Linking Cost and Quality: Can We Truly Measure Efficiency?

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NATIONAL QUALITY FORUM

2015 Pay for Performance Summit
March 2, 2015
11am-12pm

Over 400 Members Strong

Linking Cost and Quality

Session Objectives

- Discuss why linking cost and quality measures is important to improving healthcare quality
- Identify (7) approaches to link cost and quality measures (i.e., efficiency models)
- Understand the principles and key considerations for using the efficiency models in various applications
- Understand the implications of efficiency measurement for various stakeholder groups

Landscape: Cost and Quality Measurement

- Public sector efforts to link cost and quality
  - Pay for performance
    - » Physician value-based modifier, Hospital value-based purchasing, Medicare advantage quality bonus program, ACO's, ESRD P4P
  - Public reporting
    - » Hospital compare, physician compare
- Private sector efforts to link cost and quality
  - Health plan network design, tiering
- Regional collaboratives and internal QI
- Endorsement of cost measures

Cost, Quality, Efficiency and Value

Why this work?

- Lack of understanding about what approaches are in use
- There are no standards for linking cost and quality measures
- Lack of transparency on approaches to linking cost and quality and measuring efficiency
- The stakes are getting higher!

How did we do it?

- White paper commissioned by the Robert Wood Johnson Foundation, 2 authors
  - Dr. Andy Ryan
  - Dr. Chris Tompkins
- Convened a multi-stakeholder Expert Panel
- Performed an environmental scan
- Analyzed the efficiency measurement approaches
- Established principles for application of the approaches
- Put forth recommendations for next steps

Environmental Scan

- What approaches are in use for measuring efficiency by linking cost and quality measures?
- Who is using them and how are they being applied?
  - Medicare, private payers, other program sponsors
- What novel approaches exist that are not in use?

We identified 25 current efforts that link quality and cost measures to measure efficiency

Approaches for Linking Cost and Quality Measures: 7 Models

1. Side-by-Side Model
2. Conditional Model
3. Quality Hurdle Model and Cost Hurdle Model
4. Unconditional Model
5. Data Envelopment Analysis and Stochastic Frontier Analysis Model
6. Regression Model
7. Cost-Effectiveness Model

Models for Linking Cost and Quality

Side-by-Side Model

- Same Steps 1-2 as Conditional Model
  1. Quality is assessed (single or composite indicator)
  2. Cost is assessed (typically by a single measure of total costs
- This approach **does not combine** quality and cost domains in any way.
- This model typically emphasizes clear and intuitive display of indicators of quality and cost (e.g., star ratings).

Stakeholders may estimate value directly

Example:

Provider	Quality	Cost
Provider A	***	$$$
Provider B	**	$
Provider C	*	$
Provider D	***	$$

Public reporting programs typically displayed quality and cost information "side by side"

Timely heart attack care

	UNIVERSITY OF MICHIGAN HEALTH SYSTEM	MICHIGAN AVERAGE	NATIONAL AVERAGE
Average number of minutes before outpatients with chest pain or possible heart attack who needed specialized care were transferred to another hospital *A **lower** number of minutes is better*	Not Available[5]	49 Minutes	59 Minutes
Average number of minutes before outpatients with chest pain or possible heart attack got an ECG *A **lower** number of minutes is better*	Not Available[5]	7 Minutes	7 Minutes
Outpatients with chest pain or possible heart attack who got drugs to break up blood clots within 30 minutes of arrival ***Higher** percentages are better*	Not Available[5]	64%	59%
Outpatients with chest pain or possible heart attack who got aspirin within 24 hours of arrival ***Higher** percentages are better*	Not Available[5]	97%	97%
Heart attack patients who got drugs to break up blood clots within 30 minutes of arrival ***Higher** percentages are better*	Not Available[7]	75%	55%
Heart attack patients given PCI within 90 minutes of arrival ***Higher** percentages are better*	98%	96%	96%

▼ Effective heart attack care

Costs of care

	UNIVERSITY OF MICHIGAN HEALTH SYSTEM RATIO	MICHIGAN AVERAGE	NATIONAL AVERAGE
Medicare hospital spending per patient (Medicare Spending per Beneficiary) (displayed in ratio)	0.99	0.97	0.96

	UNIVERSITY OF MICHIGAN HEALTH SYSTEM	NATIONAL AVERAGE PAYMENT
Payment for heart attack patients	No Different than the National Average Payment	$21,292.0

Source: http://www.medicare.gov/hospitalcompare/search.html

Compare Practice Ratings

View on map | Change My Selections

See how your selected Practices compare for Quality ratings:

Good | Better | Best

> Where do these ratings come from?

Pediatrics ratings for your selected practices
(Last updated on Mon, 01/05/2015 - 08:50)

		Maine Medical Partners South Portland Pediatrics 75B John Roberts Road South Portland, ME 04106 (207) 775-4151 > See details	Wellspring Family Medical Associates 153 US Route 1 Suite 11 Scarborough, ME 04074 (207) 289-1060 > See details	Martin's Point Health Care - Portland 331 Veranda Street P.O. Box 9746 Portland, ME 04104 (207) 828-2402 > See details	Maine Medical Partners Westbrook Family Medicine 1 Hamois Avenue Westbrook, ME 04092 (207) 661-3400 > See details
Effective Provides the care that experts recommend					
Immunizations Download a list of recommended immunizations	Ratings explained	Best	Did Not Report	Did Not Report	Did Not Report
Asthma Download an asthma checklist for your doctor	Ratings explained	Best	Best	Better	Better
Safe Has systems to prevent medical errors					
Systems to track test results, send reminders, avoid medication errors	Ratings explained	Best	Did Not Report	Best	Best
Patient Experience What patients say about this practice					
How patients have rated their experiences	Ratings explained			Better	
Other Areas of Consumer Interest Taking new patients, office hours, and other useful information					
Working to control cost	Ratings explained				
Accepting New Patients		Yes	Yes	Yes	Yes

Source:http://www.getbettermaine.org/

Figure 2. Sample report with multiple variables*

Recommended: Create a report that summarizes and interprets information for consumers.

	Consumer Ratings of Health Plan	Provides Excellent Preventive Care	Monthly Premium
Advantage Plus	★ ★ ★ ★	★ ★ ★	$95
Best Value Health Advantage	★ ★ ★ ★	★ ★ ★ ★	$80
Best Value Health-Net	★ ★ ★ ★	★ ★ ★	$85
Secure Health	★ ★ ★	★ ★	$100

* Provider names are fictitious.

Source: Hibbard and Shofer 2010

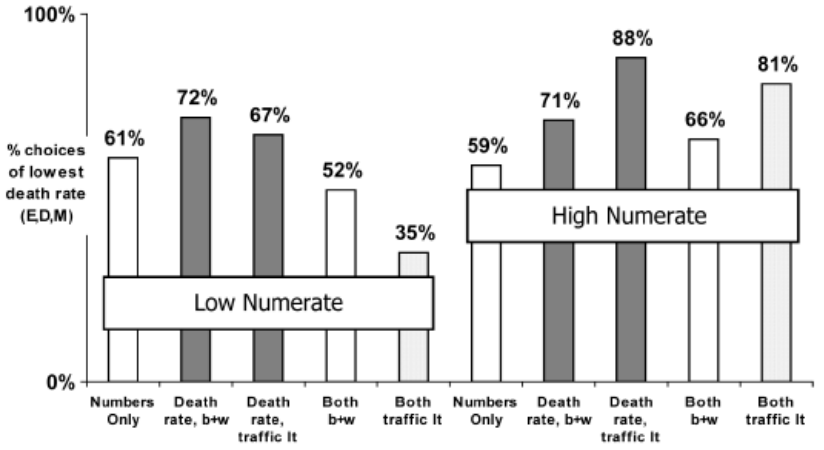
More information can confuse patients

Table 4
Study 2: Death Rate Only Is Made Easier to Evaluate with Black and White Symbols

	Cost	Overall Patient Satisfaction	Death Rate for Heart-Failure Patients
Hospital E	$$$	68	● 1.4%
Hospital H	$$$	76	◐ 4.1%
Hospital B	$$$	81	◐ 4.8%
Hospital J	$$$	87	◐ 5.3%
Hospital K	$$$	90	○ 6.1%
Hospital D	$$	71	● 3.9%
Hospital F	$$	78	◐ 4.4%
Hospital I	$$	85	◐ 4.9%
Hospital N	$$	90	○ 6.1%
Hospital G	$$	94	○ 6.6%
Hospital M	$	88	◐ 5.2%
Hospital A	$	91	○ 6.4%
Hospital C	$	95	○ 7.3%
Hospital O	$	96	○ 8.9%
Hospital L	$	98	○ 9.6%

Note: A key indicated that ● = better than average, ◐ = average, and ○ = worse than average. For the conditions using traffic-light symbols, the three symbols above were systematically replaced with circles filled in with green, yellow, and red, respectively. The corresponding key looked like a traffic light.

Figure 3
Study 2. Choice of the Lowest-Death-Rate Hospitals by Presentation Format and Numeracy



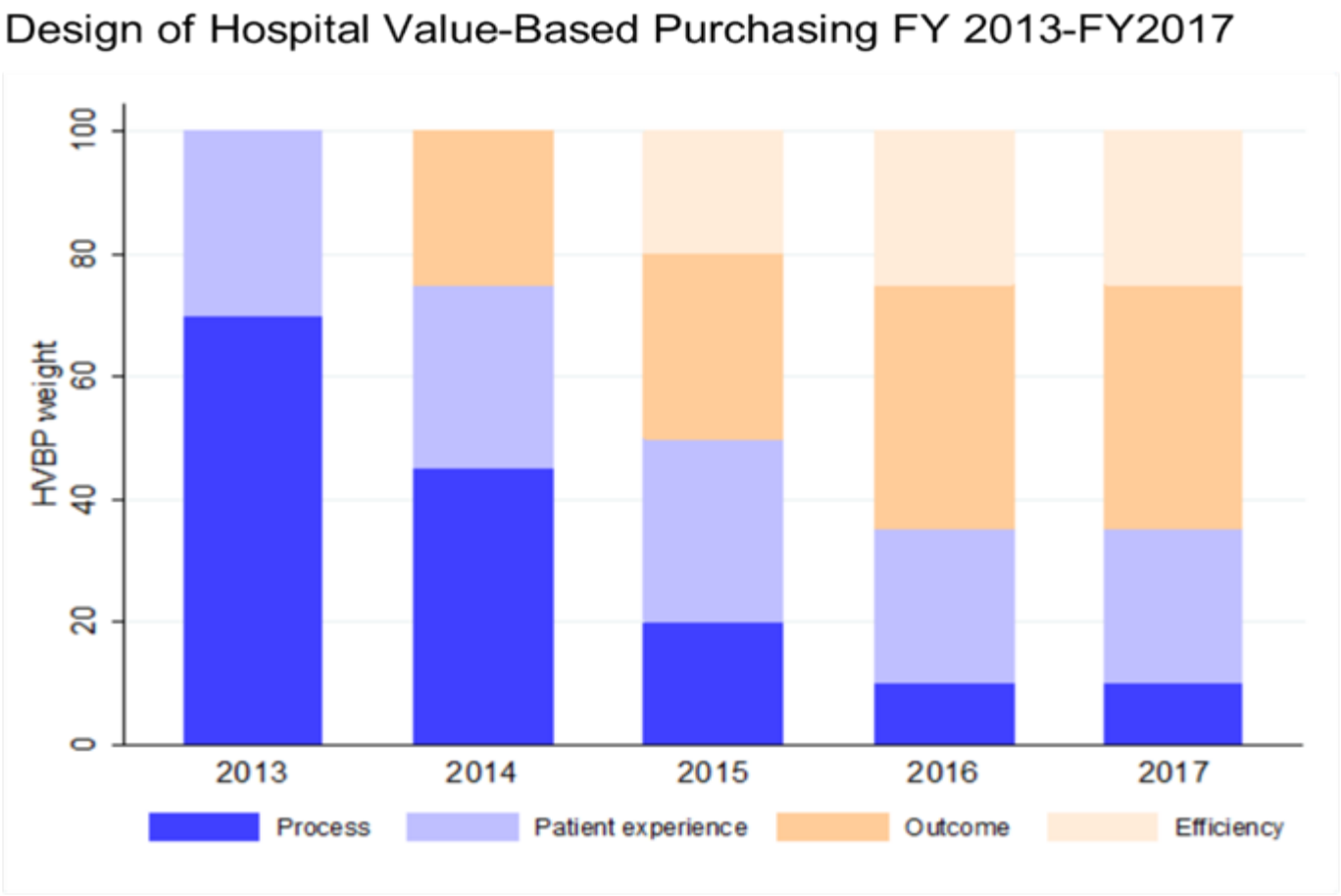
Source: Peters et al. 2007

Unconditional model combines quality and cost dimensions using weights

1. Quality is assessed (single or composite indicator)
2. Cost is assessed (typically by a single measure of total costs)
3. Quality and cost domains are assigned weights and combined into a single metric

Current approach used by Hospital Value-Based Purchasing

Hospital Value-Based Purchasing combines quality and cost using an "unconditional" approach



In the Conditional Model, quality and cost are assessed jointly

1. Quality is assessed (single or composite indicator)
2. Cost is assessed (typically by a single measure of total costs)
3. Classify either or both domains into performance groups (e.g., “low”, “average”, or “high”)
4. Combine quality and cost classifications to assess efficiency

Common approach to define high efficiency providers as those classified as both “high quality” and “low cost”

Physician Value-Based Payment Modifier uses the Conditional Model to assess quality and cost performance simultaneously

	Low cost	Average cost	High cost
High quality	+2.0x*	+1.0x*	0.0
Average quality	+1.0x*	0.0	-0.5%
Low quality	0.0	-0.5%	-1.0%

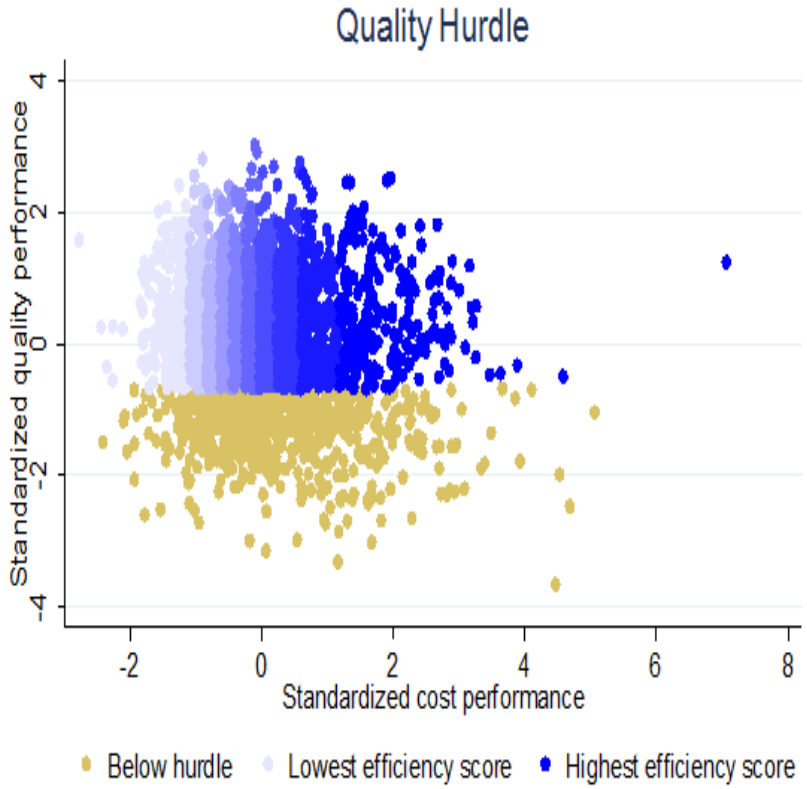
Note: Payment adjustments based on 2013 performance for practices with 100 or more eligible providers; Upward payment adjustment factor (x) will be solved to ensure budge neutrality

Hurdle model is commonly used for shared savings programs

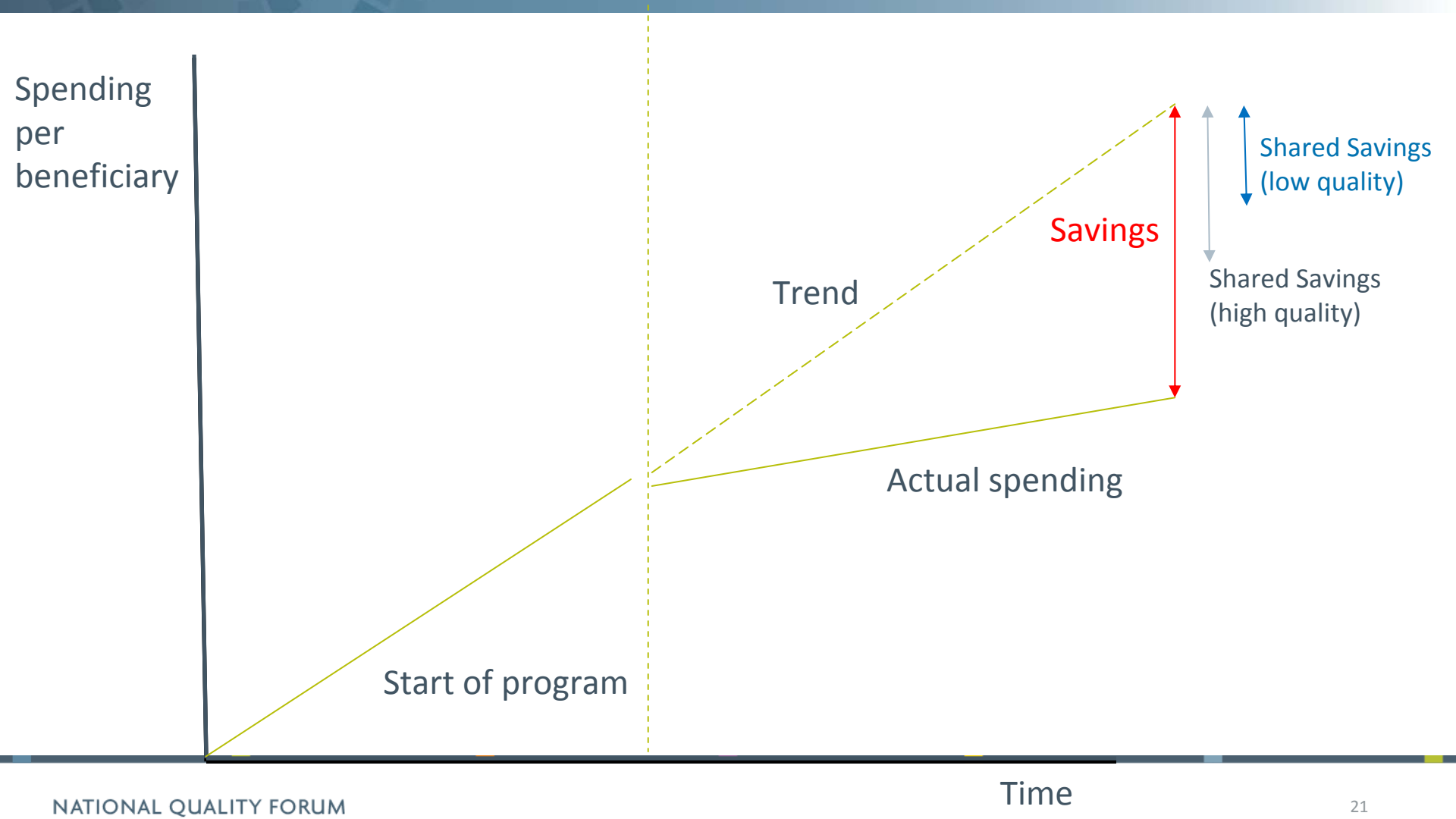
Quality hurdle

- After meeting minimum quality standard, evaluated based on either
  - » Cost performance alone; or
  - » Combination of quality and cost performance

  Cost Hurdle Model:
- After meeting minimum cost standard (e.g., costs below a specified growth rate) , evaluated on quality performance.



Shared savings models typically redistribute savings in proportion of to quality performance



Choosing a model matters: efficiency scores across different models are not highly correlated

Model	Quality hurdle	Cost hurdle	Unconditional (70% quality)	Unconditional (30% quality)	Conditional
Quality hurdle	-	-	-	-	-
Cost hurdle	0.1003	-	-	-	-
Unconditional (70% quality)	0.3196	0.8055	-	-	-
Unconditional (30% quality)	0.7802	0.2590	0.6610	-	-
Conditional	0.2122	0.7591	0.8906	0.5118	-
Frontier	0.0718	0.8745	0.9492	0.3992	0.8753

Considerations for choosing a model and measures

- Consider your use case: public reporting, internal efficiency improvement, pay for performance or network design
  - Choice of model should depend on aims of use case
  - Know your audience, goals and priorities, perspectives
- Be intentional about the model and quality and cost measures selected for the model
  - Are the specifications of your cost and quality measures aligned? (e.g., time period, risk adjustment, denominator population)
- Efficiency can be measured and displayed in a way that allows stakeholder to consider "value" as a preference-weighted assessment of the component pieces, i.e., quality, cost and efficiency
  - Neither cost nor quality signals should be obscured
    - Incorporate side-by-side

Considerations for choosing a model: Public Reporting

- Purchaser , Consumer, or Health Plan transparency efforts often employ Side-by-Side Models
  - Adhere to best practices for display of information
  - Consider measures most relevant to patients such as patient experience and outcomes and use of summary measures
    - Greater use of patient-reported outcomes could enhance validity and patient response
  - Display cost of care by provider for similar patients and lines of service showing relative tendencies to be higher or lower cost, but consider different displays to estimate out of pocket cost impact
  - Display quality, cost and efficiency, ideally with ability to re-weight and re-order rankings to allow user to reach own conclusions about value

Considerations for choosing a model: Internal Efficiency Improvement

- Primary audience is providers themselves, which sets this use case apart from others
- Providers seek granular, actionable information about how to improve the care they have delivered
- Outcomes measures provide a frame of reference for performance, but process measures that are closely linked to outcomes may be more helpful
- Cost measurement relating to “waste” may be most relevant
- Metrics on cost and quality aggregated at the level of clinical unit or service line may be best positioned to improve efficiency

Considerations for choosing a model and measures

- Be intentional about the model and quality and cost measures selected for the model
- Recognize that the combination of measures in different efficiency models may yield different efficiency signals
  - Models differ with respect to relative weight/ importance on components
  - Observation that a hospital may receive different scores from various health plan programs, each using different efficiency measurement approach
- Consider what are most meaningful measures for intended use case
  - Are the quality measures in the model related to major cost-drivers in the near term?
  - Do the quality measures include outcomes? Patient-reported outcomes?

Considerations for choosing a model and measures

- Continuous measures of efficiency preferable to arbitrary classifications / rankings
  - Use confidence intervals around continuous measures, wherever possible, to avoid potential issue of false precision
  - Discrete measures should reflect meaningful differences
  - Grouping into discrete classifications adds measurement error
  - Meaningful categories preferable to arbitrary classifications (e.g., percentiles)

Considerations for choosing a model: Pay for Performance and Value Based Purchasing

- Public and Private programs use various models or combination of models: Quality and Cost Hurdle, Unconditional, and Conditional
- Program design intention may be:
  - To facilitate incremental improvement among population of providers
  - To provide financial incentives to those in high efficiency group or disincentives to those in low efficiency group
- Question of how a program should rank relative efficiency of high cost/high quality compared to low cost/low quality

Considerations for choosing a model: Network Design

- Payer programs design networks and/or tiering approaches using various models or combinations of models such as Quality Hurdle, Quality Hurdle combined with Cost Hurdle, and Conditional
  - Existing programs often focus on high cost specialty care
- Need to classify providers into different manageable groups to support administration of incentives, such as member cost-sharing, creates need to translate any continuous measures of efficiency into discrete classifications
- Need to balance appropriate determinations of efficiency, buy-in from providers, buy-in from patients, and compliance with regulatory environment.

Key Take-Aways

- Perspective matters: Efficiency choices may be subjective, based on difference in stakeholder value preferences
- Intended use and application matters
- Transparency is key
- Understanding the individual measures is key to understanding and interpreting the efficiency signal
- It's unclear whether the development of a single measure of efficiency (with a single measure score) is feasible

What does this mean?

- For Policymakers
- For Consumers
- For Measure Developers
- For Program sponsors and measure implementers
- For NQF

What's next?

- Future questions to explore:
  - What is the reliability and validity of the alternative models of linking quality and cost?
  - Would certain models systematically favor certain types of providers?
  - How do consumers understand alternative models and displays of quality, cost, and efficiency information?
  - How might alternative models create different incentives for provider behavior change?

What's next?

- NQF is examining its processes for endorsement of cost measure
- Examine implications for measure selection recommendations (through Measure Application Partnership)
- Enhance transparency

Comments? Questions?


THANK YOU