AHRQ
Agency for Healthcare Research and Quality
Advancing Excellence in Health Care
www.ahrq.gov

What Current Research Tells us about Incorporating Efficiency Measurement in P4P

Ryan Mutter, Ph.D.
Economist

Pay for Performance Audioconference
July 11, 2007

Motivation

- Recent interest in estimating inefficiency arises out of concerns about excessive expenditures in healthcare.
- Inefficiency measurement adds perspective to quality measurement and highlights trade-offs in quality improvement.

Background

- Many actors concerned with quality, cost, and efficiency
  - Employers, purchasing groups, plans, hospital & physician groups, federal agencies, consumers
- Confusion in discussions
  - Need for more precise terminology
- Limited scientific development and evidence on healthcare efficiency measurement
- Little vetting of measures in use

Issues Not Only Technical, but Philosophical

- Technical
  - Different conceptual frameworks
  - Appropriate measures of output (e.g., inpatient care, episode of care)
  - Attribution of cost
  - Risk adjustment
- Philosophical – Efficiency can mean:
  - Lowering resource use
  - Reducing outlay by a particular payer
  - Avoiding cost of overuse and misuse
  - Reducing waste in appropriate services

AHRQ Evidence Review of Efficiency Measurement

- AHRQ commissioned report (October 2005):
  - Identifying, Categorizing, and Evaluating Health Care Efficiency Measures
- Contract awarded to RAND
  - Led by Paul Shekelle and Beth McGlynn, with Dana Goldman
- Status
  - “Almost” final report, June 29, 2007

Overview of Major Tasks

- Scan and review literature
  - Focus on existing measures (published & gray literatures)
- Develop typology
  - Clarify discussion on health care efficiency
  - Documents perspectives and objectives of diverse groups. Categorizes measures accordingly.
- Identify evaluation criteria
  - Get stakeholder input
- Preliminary evaluation of measures, identification of gaps, determination of future needs, and suggestion of potential next steps.

Findings from Evidence Review

- There is no “silver bullet” for P4P.
- Highlights from the published literature
  - Consists mostly of econometric and mathematical programming techniques
  - Focus on intermediate outputs (e.g., inpatient stays, physician visits), not final outputs (e.g., functional status, measures of health)
  - Needs more testing for reliability and validity
  - Concerns about accessibility of technical approaches to end users

Findings from Evidence Review (Continued)

- Highlights from the gray literature and initiatives in the field
  - Developed in-house or proprietary vendors
  - Most are ratio-based (e.g., adjusted LOS / discharge)
  - Some are episode-based
  - Efficiency and quality constructs have not been linked.
  - Most used for profiling, increasingly for P4P
  - Most rely on secondary data sources (e.g., claims data)

Findings from Evidence Review (Continued)

- New knowledge and research on implementation needed
  - Measurement needs to be scientifically valid
  - Understanding of organizational and market factors that affect provider efficiency

Additional AHRQ Resources and Involvement

- AQA, AQA-HQA Steering Committee
  - Continuing support
- Some On-going Projects
  - Cost of Waste – includes tools to identify & reduce “waste”
  - Denver Health – system redesign for efficient & patient-centered healthcare

Additional AHRQ Resources and Involvement (Continued)

- The Agency for Healthcare Research and Quality (AHRQ) Quality Indicator (QI) software modules are free and publicly available tools for analyzing hospital inpatient administrative data.
  - Inpatient Quality Indicator (IQI) Software
    - Overuse measures
  - Patient Safety Indicators (PSI) Software
    - Technically inefficient care
  - Prevention Quality Indicators (PQI) Software
    - Avoidable hospitalizations

- http://www.qualityindicators.ahrq.gov/

Additional AHRQ Resources and Involvement (Continued)

- Meeting Proceedings
  - **Efficiency in Health Care**: What Does it Mean? How Is it Measured? How Can It Be Used for Value-Based Purchasing? National Conference http://www.academyhealth.org/publications/EfficiencyReport.pdf
- Journal Issues
  - Improving Efficiency and Value in Health Care. *Health Services Research*. Papers due 8/07.

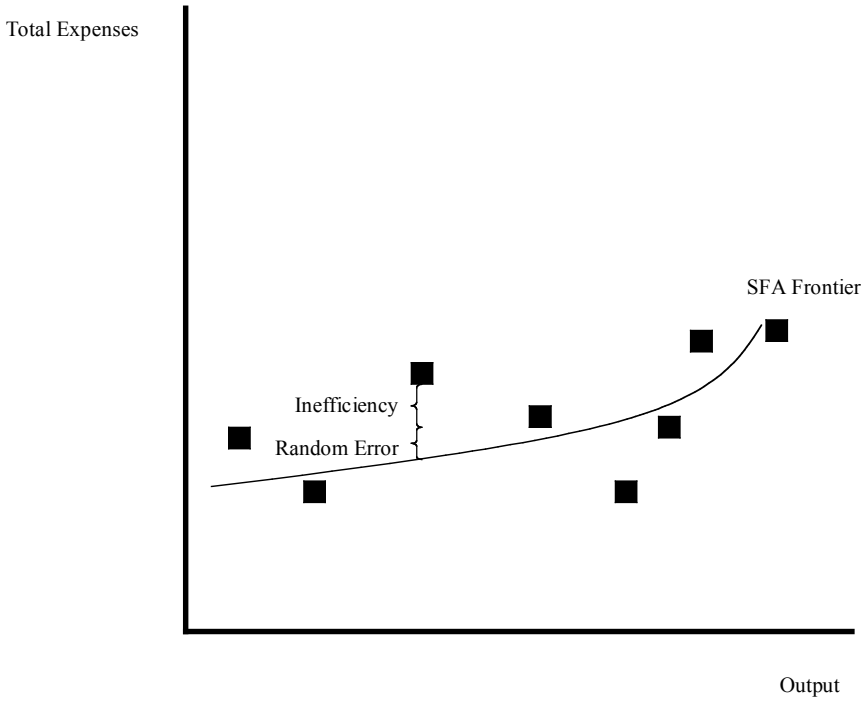
Stochastic Frontier Analysis (SFA): An Alternative Approach for P4P?

- Highlighted in Evidence Report
  - Most published studies use this and related approaches
- An econometric technique generating provider-level estimates of inefficiency, measured as departures from best-practice frontier
  - Frequently applied to hospitals
    - Can be applied to other providers (e.g., nursing homes)
  - Quality may be explicitly taken into account

SFA (Continued)

- Measures cost inefficiency (i.e., the percentage by which observed costs exceed minimum costs predicted for a given level of outputs and input prices)
- Byproduct of the analysis is information about provider-level variables on cost and environmental pressure variables on inefficiency

SFA (Continued)



SFA (Continued)

- Internal AHRQ research
  - Appropriateness and applicability of SFA in the hospital sector
  - Robustness of SFA results
  - Using SFA in select policy applications
  - Partnering with potential end users
    - Gain understanding of organizational features of hospitals that improve the quality of the analysis and learn how to better communicate results to end users

Some Preliminary Findings

- SFA seems to be particularly useful for determining the relative performance of hospitals
  - Hospital A is among the top 20 percent most efficient hospitals in its peer group.
  - Hospital B is 10.46 percent more efficient than the sample mean for its peer group.
- A P4P scheme might reward a hospital with extra payments if its efficiency rank was in the top decile.

Some Preliminary Findings (Continued)

- Offers insight into impact of external factors on hospital efficiency
  - Hospital competition: Less efficient
  - HMO penetration: More efficient
  - Share of Medicare: More efficient
  - System membership: More efficient

Some Preliminary Findings (Continued)

- Hospital managers have relied on ratios that convey straightforward information
- Comparing SFA estimates with these ratios yields valuable insights into organizational performance
  - Positive and significant correlations between inefficiency and expense per admission and FTE personnel per admission
  - Negative and significant correlation between inefficiency and operating margin in non-CAH rural sample; insignificant results in CAH sample

Wrap Up

- Many Gaps
  - Validity of existing measures
  - Need for new measures
  - Are data sufficient?
  - Can gap between sophisticated econometric methods and practical setting be closed?
  - Etc.
- Research
  - More needed to understand behavioral responses
  - Are measures appropriate for given objective?
  - Are incentives enough to change provider behavior?
  - Etc.