

Analysis tracks how health care value has changed over 200 years

June 6 2012

No one questions whether or not health care costs have risen, and risen dramatically, in recent decades. But beyond questions of cost alone is a bigger question: how has the value of health care changed or, in other words, is the health care system getting what it pays for in terms of improved patient health?

Any answer to such a question must be complex, but one group of health care specialists has used a unique historical resource – records from the 200-year-old history of Massachusetts General Hospital (MGH) – to examine trends in the value of health care since the early 19th century. Their analysis, published in the June 7 *New England Journal of Medicine*, reveals that increases in health expenditures, slow during the hospital's first hundred years and steadily increasing throughout the 20th century, were accompanied by significant reductions in [mortality rates](#) during those years. Since 2001, however, [costs](#) have continued to escalate while mortality rates have not changed.

"This review of 200 years is the longest population health run ever looked at," said Gregg Meyer, MD, corresponding author of the study. "The difficult question it raises is: are the modest improvements we're seeing in mortality over the past 10 years worth the current trajectory of costs? We need to focus on a health care system that's sustainable. We don't have that system now, but we need to work toward it urgently." Formerly senior vice president for Quality and Safety at MGH, Meyer is now chief clinical officer and executive vice president for Population Health at Dartmouth-Hitchcock Health System.

Drawing on records kept by the MGH of the condition of each patient leaving the hospital – classified according to whether they had died or whether or not their condition had improved – the paper's authors prepared a chart reflecting inpatient mortality rates for each year since patients were first admitted to the MGH in 1821. The hospital also calculated the annual costs per patient discharged alive, which the authors of the current report adjusted to reflect 2010 dollars. The results reflect what the authors term "four distinct eras" of health care value.

In the first period, from 1821 to 1910, costs stayed fairly level at an average of close to \$1,000 per patient discharged alive. Mortality fluctuated greatly – often reflecting events such as epidemics and the introduction of advances such as surgical anesthetics – around an average of 8.7 percent. In the second period – 1911 to 1960 – costs began to rise and mortality to drop relatively slowly, with fluctuations representing the 1918 influenza epidemic and the growing numbers of patients who were cared for in hospitals rather than at home during their final days.

The years from 1961 through 2000 were characterized by more rapid rates of change, with both rising costs and declining mortality attributable to factors such as the availability of private health insurance, Medicare and Medicaid, and the development of new, often costly medical technologies. Throughout the 20th century, increased costs closely tracked reductions in mortality. During the first part of the century, each \$1,000 cost increase was associated with a decrease of 2 deaths per 1,000 patients, and after 1960 the same cost increase led to a reduction of 2.4 deaths per 1,000 patients.

Since 2001, however, an even more rapid increase in costs has been accompanied by little change in mortality rates, leading the authors to write that the period "seems to be characterized by diminishing returns, with growth in costs far outpacing reductions in inpatient mortality." They also note that, while the MGH's costs are higher than the average

U.S. hospital's because of its medical education and research activities, the trends outlined by their analysis of MGH records parallel those seen at other hospitals.

"We do think it mirrors the results you would find in academic medical centers specifically and really, [health care](#) in general, if you looked at that same long time period. The factors that impact [mortality](#) and costs – such as wars, epidemics, introduction of new drugs and technologies – were experienced by the entire [health care system](#)." Meyer said.

Provided by Massachusetts General Hospital

Citation: Analysis tracks how health care value has changed over 200 years (2012, June 6)
retrieved 4 May 2024 from

<https://medicalxpress.com/news/2012-06-analysis-tracks-health-years.html>

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