Where Population Health Misses the Mark: Breaking the 80/20 Rule

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Abstract

Conventional population management theory, predicated on prevention and keeping the healthy majority healthy, fails to address the root cause of the unsustainable health care spending trajectory in the United States. The national health care agenda has been heavily influenced by the assumptions that disease prevention and the general promotion of “population health” will be sufficient to reduce health care spending to a sustainable level. However, a very small subset of the population with chronic and complex conditions account for a disproportionate share of health care spending, and unnecessary variation in the care of those chronic and complex episodes wastes 20% to 30% of the episodic spending. Health care spending follows what is known as “the 80/20 rule,” with 80% of all spending being incurred by only 20% of the population. Whether a population is defined as a company, a county, or a country, the overwhelming majority of their health care spending comes from a small minority of the individuals, and the bulk of that spending is associated with either largely unavoidable and unpredictable single events or complex episodes of care. Achieving an economically sustainable health care system will require more efficient and effective delivery of those complex episodes of care.

Editor’s Note: This New Conversations contribution is part of the journal’s ongoing conversation on the present and future impacts of current health care reform efforts on medical education, health care delivery, and research at academic health centers, and the effects such reforms might have on the overall health of communities.

The U.S. health care system is at a financial crossroads. As health care costs spiral upward, the demographic pyramid is undergoing an inversion, leaving fewer young Americans to support an expanding population of aging baby boomers. The national health care agenda has been heavily influenced by the assumptions that disease prevention and the general promotion of “population health” will be sufficient to reduce health care spending to a sustainable level. Providers are encouraged to expand networks and invest heavily in infrastructure in the belief that improved coordination across the continuum of care—in effect managing virtually every interaction between broad populations and the entire system—will slow the rapid growth of health care expenditures. Although wellness initiatives, prevention, the avoidance of emergency room visits, and a reduction in ambulatory-care-sensitive hospitalizations have undeniable social value, they will not reduce health care spending by enough to make the system affordable. Seemingly lost in the race to manage everything everywhere is the recognition that a very small subset of very sick patients account for the vast majority of health care spending. Any programs, prospective payment systems, or policies designed to curb health care spending must focus on improving the efficiency of complex episodes of care delivered to the sickest subset of the population. Whether a population is defined as a company, a county, or a country, the overwhelming majority of its health care spending comes from a small minority of the individuals, and the bulk of that spending is associated with either largely unavoidable and unpredictable single events or complex episodes of care. Achieving an economically sustainable health care system will require more efficient and effective delivery of those complex episodes of care.

“The 80/20 Rule”

Over one-fifth of a population’s health care spending is incurred by only 1% of individuals; half of the total expenditures arise from only 5% of the population. The phenomenon commonly known in health insurance circles as “the 80/20 rule” takes its name from the consistent finding that 20% of any population accounts for over 80% of all spending. In 2010, the sickest 10% of Americans spent an average of $26,851 in health care costs per person, whereas the average expenditure for the remaining 90% of the population was $1,564 per person. More striking, 50% of Americans averaged only $229 per year in health care spending. Among the commercially insured population, 42% of all spending arises from unpredictable and largely unavoidable single events, such as appendectomies, cholecystectomies, or injuries, most of which are not susceptible to intervention by a traditional medical home. Another 31% of the spending is incurred by a relatively small subset of the population with chronic or complex illnesses, and a significant portion of those expenditures could be avoided by reducing unnecessary variation in treatments.

If the goal is to materially reduce systemic health care spending, the intuitively appealing concept of medical homes for the healthy or asymptomatic majority of any population is not supported by the underlying economics. Joynt et al recently observed that for a sample of patients in the top decile of Medicare spending, only a small percentage of costs appeared to be related to preventable hospitalizations. They concluded that the ability to lower...
costs for these patients through better outpatient care may be limited. Among the commercially insured population, in which 31% of the spending on single inpatient events is related to pregnancy, the conclusions reached by Joynt et al are even more likely to hold true.

Reporting the results of a three-year controlled study of one of the oldest patient-centered medical home (PCMH) initiatives in the country, Friedberg et al concluded that medical practices that had undergone certification as PCMHs had only a slight impact on quality (they saw improvement in just 1 of 11 measures) and had no impact on emergency room utilization, hospitalizations, or total costs.

Reviewing the Evidence

A careful review of medical insurance claims data points to significant opportunities to reduce costs by focusing on the small subset of the population on whom the majority of money is spent. Using commercial insurance claims data, we studied longitudinal episodes of care in the treatment of newly diagnosed lung cancer, comparing costs in a group of five high-cost cities with those in five low-cost cities. After standardizing unit prices, the average cost per lung cancer episode differed by more than 50% between the two groups; the observed variation was completely attributable to differences in utilization. The use of chemotheraphy, radiation therapy, and advanced imaging was 2 to 3.5 times higher in the high-cost markets than in the low-cost markets. An examination of tumor registry data showed a fivefold difference across 30 states in the percentage of Stage IV lung cancer patients undergoing surgery. The use of palliative care, which has been shown to manage symptoms, reduce patient anxiety, and increase life expectancy, was highly variable. The economic impact of palliative or hospice care is subject to a powerful dose effect: Patients introduced to hospice 1 to 3 days prior to death averaged $18,961 in health care spending over their final 30 days of life, whereas health care spending averaged only $3,652 over the same period for patients introduced to hospice 30 days or more prior to the end of life. If high-cost markets adopted the utilization patterns of low-cost markets, lung cancer costs would be reduced by as much as 40%, or over $50,000 per patient.

Using both commercial insurance and Medicare claims data for newly diagnosed lung cancer episodes spanning 2009 and 2010, we compared total episode costs for patients who received over 80% of their cancer care from an academic medical center (AMC) with total costs for patients who received over 80% of their cancer care in the community. Among episodes where the primary treatment intervention was chemotheraphy, the median total episode cost for commercially insured patients treated at AMCs was 17% lower than the median total episode cost for commercially insured patients treated by community providers, despite the fact that AMCs are typically paid more per unit of service under commercial insurance contracts than are community providers. Using Medicare data—and after standardizing unit prices—the median episode costs for patients treated at AMCs was 25% lower than the median episode costs for patients treated by community providers. An untested hypothesis that could explain the lower episode costs when cancer patients are treated at AMCs rests on the relationship between clinical research and care delivery, particularly for complex illnesses. It is possible that the multidisciplinary nature of AMC cancer centers, in close proximity to clinical research, results in reduced practice variation and increased adherence to evidence-based standards of care. Additional research in this area may be warranted.

Focusing on the Right Populations

Policy makers and health systems charged with containing the expenditures of defined populations face the same imperative: deliver more efficient episodes of care for complex and chronic illnesses. Broad population health initiatives, including wellness programs, preventative measures, and early detection, have unquestionable social value and improve the quality of life. Avoiding unnecessary emergency room visits and reducing ambulatory-care-sensitive hospitalizations will contribute to a slowing of the rate of increase in health care spending. But we also need to focus our attention on more efficient episodes of chronic and complex illness—not instead of wellness initiatives, but in addition to them. Enthusiasm for prevention without a laser focus on chronic and complex episodes of care risks distracting attention from the root cause of the financial crisis in U.S. health care. The concentration of spending (and, hence, opportunities for savings) among a very small subset of any population, combined with emerging research on avoidable variation in complex episodes of care, has significant implications for public policy and cost management strategies. Population management is an idea whose time has come, but population should refer to specific patient cohorts who account for a disproportionate share of health care spending and the largest source of potential savings.

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