

# Efforts to Reform Physician Payment

## *Tying Payment to Performance*

Cheryl L. Damberg

RAND Office of External Affairs

CT-381

February 2013

Testimony presented before the House Energy and Commerce Committee, Subcommittee on Health on February 14, 2013

This product is part of the RAND Corporation testimony series. RAND testimonies record testimony presented by RAND associates to federal, state, or local legislative committees; government-appointed commissions and panels; and private review and oversight bodies. The RAND Corporation is a nonprofit research organization providing objective analysis and effective solutions that address the challenges facing the public and private sectors around the world. RAND's publications do not necessarily reflect the opinions of its research clients and sponsors. RAND® is a registered trademark.



Published 2013 by the RAND Corporation  
1776 Main Street, P.O. Box 2138, Santa Monica, CA 90407-2138  
1200 South Hayes Street, Arlington, VA 22202-5050  
4570 Fifth Avenue, Suite 600, Pittsburgh, PA 15213-2665  
RAND URL: <http://www.rand.org/>  
To order RAND documents or to obtain additional information, contact  
Distribution Services: Telephone: (310) 451-7002;  
Email: [order@rand.org](mailto:order@rand.org)

**Cheryl L. Damberg<sup>1</sup>**  
**The RAND Corporation**

***Efforts to Reform Physician Payment:  
Tying Payment to Performance<sup>2</sup>***

**Before the Committee on Energy and Commerce  
Subcommittee on Health**

**February 14, 2013**

Chairman Pitts, Ranking Member Pallone, and distinguished Members of the Subcommittee, thank you for inviting me here today. My name is Cheryl Damberg and I am a senior health policy researcher at the RAND Corporation. I appreciate the opportunity to appear before you to discuss physician payment reform. My remarks today address issues related to measuring the performance of physicians and organizations of providers, which is a core component of new payment models that tie payment to performance. My comments derive from research my colleagues and I have conducted that examines the use of financial incentives tied to performance and my experience working with provider organizations over the past decade to measure health care quality and costs.

Congress is considering ways to revise the physician fee schedule so that payment policy supports the delivery of high quality care and efficient use of resources. Performance-based payment, which refers to a broad class of value-based purchasing models that use financial incentives tied to performance on a set of defined measures, is one reform mechanism that can support achievement of these goals. The application of value-based purchasing (VBP) approaches to physician payment reform is already taking shape as called for under the 2010 Patient Protection and Affordable Care Act (ACA). Examples include the Medicare hospital value-based purchasing program, the Medicare physician value-based payment modifier starting in 2015, the Bundled Payments for Care Improvement demonstrations, and the Accountable Care Organization (ACO) shared savings programs and demonstrations.

Measuring the performance of physicians and provider organizations on their quality and resource use or costs is at the heart of these various reforms to care delivery and payment. It is vitally important to signal to providers what patients and payers expect them to be working

---

<sup>1</sup> The opinions and conclusions expressed in this testimony are the author's alone and should not be interpreted as representing those of RAND or any of the sponsors of its research. This product is part of the RAND Corporation testimony series. RAND testimonies record testimony presented by RAND associates to federal, state, or local legislative committees; government-appointed commissions and panels; and private review and oversight bodies. The RAND Corporation is a nonprofit research organization providing objective analysis and effective solutions that address the challenges facing the public and private sectors around the world. RAND's publications do not necessarily reflect the opinions of its research clients and sponsors.

<sup>2</sup> This testimony is available for free download at <http://www.rand.org/pubs/testimonies/CT381.html>.

towards, and explicit measures—when tied to payment—help focus and redirect physicians and physician organizations towards redesigning care processes and how they coordinate actions with other care providers in order to deliver better value. Value is defined as the outcomes (outputs) achieved divided by the cost or resources used (inputs) to generate those outcomes.

Value-based payment models are very new to the health system and represent a work in progress. Public and private sector purchasers are actively working to design VBP programs to achieve the stated goals of improved quality and more efficient use of health care resources. How these programs are designed is a complex undertaking and one that will determine the likelihood of their success. Two central design features are the payment structure (i.e., size of incentive, how it is distributed across providers, and whether it rewards absolute levels of performance, relative performance, or improvement) and the measures that are the basis for determining payments (Mehrotra et al., 2010; Stecher et al., 2010; Schneider and Hussey, 2012). The pay-for-performance experiments of the last decade offer some useful lessons (Pearson et al., 2008; Damberg et al., 2009a; Damberg et al., 2011; Stecher et al., 2010). Performance measures are a foundational element of value-based payment models and our ability to advance the implementation of these models requires having a set of measures that will be used to determine differential payments to providers.

**(1) What is our current state of readiness to measure physician performance?**

Over the past two decades, we have significantly advanced our ability to measure the performance of the health system at various levels—health plan, hospital, nursing home, and physician or physician group. Most available measures assess processes of care that measure whether patients are receiving clinically-indicated care, such as whether a patient who has experienced a heart attack received aspirin at the emergency room. Such measurement focuses on discrete events in a single setting of care or “silo” (e.g., hospital) rather than looking longitudinally across an entire episode of care for a patient (Hussey et al., 2009; Schneider et al., 2011).

The portfolio of measures that exist today were not developed or envisioned to be used in the types of accountability and payment applications that are emerging—such as bundled payments, ACOs, and patient-centered medical homes (PCMHs)—nor are these portfolios necessarily focused on the right measures. Existing measures are not suitable for newer models that emphasize the delivery of efficient, high quality care across a continuum of time and health care settings, aligning the actions of multiple providers to achieve optimal outcomes for the patient. Measurement needs to migrate away from a siloed approach which further perpetuates a lack of coordination, to quality assessment that encompasses all care delivered to patients

within a given health episode. We have much more work to do to define and measure quality in health care (Reinhart, 2013).

Although performance measurement initially focused on evaluating whether patients received evidence-based processes of care, the tide is shifting. Newer value-based payment initiatives, such as the Massachusetts Blue Cross Blue Shield Alternative Quality Contract and the California Integrated Healthcare Association's value-based pay-for-performance (P4P) initiative, include measures that capture outcomes of care. Health outcomes look at the impact of medical interventions on patient's health and well being (e.g., pain, functioning), avoidance of complications from chronic illness, and for some types of interventions like surgery, infection rates, occurrence of other adverse events, and mortality rates. The Massachusetts and California programs are measuring a variety of outcomes including "intermediate" or near-term outcomes that influence longer term outcomes (such as blood pressure control), patient experience with receiving care, avoidance of hospital acquired infections, and total cost of care. Similarly, the Veterans Administration's quality measurement initiative holds physicians in the VA accountable for intermediate outcome measures (e.g., blood pressure control, lipid control, blood sugar control).

Our collective thinking about what is important to measure is evolving, as reflected in the National Quality Strategy (2011), which created national aims and priorities to guide quality improvement efforts. The three aims are better care, better health, and lower cost. These same aims are at the heart of new delivery and payment models. Although the aims have been defined, the measures that will be used to determine whether we have been successful in achieving these aims have not.

When we ask health care providers to devote resources to measurement, it is critical that we focus on the important aspects of care—those that matter most to patients and that providers can most readily influence. Patients care most about outcomes—such as whether a chronic illness like Type 2 diabetes was prevented or, for a patient with diabetes, whether the physician and his/her care team helped the patient manage the condition (i.e., by keeping lipids, blood sugar, and blood pressure under control) to prevent complications and premature death. Patients also care about whether they can access care when they need it and whether their care is coordinated across the many providers who treat them. They also care about how they are treated, whether they feel heard, whether their preferences are considered, and whether they are treated with respect. Lastly, patients care about the cost of treatment. How physicians deploy resources drives costs that are borne not only by patients and their families, but by society more broadly.

Regardless of the payment model used, the “true North” and Holy Grail of performance-based accountability and payment is measurement of outcomes. A focus on outcomes applies whether you are measuring individual providers or models of care—such as ACOs, PCMHs, or bundled payments.

The 2011 National Quality Strategy provides an important framework for the nation, but it is now time to get specific and define exactly what should be measured in terms of outcomes and then have physicians and other health care providers focus their energies on working to achieve those outcomes. Outcome measures employed under the National Quality Strategy to measure provider performance should:

- adequately adjust for differences across physicians in the patients they treat that influence the outcome (i.e., risk adjustment) in order to create a level playing field in comparing performance and to avoid unintended consequences (such as avoidance of high risk patients).
- be near-term or proximate events (such as within one year of treatment) such that the actions taken or not taken by the physician are likely to have had some influence in determining the outcome. For example, it is preferable to hold physicians accountable for blood pressure control, not stroke (which may have involved the actions of many physicians over many years).
- aggregate processes or outcomes to a level (physician, practice site, medical group or integrated delivery system) to ensure that there are an adequate number of patient events to reliably measure performance.

Unfortunately, outcome measures are currently lacking in many instances or are in a nascent state of development. For example, there are a small number of measures of cost or efficiency, however many are poorly constructed and have not been fully tested for their validity or reliability. Measures that assess change over time in important intermediate outcomes (such as blood pressure control) and that influence longer-term outcomes (e.g., heart attack and stroke) do not yet exist. Functional status measures or patient-reported outcomes measures (PROMs) were developed in the context of research studies but have not been widely implemented in the context of performance-based accountability and payment programs. However, it is interesting to note that since 2009, the United Kingdom’s National Health System has invited all patients who are having hip or knee replacements, varicose vein surgery or groin hernia surgery to fill in patient-reported outcome (PROMs) questionnaires and has generated comparative statistics to incentivize improvements and help patients understand performance differences across different sites of care.

## **(2) How to advance measure development moving forward?**

In the foreseeable future, the dashboard of measures that are used will likely continue to be a mix of measures that address structural elements that influence the delivery of care (e.g., HIT capabilities), care processes, and outcomes. As we transition to a performance dashboard with more emphasis on outcomes, there is work that can be done immediately to strengthen the types of measures that are currently used. For example, a shift away from focusing on delivering discrete clinical services towards longitudinally measuring the management of a patient can shift the focus towards a more integrated, patient-centered way of providing care (Hussey et al., 2009; Schneider et al., 2011). In addition, the HIT infrastructure that the federal government has been developing through the Office of the National Coordinator for Health Information Technology (ONC), and incentivizing through the Medicare program, may enable the creation of new, novel measures. For example, new measures could be developed in the context of ONC's efforts to identifying high priority quality improvement targets that clinical decision support features in EHRs could address (Damberg et al., 2012) or through leveraging electronic health records (EHR) or health information exchange (HIE) audit trails (i.e., access logs) to construct "indirect" measures of quality. A specific example is medication reconciliation at hospital discharge. In lieu of a check box in the EHR (which could be easily "gamed" by physicians), the EHR audit trail data could provide an indirect measure to determine whether the physician accessed the patient's medication list and made any modifications to it on the day of discharge. The current measurement dashboard also could be enhanced through the development of measures of care coordination (care transitions), patient and caregiver engagement, structure (management, health IT utilization), efficiency, and composite measures that combine outcome, process, patient experience, and cost measures (Schneider et al., 2011). Composite measures will be critical for evaluating the performance of individual physicians, where a small number of patient events can lead to measures that do not provide a reliable signal on a provider's performance. As new measures are developed and implemented, we can rebalance the portfolio of measures and eliminate many of the process measures that physicians currently are asked to report. The federal government (AHRQ, CMS, and ONC) has an opportunity to lead through choice of measures to fund for development and specifying outcome measures as the priority for performance programs in Medicare.

## **(3) What is the process for measure development?**

Development of measures needs to occur using a scientifically rigorous process that is transparent, inclusive of physicians and other stakeholders, and ensures the reliability and validity of measures that become the basis of payment. To engage providers to achieve the three aims of the National Quality Strategy, we must enlist them as true partners in defining the measures for which they will be held accountable as individuals, and more broadly, as care teams and systems

of care. Physicians have a vitally important role to play in the selection of measure concepts, weighing the scientific evidence related to specific actions providers can take to influence the process or outcome, specifying measures (including how to adjust for differences in the patient populations they treat and which patients to exclude), assessing the feasibility of a measure in practice, and ultimately endorsing the measures once developed. Some physician specialty organizations have taken steps to identify measures and create registries containing process and outcome measures. These measures and data sources could provide a starting point. For example, the American College of Surgeons National Surgical Quality Improvement Program (ACS NSQIP<sup>®</sup>) generates validated, risk-adjusted, outcome measures to help surgeons improve the quality of surgical care.

Although value as a metric is intrinsically appealing, the challenge before us is defining and constructing the measures that comprise the value equation (defined earlier in my statement) and ensuring that the measures deployed in high stakes applications (such as payment and public reporting) are valid and reliable.

- A valid measure is one that measures what it claims to measure (e.g., mortality resulting from how a surgical procedure was performed) rather than something else (e.g., how sick the patient undergoing the procedure was). Valid measures are those over which the provider has some control and, in the case of outcomes, account for differences across provider in the patients being treated in order to provide fair comparisons (i.e., by adjusting for different patient risk factors that affect the outcome).
- A reliable measure is one that allows you to accurately differentiate performance between providers. The baseball analogy is if you only observe a batter at bat 3 times and they hit a home run all 3 times, would you say that batter's batting average was 1.00 (100%)? Likely not—you'd need to observe many more attempts at bat before you could reliably say whether that batter's average is .250, .333, or .500.
- In health care, it is hard to get a reliable estimate of a single physician's performance if only looking at a few events, which commonly occurs at the level of the individual physician. The reliability of the estimate of performance can be improved by aggregating data across multiple providers, such as the practice site or physician group, aggregating a physician's data over multiple years, or by constructing a composite measure that aggregates a physician's data over multiple measures. Reliability is important because if the measure is not reliable, you increase the chance of making incentive payments based on noise or random variation in performance rather than true signal.



The National Quality Measures Clearinghouse underscores that the requirements for validity and reliability are higher when using measures for payment and public reporting, necessitating that each provider collects data in the exact same way through standardized and detailed specifications (NQMC, 2012).

Finally, if the approach to performance-based payment embodies quality improvement, then physicians and other health care providers are more likely to engage. To improve, physicians need to see comparative data on performance variation. Federal efforts to measure providers' performance should include real-time feedback outside any annual reporting and payment adjustment activities to support providers in their work to achieve the specified targets.

#### **(4) How do we improve efficiencies in measure development efforts?**

Numerous public and private sector entities are engaged in measure development, including the Joint Commission, the National Committee for Quality Assurance (NCQA), employer coalitions, community collaboratives, federal agencies (CMS, AHRQ, HRSA, CDC), state agencies, private/commercial firms, health plans, and consumer groups. The Centers for Medicare and Medicaid Services (CMS) alone uses approximately 800 measures across its various programs, of which 300 were developed and are now being maintained by the agency. With the passage of the ACA, measurement development efforts have intensified and there is little to no coordination of this activity.

Historically, there has been poor coordination among the measure developers and those who finance measure development. The net result has been overlapping investments and development efforts that generate duplicative or very similar (“me too”) measures. Additionally, there is a lack of coordination in the application of measures, with multiple parties measuring the same provider on similar concepts with slightly different measure specifications or thresholds—creating undue provider burden and confusion. Because much of the current measure development is occurring using federal tax dollars, there is a clear need to coordinate these efforts to better deploy scarce resources and minimize burden on providers.

Aware of the need for alignment and coordination, the U.S. Department of Health and Human Services and the Center for Medicare and Medicaid Services (CMS) have recently begun work to coordinate efforts within and across the federal agencies that are engaged in measure development and implementation (i.e., the HHS Measures Policy Council, the HHS Measures Coordination Work Group, the CMS Quality Measures Task Force, and the CMS Measures Coordination Work Group). Additional steps should be taken to coordinate federal measure development with measure developers outside the federal government. Many state

collaboratives and physician professional societies that are actively engaged in performance measurement and federal efforts should seek to coordinate with these efforts. To that end, CMS recently released a request for information (RFI) on the use of clinical quality measure data reported to specialty boards, specialty societies, regional health care quality organizations and other non-federal reporting programs. The focus of this inquiry is to understand how such data might be used to report for the Physician Quality Reporting System (PQRS) and the Electronic Health Record (EHR) incentive program. These are much needed and welcome first steps.

**(5) How do we advance our data systems to enable performance measurement and quality improvement?**

To enable the construction of performance measures that new payment and delivery models emphasize, we must focus efforts on strengthening data systems. How can we expect physicians to coordinate care, avoid duplicative use of services/procedures, and manage total cost of care when they are flying blind? In most cases, physicians only see the care they themselves provide, given the lack of interconnectivity and information exchange with other providers, such as hospital, or with the payers, who often have data that the providers need. One example is pharmacy data that capture whether a patient filled a prescription based on a physician's order—data that resides with the payer and not the physician. If a patient is admitted to a hospital or emergency department, their physician generally does not know this absent a health information exchange (HIE) or data sharing arrangement with the hospital. In addition to the lack of information exchange, there are other deficits in our data systems that will continue to hinder our ability to measure performance unless they are addressed.

A must read paper regarding what we can do to strengthen data systems to enable performance measurement, and more importantly enable providers to manage care delivery was published in 1999 by my RAND colleague Eric Schneider (1999). This paper lays out a road map for an integrated health information framework, and identifies seven features that an integrated health information framework should possess:

1. specified data elements;
2. established linkage capability among data elements and records;
3. standard data element definitions;
4. automated data capture;
5. procedures for continually assessing data quality;
6. strict controls for protecting security and confidentiality of the data; and
7. protocols for sharing data across institutions under appropriate and well-defined circumstances.

CMS, as one of the nation's most influential health care payers, has an important role to play in strengthening our nation's health data systems. Implementation of an integrated health information framework can be catalyzed if the federal government leads by (1) requiring its provider partners to capture detailed, accurate data and to share data across providers, (2) defining the data elements that should be captured and standardizing data definitions, and (3) setting policies that allow for sharing of data across institutions in ways that protect the security and confidentiality of the data.

## **Conclusion**

In summary, revising physician payment is a daunting challenge, but one that is absolutely necessary. Performance-based payment reform is vital to driving improvements in health care delivery. The ability to move forward with new performance-based payment models is predicated on having (1) a robust set of measures and (2) an integrated health information infrastructure that supports physicians in their quality improvement efforts and performance measurement.

As Congress considers policy changes to provider payment, there are several areas where federal leadership and investment could facilitate and support the transition to value-based payment models.

1. ***Provide federal investment in and leadership related to developing a robust measurement strategy by:***
  - defining the performance measure concepts that should be the focus of accountability and payment,
  - developing the concepts into actual performance measures using a rigorous development and testing process that ensures that measures are valid, reliable, and represent important areas for physicians to focus their attention and resources on, and
  - providing resources to update measures (or retire them) to incorporate changes in the scientific evidence.
  
2. ***Shift the focus and resources towards a greater emphasis on defining and measuring outcomes.*** The federal government can lead through the types of measures it chooses to fund for development. Work to specify and develop outcome measures should be a top priority for CMS and AHRQ, and physicians should be strategic partners in this work.

3. ***Support the development of a robust integrated health IT framework for quality improvement and reporting.*** Federal investment in the national health information infrastructure can contribute substantially to our ability to assess the performance of physicians, and, more importantly enable physicians to improve quality and be more efficient in how they use resources. The ONC, working in coordination with CMS and AHRQ, should focus on standardizing data elements and definitions and facilitating data sharing across providers and payers to enable better management and coordination of patient care and the ability to track longitudinal outcomes. Enhancing requirements that providers move to report on certain types of measures (such as PROMs) will drive delivery organizations to invest in the information infrastructure that will support quality improvement.
  
4. ***Continue efforts to coordinate measurement development within the federal government and expand those efforts to coordinate with measure development parties outside government.*** The federal government should continue to coordinate its measure development and measure applications across the various federal agencies, and actively work to engage in coordination with the external community of measure developers.
  - To reduce redundancy of federal investments, federal agencies should be required to search existing measure databases (the National Quality Measures Clearinghouse, National Quality Forum) before letting contracts for new measure development to assess whether measures already exist.
  - Coordination should also occur between measure development work at AHRQ and CMS and ONC's efforts to advance the HIT infrastructure in order to support the development of new, novel measures that HIT may enable. New measures could occur in the context of identifying high priority targets for clinical decision support (Damberg et al., 2012) or through leveraging EHR or HIE audit trails (i.e., access logs) to construct "indirect" measures of quality.
  
5. ***Use a rigorous, transparent and inclusive process to develop measures.*** Because performance measurement will affect the behavior of physicians and the organizations in which they work, it is important that what we ask them to focus on is based on scientific evidence related to actions they can take to influence the outcomes of interest. While CMS may fund or lead efforts to develop measures, physicians should be actively involved in these efforts, could lead such efforts, and existing physician-led data registries that track processes and outcomes could be leveraged. The development

process should ensure that the measures that will be applied in high stakes applications are valid and reliable. Results from testing of measures should be publicly available for physicians to review; such transparency will build confidence in the measurement system.

6. **Support providers in their efforts to improve.** Medicare can work collaboratively with physicians to support improvement by making performance results available in a timely fashion and showing them comparative statistics on their performance.
7. **Recognize that in addition to paying differentially for performance, public reporting of comparative performance scores (i.e., transparency) is a powerful incentive** to prompt physicians and the organizations in which they work to improve quality (Lindenauer et al, 2007).
8. **Guard against unintended consequences.** Paying providers differentially based on a set of performance measures can potentially lead providers to respond in unintended ways.
  - First, physicians may seek to avoid more challenging patients who will bring their scores down. Measures need to be designed (such as adjusting for differences in the mix of patients) to minimize the likelihood that physicians will avoid sicker patients. VBP programs can also use other adjustments, such as holding the mean incentive payout to be equal across pre-defined groups of providers (e.g., defined by the socioeconomic status of their patients) to avoid redistribution of payment in ways that harm disadvantaged providers and patient populations (Damberg and Elliott, 2010). To mitigate these effects, Medicare will need clinical and sociodemographic information on the patients cared for by each physician to enable front-end risk adjustment or post-measurement adjustments, as well as access and other measures to determine whether providers are avoiding high-risk patients (Schneider et al., 2011).
  - Second, measures dictate the things that providers will focus their attention on—“what gets measured is what gets done.” Incentive programs often address only a narrow portion of a physician’s outputs or the processes that contribute to outputs. To avoid encouraging physicians to focus on a narrow set of items that are measured and neglecting other important outputs that are not being measured, it will be important to apply a broad dashboard of performance measures.

RAND researchers have developed performance measures (McGlynn et al., 1995; Wenger et al., 2003; Asch et al., 2004), evaluated the impact of pay-for-performance (Damberg et al., 2009), and more recently value-based purchasing programs, helped to define alternative measurement approaches that can support new payment models (Hussey et al., 2009), and assessed the implications of alternative incentive designs and scoring systems to reward performance (Schneider et al., 2012; Mehrotra et al., 2010; Damberg et al., 2009; Stecher et al., 2010; Friedberg and Damberg, 2012). We are happy to work with Committee members to share the work we have done in this area to inform policy making.

Again, let me thank you Mr. Chairman, Mr. Ranking Member, and members of the Subcommittee for allowing me to appear before you today to discuss this important issue. I would be happy to take your questions.

## References

Asch, Steven. M., Elizabeth A. McGlynn, Mary M. Hogan, Rodney A. Hayward, Paul Shekelle, Lisa Rubenstein, Joan Keeseey, John Adams, and Eve A. Kerr, "Comparison of Quality of Care for Patients in the Veterans Health Administration and Patients in a National Sample," *Annals of Internal Medicine*, Vol. 141, No. 12, 2004, pp. 938-945.

Damberg, Cheryl L., Kristiana Raube, Stephanie S. Teleki, and Erin dela Cruz, "Taking Stock Of Pay-For-Performance: A Candid Assessment From The Front Lines," *Health Affairs*, Vol. 28, No. 2, 2009, pp. 517-525.

Damberg, Cheryl L., Justin W. Timbie, Douglas S. Bell, Liisa Hiatt, Amber Smith, Eric C. Schneider, *Developing a Framework for Establishing Clinical Decision Support Meaningful Use Objectives for Clinical Specialties*, Santa Monica, California: RAND Corporation, TR-1129, 2012.

Damberg, Cheryl L. and Marc E. Elliott, "Moderating Unintended Effects on Providers Serving Disparate Patient Populations: Post-Adjustment of Value-Based Incentive Payments Based on Leagues," *Academy Health 2012 Annual Meeting*, Orlando: June 25, 2012.

Damberg, Cheryl L., Melony E. Sorbero, Susan L. Lovejoy, Katharine Lauderdale, Samuel Wertheimer, Amber Smith, Daniel Waxman, and Christopher Schnyer, *An Evaluation of the Use of Performance Measures in Health Care*, Santa Monica, California: RAND Corporation, TR-1148, 2011.

Friedberg, Mark W., Cheryl L. Damberg, "A Five-Point Checklist to Help Performance Reports Incentivize Improvement and Effectively Guide Patients," *Health Affairs*, Vol. 31, No. 3, March 2012, pp. 612-618.

Hussey, Peter S., Melony E. Sorbero, Ateev Mehrotra, Hangsheng Liu, and Cheryl L. Damberg, "Episode-Based Performance Measurement and Payment: Making it a Reality," *Health Affairs (Millwood)*, Vol. 28, No. 5, 2009, pp. 1406-1417.

Lindenauer, Peter K., Denise Remus, Sheila Roman, Michael B. Rothberg, Evan M. Benjamin, Allen Ma, and Dale W. Bratzler, "Public Reporting and Pay for Performance in Hospital Quality Improvement," *New England Journal of Medicine*, Vol. 356, No. 5, February 1, 2007, pp. 486-496.

McGlynn, Elizabeth A., Cheryl L. Damberg, Eve A. Kerr, and Mark A. Schuster (eds.). *Quality of Care for Children and Adolescents: A Review of Selected Clinical Conditions and Quality Indicators*, Santa Monica, California: RAND Corporation, MR-1283-HCFA, 1995.

McGlynn, Elizabeth A., Eve A. Kerr, Cheryl L. Damberg, and Steven M. Asch (eds.). *Quality of Care for Women: A Review of Selected Clinical Conditions and Quality Indicators*, Santa Monica, California: RAND Corporation, MR-1283-HCFA, 1995.

Mehrotra, Ateev, Melony E. Sorbero, and Cheryl L. Damberg, "Using the Lessons of Behavioral Economics to Design More Effective Pay-for-Performance Programs," *American Journal of Managed Care*, Vol. 16, No. 7, 2010, pp. 497-503.

National Quality Measures Clearinghouse (NQMC), *Tutorials on Quality Measures*, as of February 11, 2013: <http://www.qualitymeasures.ahrq.gov/tutorial/index.aspx>.

National Quality Strategy, *National Quality Strategy will Promote Better Health, Quality Care for American*, As of February 11, 2013, <http://www.hhs.gov/news/press/2011pres/03/20110321a.html>.

Pearson, Steven D., Eric C. Schneider, Ken P. Kleinman, Kathryn L. Coltin, and Janice A. Singer, "The Impact of Pay-for-Performance on Health Care Quality in Massachusetts, 2001–2003," *Health Affairs*, Vol. 27, No. 4, 2008, pp. 1167–1176.

Reinhart, Uwe E. *Measuring the 'Quality' of Health Care*, As of February 7, 2013. <http://economix.blogs.nytimes.com/2013/02/01/measuring-the-quality-of-health-care/>.

Schneider, Eric C., Peter S. Hussey, and Christopher Schnyer, *Payment Reform: Analysis of Models and Performance Measurement Implications*, Santa Monica, California: RAND Corporation, TR841, 2011.

Schneider, Eric C., Virginia Riehl, Sonja Courte-Wienecke, David M. Eddy, and Cary Sennett, "Enhancing Performance Measurement: NCQA's Road Map for a Health Information Framework, National Committee for Quality Assurance," *JAMA*, Vol. 282, No. 12, 1999, pp. 1184-1190.

Stecher, Brian M., Frank Camm, Cheryl L. Damberg, Laura S. Hamilton, Kathleen J. Mullen, Christopher Nelson, Paul Sorensen, Martin Wachs, Allison Yoh, Gail L. Zellman, and Kristin J. Leuschner, *Toward a Culture of Consequences: Performance-Based Accountability Systems for Public Services*, Santa Monica, California: RAND Corporation, MG1019, 2010.

Wenger Neil S., David H. Solomon, Carol P. Roth, Catherine H. MacLean, Debra Saliba, Caren J. Kamberg, Laurence Z. Rubenstein, Roy T. Young, Elizabeth M. Sloss, Rachel Louie, John Adams, John T. Chang, Patricia J. Venus, John F. Schnelle, and Paul G. Shekelle, "The Quality of Medical Care Provided to Vulnerable Older Patients," *Annals of Internal Medicine*, Vol. 139, No. 9, 2003, pp. 740-7.