Productivity Growth in Health Care

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A little health economic theory:
Possible combinations of health and goods for society

![Diagram showing possible combinations of health and other goods for society.](diagram.png)
Suppose we are at point 1 and productivity increases in health care.
Sweet spot for public policy:
Quality (i.e. health) increases, & cost decreases

↑ Higher quality

→ Lower cost

Health

Other goods
Within the context of a larger debate, productivity growth in health care is a particular concern.

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*BLS [Harper et al. (2010)]
**Medicare Trustees (2014)
Medicare payments to hospitals and others are tied to productivity growth

ACA reduces annual “updates” based on productivity growth in broader economy

• In FY 2019, 2.9% increase for inflation reduced by 0.8%

Adjustment has raised concern about viability of health care providers
What we know: 2007 Health Care Finance Review special issue on productivity measurement

Figure 1
Average Percent Changes in Physicians and Non-Farm Business Multifactor Productivity, by Selected Periods

Fisher found lagging growth among physicians

NOTES: BLS is U.S. Bureau of Labor Statistics. Additional information available on request from the author.
Using two approaches, Cylus & Dickinsheets found no productivity growth in hospitals

Figure 1
Average Annual Percent Change in Hospital Multifactor Productivity (MFP): 1981-2005

NOTES: Method 1 derives outputs and inputs from select hospital revenues and expenses, respectively. Method 2 generally follows the approach that the U.S. Bureau of Labor Statistics has used to calculate MFP in other industries. Labor quantities are estimated by merging Current Employment Statistics data for total hospital employees with Current Population Survey data for average work weeks and average weekly hours.

Productivity measurement is especially challenging in health care

Health care is not cement concrete, or even automobiles

In this context, productivity can be readily confounded by trends in unmeasured aspects of

- Quality of care
- Patient severity

From this perspective, existing evidence on health care productivity had limitations

US Hospitals Experienced Substantial Productivity Growth During 2002–11

ABSTRACT The need for better value in US health care is widely recognized. Existing evidence suggests that improvement in the productivity of American hospitals—that is, the output that hospitals produce from inputs such as labor and capital—has lagged behind that of other industries. However, previous studies have not adequately addressed quality of care or severity of patient illness. Our study, by contrast, adjusts for trends in the severity of patients’ conditions and health outcomes. We studied productivity growth among US hospitals in treating Medicare patients with heart attack, heart failure, and pneumonia during 2002–11. We found that the rates of annual productivity growth were 0.78 percent for heart attack, 0.62 percent for heart failure, and 1.50 percent for pneumonia. However, unadjusted productivity growth appears to have been negative. These findings suggest that productivity growth in US health care could be better than is sometimes believed, and may help alleviate concerns about Medicare payment policy under the Affordable Care Act.

Health spending in the United States has grown less rapidly in recent years, compared to its long-term trend. However, the sustainability of the US health care system continues to be a serious concern. Against this backdrop, the Institute of Medicine in American manufacturing grew by 1.37 percent per year from 1987 through 2005. Some observers have noted that service industries such as health care may suffer from what has sometimes been called a “cost disease”—in which a heavy reliance on labor limits opportunities for cost efficiencies stemming from tech-
Analyzed hospital treatment of key conditions within Medicare program

**Dates:** 2002 through 2011

**Population:** Older Americans in fee-for-service Medicare

**Data:** Health insurance claims, administrative records and regulatory filings
  - Data provide longitudinal perspective on care and outcomes

**Conditions:** Heart attack, heart failure, and pneumonia
  - Open-source risk adjustment from clinical experts was available
General trend lines did not point to productivity growth
In regression analysis, “naïve” productivity growth was negative over 2002-2011 for all conditions.

Hospital output is quantity of stays.
With adjustment for patient severity, measured growth improves for HF and PN

- **Heart attack**: -0.6% - 0.6%
- **Heart failure**: -0.9%
- **Pneumonia**: -0.4% - 0.8%

Hospital output is quantity of stays

Adjusting stays for patient severity
When output is “high-quality” stays, U.S. hospitals actually performed well.

Motivated by CMS policy, 
1) survival at least 30 days after the admission and 
2) no unplanned readmission within 30 days of discharge

- Heart attack: 0.8% 
- Heart failure: 0.6% 
- Pneumonia: 0.8%

Hospital output is quantity of stays

Adjusting stays for patient severity

Severity-adjusted number of survivors with no unplanned readmissions
Dealing with quality of health care is not a new challenge

Boskin Commission addressed CPI

- Found upward bias due to improvements in product quality

Cutler et al. analyzed heart-attack care

- Accounting for better outcomes, price of treatment decreased
Quality of outcomes is key factor for skilled nursing facilities too

Source: Gu, Dunn, Sood, and Romley (2019)
Where do we go from here?
A comprehensive view – not limited to a particular institutional setting – is increasingly important.
Where do we go from here?

Beyond encounters
- Episodes of care and population health

New populations and contexts
- Medicaid and the commercial insured
- Low-risk childbirth

Analytic issues
- “Top down” versus “bottom up”
- Multidimensionality of quality
- Tradeoff between quality and quantity

Assessing productivity drivers
- Organizational attributes
- Technical innovation
- Public policy
Additional slides
Clinical experts for AHRQ developed model of inpatient mortality risk in administrative data sets

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c-statistic 0.84
Romley et al. (2015): Year by year
Geographic variation in productivity of inpatient heart attack treatment

Fig 1. Value index for inpatient heart attack care in 2013, by hospital referral region grouped into quintiles. Note: Darker green indicates higher value.