FOCUS on Health Reform

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EXPLAINING HEALTH CARE REFORM: How Do Health Care Costs Vary By Region?

Research about health care costs shows wide variations in spending across the U.S., with spending more than three times higher in some regions than others. Researchers have found that patients in higher cost areas were not necessarily receiving better care; rather, the cost variations were explained by the availability and volume of services used by similar patients. An understanding of these regional spending differences could answer questions about whether our health care system includes waste or inappropriate treatment practices, what could be done to address these problems and any impact on providers and patients, how much money could be saved, and what role such changes would play in health care reform.

Although regional variations in health spending have been studied for decades, renewed focus on this issue is evidenced by interest on Capitol Hill, in the Obama Administration, and by recent articles in peer-reviewed literature and the media (including an article by A. Gawande in *The New Yorker*[1]) because of the role of health care costs in health care reform and the potential source of funds if addressing cost variations can yield savings.

Regional Variations in Health Care Spending

Regional variations in health care spending have been studied for more than three decades, primarily by John Wennberg and colleagues at the Dartmouth Institute for Health Policy and Clinical Practice through the Dartmouth Atlas Project. The Project analyzes the costs for services provided to beneficiaries in traditional fee-for-service Medicare (excluding Medicare Advantage enrollees) in geographic areas known as "hospital referral regions" and the factors that may contribute to these varying costs, including the supply of resources (such as hospital beds and specialist physicians), utilization of services, quality of care, and patient health status. The Project defines hospital referral regions as regional health care markets based on where patients are referred for major or specialized inpatient medical care, each having a minimum population size of 120,000 and containing at least one hospital that performs major cardiovascular procedures and neurosurgery.

The Dartmouth Atlas Project uses Medicare data because of the availability of billing records for Medicare's fee-for-service patients, data that is not available for the total privately insured population. The Project's website indicates that several state-based studies of all health insurance claims (both Medicare and commercial) have found that variations in resources and quality in the non-Medicare population closely resemble those in the Medicare population.[2]

Data from the Dartmouth Atlas Project show that nationally, Medicare spent an average of $8,304 per enrollee in 2006. However, considerable variation in spending occurred among the 306 U.S. hospital referral regions, with the highest-cost regions spending more than three times the amounts spent in the lowest-cost regions. The highest-spending regions were Miami, Florida ($16,351) and McAllen, Texas ($14,946), compared to the lowest-spending regions of Honolulu, Hawaii ($5,311) and Minot, North Dakota ($5,542). State spending also showed variation, from a high of $9,564 in New York to just over half that amount ($5,311) in Hawaii.[3]

Trends in the spending rates of increase from 1992–2006 also varied considerably from region to region. The per capita rate of increase in inflation-adjusted Medicare spending averaged 3.5% nationally, but ranged from a low of 1.6% in the Honolulu, Hawaii hospital referral region to almost four times that rate (6.2%) in the Lincoln, Nebraska region.[4]

A February 2008 Congressional Budget Office (CBO) study of geographic variation in health care spending also found large differences across the country in spending for the care of similar patients, using primarily Medicare data but also total health care spending data. CBO found that the geographic variation in Medicare spending from the lowest to the highest spending areas has narrowed in recent years, while the variation in total health care spending has increased. Geographic variation in spending by the Department of Veterans Affairs has also increased in recent years so that it is similar to Medicare's. Spending variation in the U.S. has been much larger than in Canada and somewhat larger than in the United Kingdom, countries where the financing of health care is more centralized than in the United States.[5]

A December 2009 report by the Medicare Payment Advisory Commission (MedPAC) finds wide regional variation in Medicare spending per beneficiary, and less regional variation in Medicare per beneficiary utilization of services, which MedPAC says are not equivalent measures and should not be confused. MedPAC found that Medicare spending per beneficiary in areas at the 90th percentile of national average Medicare spending was 55% higher than at the 10th percentile (or, looking at the extremes, the highest spending area was more than two and a half times the lowest spending area). To analyze Medicare service use, MedPAC adjusted Medicare spending data for differing regional Medicare payments (e.g., wages, special payments to teaching hospitals, rural add-on payments, etc.) and for average health status, and found that service use in areas at the 90th percentile of national average Medicare service use was 30% higher than at the 10th percentile (looking at the extremes, the area with the greatest service use—Miami-Dade County—had twice the level of service use as the lowest area—nonmetropolitan Hawaii). Another finding was that areas with high levels of service use are not always the areas with high growth rates.[6]

Reasons for Regional Variation in Health Care Spending

Many reasons are cited for geographic variations in health care spending, including differences in the local population's demographics and severity of illness, the number and type of health care resources (hospitals, primary care and specialist doctors, teaching hospitals, etc.) in the local area, provider medical training and practice patterns, provider prices, public and private provider payment systems and payment incentives, patient preferences, the financial investment of providers in local health care resources, waste and inefficiency, fraud and abuse, malpractice-related costs, and the economic, social, and cultural characteristics of the community.

The Dartmouth Atlas researchers found that most of the regional differences in health care spending result not from differences in technology, prices, payment levels, illness levels, or patient preferences, but rather from the quantity and use of certain types of services in the local area. These services, which they call "supply-sensitive care," are those with no specific clinical theories of benefit governing their relative frequency of use, including, for example, when to schedule a revisit to a doctor, perform a diagnostic test, hospitalize, or admit to intensive care. For these types of services, the researchers found that utilization and thus costs vary greatly from region to region depending on the per capita supply of resources such as hospital beds, physician specialists, and diagnostic testing equipment.[7] Compared to those in lower-spending regions, Medicare beneficiaries in higher-spending regions were hospitalized more frequently for conditions that could be treated outside the hospital, and beneficiaries with serious chronic illness visited the physician twice as often, had a greater proportion of care provided by specialists compared to primary care physicians, and were more likely to see 10 or more physicians a year.[8] This variation in provider practice patterns, particularly for supply-sensitive care where diagnosis and treatment are uncertain and the physician's decisions are more discretionary, means, for similar patients, more utilization of services and thus greater health care spending.

CBO's February 2008 report indicates that most studies find that the prices of health care services and patient severity of illness account for less than half (and possibly much less than half) of the geographic variation in health care spending. Income and other patient demographics and individual patient treatment preferences explain little of this variation. CBO finds that variation is attributable to regional differences in the supply of medical resources and the propensity of providers to take advantage of financial payment incentives in using those resources. CBO indicates that some regions have adopted lower-cost, more highly effective patterns of care while others have adopted higher-cost patterns of care and may be delivering treatments that provide little benefit or may even be harmful.[9]

Research by Hadley provides preliminary findings that geographic variations in Medicare spending are mainly a result of "individual characteristics, especially patients' underlying health status and a range of socio-economic factors, including income."[10]

Relationship Between Higher Spending and Quality of Care

Dartmouth Atlas researchers found that the additional services provided in higher health care spending regions do not produce better quality or outcomes of care when looking at the technical quality and reliability of hospital or ambulatory care, survival following serious conditions such as heart attack or hip fracture, or patient's perceptions of the accessibility or quality of medical care and their experiences in the hospital.[11]

The February 2008 CBO report states that arriving at an understanding of the relationship between health care spending and the quality of care is a critical part of interpreting geographic variation. Based on a number of studies of the Medicare population, CBO found that the evidence does not indicate that higher Medicare spending is associated with better care. Areas with higher spending tended to score no better and sometimes worse than other areas on measures of quality and health outcomes. Patterns of treatment in high-spending areas tended to be more intensive than in low-spending areas, improving health outcomes for some types of patients but worsening outcomes for others.[12]

Research by Baicker and Chandra found that at the state level, higher Medicare spending per beneficiary is associated with lower quality of care or no relationship with quality of care, with a focus on the role of high concentrations of specialists.[13] Davis and Schoen found that personal health spending per capita by state is not correlated with mortality from medical care, an inverse relationship exists between states that spend more on personal health care and state rankings on quality of care, and state Medicare spending per capita is highly correlated with preventable hospitalization.[14]

The research cited earlier in this paper has been challenged by Cooper who finds that while states with more Medicare spending per enrollee have poorer state quality rankings, states with more total health spending per capita have better quality rankings. Cooper argues that Medicare cannot be used as a proxy for overall health care spending or for the performance of the health system as a whole, and that commonly used quality standards alone are not valid measures of the value of health care spending because sociodemographic factors (e.g., race, ethnicity, poverty, uninsurance, etc.) also have an effect.[15] He also finds that quality is better in states with more physicians per capita, both specialists and family physicians.[16] Researchers challenge his findings for statistical and other reasons.[17]

In contrast to regions with high spending and low quality, studies and articles have highlighted the following examples of efficient integrated delivery systems where care is considered to be delivered in a low-cost, high-quality manner and which could serve as models for high-cost practices: Billings Clinic in Montana, Cleveland Clinic in Ohio, the Geisinger Health System in Pennsylvania, Group Health Cooperative in Washington, Intermountain Healthcare in Utah, Kaiser Permanente in California, and Mayo Clinic in Minnesota.[18]

KEY QUESTIONS

1. What can be learned from geographic regions that have comparatively higher or lower health care spending? Lower health care spending in one region compared to another can be due to a number of factors. Relevant to payers for health care (including government programs, private insurance, and individuals) is whether these spending differences are due to forms of inefficiency such as overuse of services where the risk of harm exceeds the likely benefit, underuse of services, or misuse of services including incorrect diagnoses, medical errors, and other sources of avoidable complications.[19] Not all approaches to reducing geographic variation in health care spending would improve the overall efficiency of medical practice. CBO points out that reducing payments to high-spending areas and increasing payments to low-spending areas reduces spending variation, but results in worse outcomes if quality decreases in the high-spending areas more than it improves in the low-spending areas.[20] Another important question is whether appropriate treatment for individual patients is compromised when payment/spending is reduced in a local area by using average payment levels.

KEY QUESTIONS (continued)

2. What types of approaches have been suggested to address regional differences in health care spending? Several types of approaches have been suggested to address regional differences in health care spending:

- **Payment reform.** Payment reform could range from reducing Medicare and private payer payments to high-spending areas and raising payments to low-spending areas, to a broader restructuring of payment systems such as more accountable systems using partial capitation, bundled payments, or shared savings.[21] Payment reductions to high-spending areas have been presented as a method of freeing up funds for one of the key health reform goals—providing coverage to the uninsured. However, reducing reimbursements does not necessarily mean that high-spending areas will make the changes necessary for them to function like low-spending areas.
- **Delivery reform.** Payment reform and delivery reform can be linked if the payments are designed to reward providers for delivering efficient care. Approaches include more organized systems of care such as accountable care organizations, which are local networks of providers that manage the full continuum of care for the patients in their network and are paid based on providing efficient and high quality care.
- **Improvements in medical practice.** Ways of reducing geographic variation by making medical practice more efficient and improving quality of care include comparative effectiveness research to help distinguish between necessary and unnecessary care, and the development of practice guidelines and best practices. To have any impact, such information must be disseminated, and incentives to provide care consistent with these findings could be created.
- **Information.** Information about the cost and nature of medical practice in different parts of the country could be gathered, using uniform tools of health information technology. This information would then be disseminated to high-cost practices with the goal of encouraging them to make changes so that their practices and costs are more similar to those of lower-cost areas. An example of such a program is Medicare's Physician Resource Use Measurement and Reporting Program.[22]

3. What specific proposals have been made to address regional differences in health care spending? How much could be saved? A variety of proposals address payment reform, delivery reform, and changing the way doctors practice medicine:

- **Congressional Budget Office.** In its February 2008 report, CBO provided options to improve the efficiency of the health care system it was currently analyzing, including increasing the bundling of services in payments to providers; providing incentives for providers to provide care that is consistent with accepted guidelines for low-cost, highly effective care; and generating more information about variation in practice patterns and the relative cost-effectiveness of different procedures for different populations.[23]

  In a December 2008 report, CBO provided options with incentives for both providers and beneficiaries for reducing regional variations in Medicare's spending, with total savings over the period 2010 to 2019 as follows: reducing Medicare physician fees in unusually high-spending areas ($5 billion estimated savings), reducing Medicare payment rates for hospitals in areas with a high volume of elective admissions ($3 billion savings), reducing Medicare payment rates across the board in high-spending areas ($51 billion savings), and imposing a surcharge on Medicare beneficiary cost sharing in high-cost areas and prohibiting Medigap plans from covering the surcharge ($21 billion savings).[24] Careful analysis may be needed to understand both the extent to which these policies would address the underlying problems that result in geographic spending variation and the implications for beneficiaries and providers, particularly in high-cost areas.
- **Dartmouth Atlas.** Dartmouth Atlas researchers estimated that if 1996 Medicare spending levels (adjusted for age, sex, and race) in the low-cost regions were realized in the high-cost regions, Medicare spending could have been reduced 29%.[25] More recent Dartmouth Atlas studies found that if Medicare's annual growth in per capita spending were reduced from the national average (3.5% annual average from 1992 to 2006) to the rate in San Francisco (2.4%), Medicare could save a cumulative $1.42 trillion by 2023.[26]

  Such Medicare payment reform could be accomplished by giving local regions a fixed budget for Medicare services, though the Dartmouth Atlas researchers point out that this approach would do little to address the quality and efficiency of Medicare. They propose instead the development of accountable care organizations, which would be responsible for the quality and cost of care for a population of Medicare beneficiaries. Dartmouth Atlas researchers also suggest that for health costs reductions, physicians must lead the way to help patients understand various treatments approaches and their costs, to argue against oversupply, and to support high quality, low-cost alternatives.

4. What are the implications of geographic variations in spending for recent health care reform activity and Medicare reform? Recent health care reform activity has focused attention by the media, academics, and policymakers on regional spending differences primarily to highlight solutions to rising health care cost issues; additionally, any savings could be a source of funding for health reform proposals such as providing coverage for the uninsured. Addressing regional spending variation is one of the few approaches that appear to have the potential for cost savings. Most of the proposals for reducing geographic spending variations have focused on the Medicare program because Medicare has better data to study the issue, and because Medicare has a substantial cost impact on the federal budget. However, research indicates that geographic spending variation, whether in the Medicare program or the privately insured population, is not just a cost issue but also about the way medicine is practiced in different geographic areas, the availability of health care resources, and the quality of care provided.

The House-passed health reform legislation in the 111th Congress (H.R. 3962) requires the Institute of Medicine to study the extent and causes of geographic variation in health care spending among all payers and to recommend Medicare changes to address such variation; taking these Medicare recommendations into account, the Secretary of Health and Human Services must develop a plan and implement such changes unless Congress votes to disapprove them. The Senate Leadership bill (H.R. 3590) does not contain a similar provision. The House and Senate bills contain other approaches to address geographic spending variation, including studies of Medicare's geographic payment adjustment factors, centers for comparative effectiveness research, pilot programs to study accountable care organizations, and programs focusing on quality improvements.[27]

Conclusion

Regional differences in health care spending draw attention to the need to understand how health care is provided to different populations and is paid for by different public and private programs in different areas of the country. The reasons for these regional differences focus on an area's supply of health care resources such as hospitals and doctors, the health status of the area's population, the way medicine is practiced, provider payment systems and incentives, the quality of health care provided, inefficiencies in health care delivery, and any fraud, among other factors. While regional spending differences could be addressed by simply reducing reimbursement to high-cost areas, most proposals prefer to determine how health care can be provided in the most efficient and cost-effective way throughout the country, keeping in mind the goal of providing quality care that addresses the needs of individual patients.

ENDNOTES

[1] A. Gawande, "The Cost Conundrum," *The New Yorker*, June 1, 2009, www.newyorker.com/reporting/2009/06/01/090601fa_fact_gawande.

[2] The Dartmouth Atlas Project website, www.dartmouthatlas.org/faq.shtm, accessed November 5, 2009.

[3] E. Fisher et al., "The Policy Implications of Variations in Medicare Spending Growth," The Dartmouth Institute for Health Policy & Clinical Practice, February 27, 2009, www.dartmouthatlas.org/atlases/Policy_Implications_Brief_022709.pdf.

[4] Ibid.

[5] Congressional Budget Office, *Geographic Variation in Health Care Spending*, February 2008, www.cbo.gov/doc.cfm?index=8972.

[6] Medicare Payment Advisory Commission, *Report to the Congress: Measuring Regional Variation in Service Use*, December 2009, www.medpac.gov/documents/Dec09_RegionalVariation_report.pdf.

[7] E. Fisher et al., "Health Care Spending, Quality, and Outcomes – More Isn't Always Better," The Dartmouth Institute for Health Policy & Clinical Practice, February 27, 2009, www.dartmouthatlas.org/atlases/Spending_Brief_022709.pdf.

[8] Testimony before the House Ways and Means Committee, "The Implications of Regional and Provider-specific Variations in Medicare Spending for Medicare Payment Reform," E. S. Fisher, April 1, 2009, http://waysandmeans.house.gov/media/pdf/111/fisher.pdf , and J. M. Sutherland et al., "Getting Past Denial – The High Cost of Health Care in the United States," *New England Journal of Medicine*, September 24, 2009, http://intensity.dartmouth.edu/?q=node/92.

[9] Op.cit., Congressional Budget Office, February 2008.

[10] From a study of the marginal contribution of increased medical spending on the health status of individuals, led by Jack Hadley; see www.hcfo.net/news0709.htm and www.rwjf.org/files/research/50888.pdf.

[11] Op.cit., Fisher, "Health Care Spending, Quality, and Outcomes – More Isn't Always Better."

[12] Op.cit., Congressional Budget Office, February 2008.

[13] K. Baicker and M. Chandra, "Medicare Spending, The Physician Workforce, And Beneficiaries' Quality Of Care," *Health Affairs*, Web Exclusive, April 7, 2004, pp. w4-184 to w4-197.

[14] K. Davis and C. Schoen, "State Health System Performance And State Health Reform," *Health Affairs*, Web Exclusive, September 18, 2007, pp. w664-w66.

[15] R.A. Cooper, "States With More Health Care Spending Have Better-Quality Health Care: Lessons About Medicare," *Health Affairs*, Web Exclusive, December 4, 2008, pp. w103-w115.

[16] R.A. Cooper, "States With More Physicians Have Better-Quality Health Care," *Health Affairs*, Web Exclusive, December 4, 2008, pp. w91-w102.

[17] *Health Affairs*, Web Exclusives, December 4, 2008: J. Skinner et al., "The Elusive Connection Between Health Care Spending And Quality," pp. w119-w123, and K. Baicker and A. Chandra, "Cooper's Analysis Is Incorrect," pp. w116-w118.

[18] These examples are mentioned in The Dartmouth Institute for Health Policy & Clinical Practice, "An Agenda for Change: Improving Quality and Curbing Health Care Spending: Opportunities for the Congress and the Obama Administration," December 2008, www.dartmouthatlas.org/topics/agenda_for_change.pdf; G. Harris, "Revealed: Secrets of Leading Health Care Providers," *The New York Times*, September 16, 2009, http://prescriptions.blogs.nytimes.com/2009/09/16/revealed-secrets-of-leading-health-care-providers/?pagemode=print; A. Gawande, "The Cost Conundrum," *The New Yorker*, June 1, 2009, www.newyorker.com/reporting/2009/06/01/090601fa_fact_gawande; M. Grunwald, "More Data + Less Care = Lower Cost + Better Health," *Time*, June 29, 2009, www.time.com/time/politics/article/0,8599,1905340,00.html.

[19] Testimony before the Subcommittee on Health, House Committee on Energy and Commerce, "Options for Controlling the Cost and Increasing the Efficiency of Health Care," D. W. Elmendorf, March 10, 2009, www.cbo.gov/ftpdocs/100xx/doc10016/Testimony.1.1.shtml.

[20] Op.cit., Congressional Budget Office, February 2008, p. 24.

[21] Op.cit., Fisher et al., February 27, 2009, p.3.

[22] As required by Section 131(c) of the Medicare Improvements for Patients and Providers Act of 2008, the Centers for Medicare & Medicaid Services established a Physician Resource Use Measurement and Reporting Program to measure physician resource use in treating Medicare beneficiaries and to share the results with physicians in a confidential manner.

[23] Op.cit., Congressional Budget Office, February 2008, p. 24.

[24] Congressional Budget Office, *Budget Options, Volume I, Health Care*, December 2008, Chapter 6, pp. 97-103, www.cbo.gov/doc.cfm?index=9925.

[25] J.E. Wennberg et al., "Geography And The Debate Over Medicare Reform," *Health Affairs*, Web Exclusive, February 13, 2002, pp. w96-w114.

[26] E. Fisher et al., "Slowing the Growth of Health Care Costs – Lessons from Regional Variation," *The New England Journal of Medicine*, February 26, 2009, pp. 849-852.

[27] Summaries of the major health care reform bills in the 111th Congress can be found at the Kaiser Family Foundation's website at www.kff.org/healthreform/sidebyside.cfm.

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