings by the Kennedy Committee and the Moss Committee," he wrote in a 1977 letter to the editor of the Maine journal. "They have been used to prove that it is the capricious whim and fiscal motivation of surgeons that dictates the level of surgical care in the community, rather than the needs of the populations. It is unfortunate that these studies . . . with such glaring deficiencies—were published at all, and especially unfortunate that they now provide some additional basis for medical legislation of a national character."

Wennberg's response was temperate, though he and his coauthor allowed themselves a trace of irony in the last sentence of their rebuttal. They began by pointing out that "the phrase 'capricious whims of hospitals, physicians and surgeons' is strictly Dr. Moore's, never having been employed by either of us." Following a point-by-point refu-

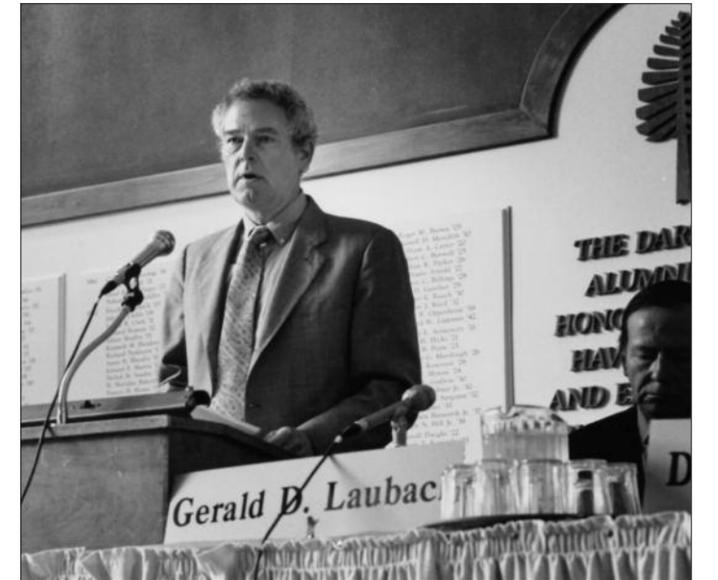
tation of Moore's objections to their findings, they concluded: "We have attempted to ensure that the data are correct within the limits imposed by the medical record and other data systems available to us. It has been our objective to let the data tell their own story. We feel gratified that our work has received national attention and regret that Dr. Moore finds the situation 'especially unfortunate.'"

Thirty years later, not only is Wennberg's work widely recognized in Washington, D.C., but it is helping to shape the national discussion about health-care reform. Political leaders such as presidential candidate Hillary Rodham Clinton and Glenn Hackbarth—the chair of the Medicare Payment Advisory Commission (MedPac), the independent commission that advises Congress on Medicare spending—frequently quote what has become known simply as "the Dartmouth research."

The national press, too, makes regular and laudatory mention of "the Dartmouth research." A major editorial a month ago in the *New York Times* on "The High Cost of Health Care," for example, cited "pioneering studies by researchers at Dartmouth [that] have shown enormous disparities in expenditures on health care from one region to another with no discernible difference in health outcomes." (For more on the impact Wennberg's work has had on national health policy, see "The State of the Nation's Health" in the Spring 2007 issue of *DARTMOUTH MEDICINE*—dartmed.dartmouth.edu/spring07/html/atlas.php.)

What is even more impressive is that in the blogosphere, where much of the cutting-edge debate about health-care reform takes place nowadays, Wennberg's name is not just widely known but universally respected. Matthew Holt, editor of *The Health Care Blog*, says of Wennberg that "while it takes 17 years for medical research to become part of everyday practice, it's taken more than double that time for the work of Jack Wennberg and his colleagues at Dartmouth to permeate the national consciousness and become a staple in the *New York Times*. But much like another seismic debate of our time, global warming, it's become impossible to argue with Jack on the evidence—even though his findings are tilting at a \$2-trillion* industry with good reason to ignore them. And while there may not be a Nobel Prize for economics in the offing for Jack, to paraphrase a great economist who didn't win one either, he is the defunct health services researcher to whom all practical men setting health policy in the future will be slaves." Holt's comment is a reference to a famous observation by John Maynard Keynes that practical men "are usually the slaves of some defunct economist."

Practicality, in fact, has always been Wennberg's goal: he wanted to affect how medicine is practiced. "He wasn't just committed to solving an intellectual puzzle," says Dr. Albert Mulley, chief of general medicine at Massachusetts General Hospital and a 1970 graduate



Here, in 1988, Wennberg speaks about outcomes research at a conference held to celebrate the establishment of the Center for the Evaluative Clinical Sciences.

of Dartmouth College. "He was willing to take the risk of trying to make the solution to that puzzle practical," Mulley goes on. "That is not generally what academics do. But he wanted to solve it so that he could make the world a better place. From the perspective of an academic medical center's reward system, this involved some risk."

Recruited by Dartmouth

Throughout the 1970s, Wennberg continued his labors in relative obscurity. "He is one of the most tenacious individuals I've ever known—almost to the point of being pig-headed," says his longtime friend Jim Strickler. "And then it turns out that he's right. That combination annoys people."

In 1973, Wennberg left the University of Vermont (UVM) and joined the faculty at Harvard. "UVM had not been terribly happy with what I was doing," Wennberg confided recently. "There was not a confrontation, but you could say there was a general lack of appreciation." But Harvard never was home. Wennberg's family stayed on the farm in Vermont, while he commuted to Cambridge.

At about the same time, Strickler was setting the stage for eventually bringing Wennberg to Dartmouth. Then the dean of Dartmouth Medical School, Strickler hired Michael Zubkoff in 1975 to chair DMS's Department of Community and Family Medicine. "That was

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Today, Wennberg's name is universally respected. "It's become impossible to argue with Jack on the evidence," says blogger Matthew Holt, "even though his findings are tilting at a \$2-trillion* industry with good reason to ignore them."

* This word appeared in our print edition as "billion." Health care in the U.S. is actually a \$2-trillion industry.



Back in 1996, at the announcement of the first edition of the *Dartmouth Atlas*, even Wennberg himself may not have been able to foresee the impact it's had.

a very controversial appointment,” Strickler recalls. Zubkoff wasn’t an M.D.—he had a Ph.D. in economics from Columbia. Initially, Strickler had been opposed to the idea of naming someone not a physician to chair a clinical department. But when Strickler met Zubkoff, he was surprised: “I thought he made a lot of sense. I thought he had good ideas. I liked his values.”

Once he landed the job, Zubkoff knew he wanted to bring Jack Wennberg to Dartmouth. “When I was offered the job, that was the first call I made,” he recalls. “I had met [Wennberg] and I knew his work in Vermont and Maine. And I also knew that he had been run out of town in Vermont.” Zubkoff believed that Wennberg embodied “the best example of someone who bridged clinical medicine, economics, and an understanding of markets.”

Peeling back the onion

Even so, it took Zubkoff a couple of years to put all the pieces together to bring him to Dartmouth. Meanwhile, he says, Wennberg “did some more papers, and they were well-received. And he was just very persistent. He was able to stick with the theme: ‘There are these variations in how we care for very similar patients. Why?’ Wennberg peeled the onion back and kept going deeper and deeper.

“Professionally, my claim to fame is that I recruited Jack. And I’m

no slouch,” Zubkoff adds, laughing. “I was elected to the Institute of Medicine. But just as I define myself personally as the father of my children, professionally I’m the guy who brought Jack Wennberg to Dartmouth.”

Strickler, too, looks back on the appointment with pride: “It was the best thing I did as dean of the Medical School aside from balancing the budget.” It wasn’t easy to come up with the funding for a permanent appointment for Wennberg. And there was even some resistance to his work within Dartmouth. “There were some hard-core scientists—biochemists, physiologists—who were skeptical and viewed what Wennberg was doing as a soft science, fuzzy sociology,” Strickler recalls.

“But within four or five years of his arrival, the people who were opposed to his appointment had turned around 180 degrees,” Strickler continues. And “Jack managed to co-opt our clinical faculty by working with them collaboratively.” Wennberg proved to be not only a supportive colleague but also a charismatic mentor. Soon he was no longer a lone voice. He began to build a research empire, and that spawned an educational institute.

Wennberg’s career reached a turning point in 1984. That year, he published “Dealing With Medical Practice Variations: A Proposal for Action” in *Health Affairs*. The journal presented his work without apology. Indeed, the prologue to the piece underlined the importance of his till-then largely unappreciated labors: “Without much attention from the profession and virtually no public fanfare, John Wennberg has been tracking the phenomenon of variations in the use of medical care for more than a decade. Wennberg, who ranks among the leaders of the nation’s tiny cadre of medical-care epidemiologists, has been driven by the notion that practice variations were important to identify and understand because they suggest a misuse of care. . . . During his research pursuits, Wennberg has uncovered systematic and persistent differences in the standardized rates of use for common surgical procedures and other medical services in the United States.”

From the very first sentence of that paper, Wennberg’s voice is as clear and bold as it had been seven years earlier when he described tonsillectomy as a “large, uncontrolled surgical experiment.”

“Most people view the medical care they receive as a necessity provided by doctors who adhere to scientific norms based on previously tested and proven treatments,” Wennberg wrote. “When the contents of the medical care ‘black box’ are examined more closely, however, the type of medical service provided is often found to be as strongly influenced by subjective factors related to the attitudes of individual physicians as by science. These subjective considerations, which I call collectively the ‘practice style factor,’ can play a decisive role in determining what specific services are provided a given patient as well

as whether treatment occurs in the ambulatory or the inpatient setting. As a consequence, this style factor has profound implications for the patient and the payer of care.

“For example,” he continued, “the practice style factor affects whether patients . . . with mild angina, or with a host of other ailments, receive conservative treatments in an ambulatory setting or undergo a surgical operation in a hospital. . . . The practice style that favors inpatient treatment greatly affects the demand for hospital care and has serious implications for efforts to constrain costs.

“These implications become clear when one recognizes that, within a region or state, different opinions held by physicians . . . are the most important determinant of variations in per capita costs for the treatment of specific diseases. . . . Some of the differences in opinion arise because the necessary scientific information on outcomes is missing. . . . To resolve the differences in opinion—and to learn whether high or low rates of admission reflect appropriate care—more scientific information must be obtained.

“For other conditions, the practice style factor appears unrelated to scientific controversies. Physicians in some hospital markets practice medicine in ways that have extremely adverse implications for the cost of care, motivated perhaps by reasons of their own or their patients’ convenience, or because of individualistic interpretations of the requirements for ‘defensive medicine.’ Whatever the reason, it certainly is not because of adherence to medical standards based on clinical outcome criteria or even on statistical norms based on average performance.”

Wennberg went on to demonstrate, once again, that the supply of hospital beds and specialists in a particular market often determines how medicine is practiced—even at the most prestigious medical centers. Comparing the health-care markets in New Haven, Conn., home to Yale’s teaching hospital, and in Boston, home to Harvard, Wennberg found that per-capita health-care costs were about twice as high in Boston, “largely because” Boston had more “beds and medical personnel per capita.”

Basically, because the beds were there, physicians used them. To this day, Dartmouth studies show that in areas with more specialists, patients get seen more often—simply because the specialists have more time open in their appointment books. Yet doctors in these markets aren’t consciously aware that they are hospitalizing or seeing patients more often. In the 1984 article, Wennberg reported that when he “asked clinicians who have practiced in both Yale and Harvard teaching hospitals to estimate the per-capita expenditures in each market, their answers indicate[d] they had no awareness of the magnitude of the difference. What is more surprising, many [did] not accurately guess which of the two markets is the more expensive.”



The *Dartmouth Atlas* and studies based on its data continue to make headlines in top media outlets nationwide—and today are fodder for health-care bloggers.

Back in 1984, Wennberg was reluctant to assert that patients in Boston were receiving too much care. As he pointed out, “to learn whether high or low rates of admission reflect appropriate care—more scientific information must be obtained.”

Achieving recognition

But, persistent as always, Wennberg pursued the “outcomes research” that would make it clear whether patients were benefiting (or not) from more care. In 1988, he established the Center for the Evaluative Clinical Sciences (CECS) at Dartmouth. And he soon collected around him a group of like-minded researchers—statisticians, economists, clinician-investigators, epidemiologists. They published more and more papers, reinforcing and expanding on Wennberg’s findings. And they refined and improved their research methodologies.

By 1993, the CECS cadre had attained sufficient critical mass to begin teaching those methodologies. Today, the program offers two master’s degrees (M.S. and M.P.H.) and a Ph.D.

In 1996, CECS published the first *Dartmouth Atlas of Health Care*—taking the concept Jack Wennberg had developed in Vermont and Maine, then used in New Haven and Boston, and applying it to the whole country. (See www.dartmouthatlas.org for more about the *Atlas*.) That and subsequent editions of the *Atlas* have revealed astounding geo-

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Wennberg (second from the left) holds the nation's first endowed chair devoted to outcomes research. Pictured with him—at the chair's 1994 dedication—are his wife, Coralea (far left), and the chair's donors, Andrew and Peggy Thomson.

graphical variations in how medical resources are distributed and used—for example, a 33-fold difference in the rate of lumpectomies and mastectomies from one region to another. “That’s simply staggering,” Dr. Jack Lord, then vice president of the American Hospital Association, told the *New York Times*.

Soon, mentions in the *Times* and other major media outlets were all in a day’s work for Wennberg and his CECS colleagues. One of his oft-quoted collaborators is Dr. Elliott Fisher, who became the lead researcher on studies that revealed, virtually beyond doubt, that in markets where patients receive more aggressive, intensive care, outcomes are no better. And all too often they are actually worse.

Over time, it became clear that the supply of beds and specialists was not the only factor driving “more care.” Wennberg realized that what he had called the “practice style factor” in his 1984 article was also important—especially when it came to elective surgeries. In some areas, physicians favored more aggressive medicine. In these markets, patients with heart problems, for example, would be more likely to have cardiac bypasses and less likely to be encouraged to try drug therapy or lifestyle changes. And patients diagnosed with early-stage prostate cancer would be more likely to undergo surgery or radiation therapy and less likely to opt for “watchful waiting.”

Yet Wennberg recognized that, when it comes to elective surgery,

there is by definition no right answer. That’s why it’s “elective.” And that means patients should consider their own priorities regarding risks and benefits, not just accept the doctor’s presumption of them. In 1989, Wennberg had cofounded the Foundation for Informed Medical Decision Making, a nonprofit organization that has blazed the trail for what’s come to be called “shared decision-making.” (For insight into DHMC’s first-in-the-nation Center for Shared Decision Making, see “Making Choice an Option” in the Fall 2007 issue of *DARTMOUTH MEDICINE*—dartmed.dartmouth.edu/fall07/html/choice.php.) The concept’s presumption is that when medical science is ambiguous, patients deserve a chance to participate in the treatment choice, based on a frank appraisal of what is—and is not—known.

Discussion, not dogma

CECS has also aimed to give clinicians a chance to discuss what they are doing—and, more importantly, why. “Medical education tends to be dogmatic,” Wennberg says. “The chief of medicine has the last word on medical truth. In ward rounds, any debate is squashed by [saying], ‘It’s medically appropriate to do it this way.’”

By contrast, he continues, “in the basic sciences, you have discussion and debate. Why not in medicine? We need to be continually evaluating what we are doing over time. ‘Why are we doing this? What is the evidence that it is working?’ We need to fund the evaluative sciences,” Wennberg declares. For a moment, he sounds angry, because he knows that those who profit from unproven, expensive, and often ineffective treatments—device manufacturers, drug companies, even some doctors—have for years opposed head-to-head comparisons of one treatment against another. He believes academic medical centers should be on the front lines of the fight. “They need to advocate for independent comparative effectiveness research,” he says. “It is the only way to make clinical medicine a more robust science.”

This is exactly what CECS aimed to do for nearly 20 years under Wennberg’s leadership. He is still, at age 73, active in its work. And he still holds DMS’s Peggy Y. Thomson Professorship in the Evaluative Clinical Sciences—the nation’s first endowed chair devoted to outcomes research. But he has, as of July 2007, stepped down as director and passed that torch to his colleague Jim Weinstein.

In the early 1990s, Weinstein was a tenured professor of orthopaedics at the University of Iowa. He had just been asked to codirect Iowa’s office of outcomes, evaluation, and management.

“I didn’t feel that qualified,” Weinstein recalls. “As it happened, I had attended a meeting on outcomes in San Antonio where Jack had been one of the speakers, and at the time, Jack said, ‘You ought to come out to Dartmouth. We have new programs you should see.’”

Weinstein took him up on the suggestion, deciding in 1994 to

spend a sabbatical year getting a master’s degree at CECS. He was especially impressed with the program’s emphasis on shared decision-making. “As an orthopaedic surgeon, I often didn’t feel that my patients were getting the information they needed to make their decisions,” says Weinstein. “They were talking to me, but maybe that wasn’t good enough, because I was a surgeon and surgeons do what surgeons do. Maybe they weren’t getting a fair shake.

“When it came to risk,” he continues, “I knew that many of my patients were thinking, ‘I trust my doctor. He is so good that nothing bad will happen to me.’ I wanted to say, ‘Wait. Stop. This is important. You could die. You could get an infection.’”

Wennberg recognized Weinstein’s concern for patients and deep interest in the same questions he himself was drawn to. “When I was there” at Dartmouth, Weinstein remembers, “Jack said, ‘You know, you should stay here.’” But Weinstein had an endowed chair and an established practice in Iowa. So he went back.

Weinstein also had a sick daughter, who had been diagnosed with leukemia when she was one. “By this time she was eight or nine, and she was pretty sick,” he recalls. “When I returned to Iowa, I was asking myself, ‘What am I doing with my life?’ Given what was going on in my daughter’s life, I was pretty unsettled in my own life. My wife was unsettled.” And, Weinstein adds, “when we got back to Iowa I missed the intellectual discussions that Jack stimulated.”

Demonstration project

So, in 1996, Weinstein turned his back on tenure, abandoned his endowed chair, followed his instincts, and returned to Dartmouth. “CECS and Dartmouth-Hitchcock . . . made me an offer so that I could still practice,” he recalls. Before long, he was asked to start a Spine Center at DHMC, which became a demonstration project for CECS’s precepts. It offered a chance to coordinate patient care and outcomes research from the ground up, to directly compare the effectiveness of various treatments. “I said, ‘Orthopaedists and neurosurgeons should work together, with primary-care doctors, and actually collect data on how our patients are doing,’” Weinstein says. Even then, even at Dartmouth, he met with some resistance. “We’re too busy,” some doctors said. “This is going to interfere with my practice,” others complained.

But Weinstein was undeterred. “My daughter’s experience in [the] health-care system had been pretty chaotic,” he recalls. “There were errors; she was given the wrong drugs; there were complications from chemo and they were not well explained. So I really didn’t mind the noise about the effect on their practice. I was concerned about the effect on the patient.”

By this time his daughter was very sick once again. In 1997, a year



Succeeding Wennberg (left) in July 2007 at the helm of the enterprise he built at Dartmouth was orthopaedic surgeon Jim Weinstein (right). They share the same mindset about medicine and, wags have noted, the same initials—J.W.

after his return to Dartmouth, his daughter died. She was 12½ years old. “This really tested my spirit,” Weinstein says. “Either you withdraw and go into your hole, or you draw on it for strength. She had become my hero,” he continues. “She never complained about anything. She had suffered a lot for a long time while we had pushed on from one experimental treatment to another experimental treatment. And the doctors would say, ‘This is the protocol. This is what we do next.’ I wouldn’t want my daughter to have been with us for one day less, but . . .” His voice trails off.

One can only imagine the agony for Weinstein—who had always worried about overtreating his patients—at being forced to make treatment decisions for his daughter. Impossible decisions, given the paucity of information about risks, benefits, and options. When doctors say “This is the protocol,” they are simply stating “This is the way we do it.” Not why. Not whether they know why.

“After my daughter’s death,” Weinstein goes on, “my wife and I felt an obligation to try to make it better for other people. . . . So I didn’t give up practicing medicine. I didn’t want to lose my chance to change the world of medicine from within.

“And then I was asked to become the chair of the orthopaedics department—something I hadn’t expected. It gave me a chance to

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“In the basic sciences, you have discussion and debate. Why not in medicine?,” asks Wennberg. “We need to be continually evaluating what we are doing over time. ‘Why are we doing this? What is the evidence that it is working?’”

When some doctors complained that the Spine Center’s focus on outcomes research might hurt their practice, “I really didn’t mind the noise about the effect on their practice,” says Weinstein. “I was concerned about the effect on the patient.”

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Braveheart: Jack Wennberg

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advocate for the changes I wanted to make.”

What did he change? “Everything,” says Weinstein, suddenly grinning with enthusiasm. He began by connecting the department’s teaching and research missions with its clinical mission. “Part of the problem with geographic variation in how we treat patients has to do with lack of evidence,” he observes. “If we knew what to do, there wouldn’t be such variation.

“I came here not just to understand the maps,” says Weinstein, referring to the *Dartmouth Atlas* maps, which make very graphic the variations in care from one part of the country to another. “What I want to know is this,” he goes on. “How do we *change* the maps?”

“When it comes to many types of surgery, technology is changing so fast—ahead of our ability to evaluate it,” he points out. “It’s very hard to rein in.” The Food and Drug Administration, for example, approves devices without requiring either long-term research about risks or evidence that a new product is

any better than products already on the market. Thus the patient becomes the guinea pig for unproven procedures—without knowing that he or she is part of an “uncontrolled experiment,” to use Wennberg’s 1977 phrase.

Other countries have set up registries of devices like pacemakers and artificial joints, to track how well patients function with a given company’s device and how long different devices last over time. The U.S., however, has no such resources. “We’ve been pushing for joint registries—we’ve gone to Medicare and the FDA,” says Weinstein. “Why wouldn’t companies want to know?” He’s not giving up, however. In that way, Weinstein learned well from Wennberg.

But everyone agrees Wennberg set the bar high. His combination of intelligence, tenaciousness, and courage have left a deep imprint. The partisans he has trained and inspired are now effecting change all across the country. The national debate about health policy has been forever altered. Even the enterprise he founded at Dartmouth is undergoing alteration. When Wennberg stepped down from CECS’s helm, the organization acquired a new name—the Dartmouth In-

stitute for Health Policy and Clinical Practice—as well as a new leader.

That new director, Jim Weinstein, remains grateful that fate brought him to Dartmouth. “Jack gave me a way to see things differently—and a chance to change things. I feel very fortunate.”

He and many others at Dartmouth have been singing Wennberg’s praises in the wake of the leadership change. But so, too, have movers and shakers well beyond Dartmouth. In the November/December 2007 issue of *Health Affairs*, the journal’s 25th anniversary issue, Jack Wennberg was named “the most influential health-policy researcher of the past 25 years.” And he received the 2007 Ernest Amory Codman Award from the Joint Commission, the national accreditation body for health-care organizations, for his “leadership role in using outcomes measures to improve health-care quality and safety.”

Blueprint for reform

The anniversary issue of *Health Affairs* also contains two articles by Wennberg and others at Dartmouth—articles that are, in effect, a blueprint for health-care reform. The first, subtitled “How Medicare Can Improve Patient Decision Making and Reduce Unnecessary Care,” looks at elective surgery, arguing that Medicare should make shared decision-making the standard for deciding if discretionary surgery is medically necessary.

The second paper (“How Medicare Can Reduce Waste and Improve the Care of the Chronically Ill”) notes that at present “the care of Americans with severe chronic disease is disorganized, unnecessarily costly, and undisciplined by sound clinical science.” Wennberg and his coauthors urge the federal government to invest in a “crash research program” designed to rapidly accumulate the evidence needed to determine the best and most efficient way to manage chronic diseases like asthma and diabetes. More efficient care would better serve patients *and* be less costly, the authors point out. Any cost savings, they suggest, should be shared with providers who deliver the most effective, efficient care. Both articles share the same vision: the health-care payment structure needs to reward the quality, not the quantity, of care a provider offers.

The political reform that Wennberg’s critics were so afraid of back in the 1970s just may happen one day. ■