



Accountable Care Measures for High-Cost Specialty Care and Innovative Treatment

**You Get What You Pay For—
Improving Measures for Accountable Care**



Mark McClellan, MD, PhD

Senior Fellow and Director, Health Care Innovation and Value Initiative, Brookings Institution

Jerry Penso, MD, MBA

Chief Medical and Quality Officer, American Medical Group Association

Tom Valuck, MD, JD, MHSA

Partner, Discern Health

Donna Dugan, PhD, MS

Vice President, Discern Health

Robert W. Dubois, MD, PhD

Chief Science Officer, National Pharmaceutical Council

Kimberly Westrich, MA

Director, Health Services Research, National Pharmaceutical Council

Acknowledgments

The authors would like to specially acknowledge the important contributions of David Blaisdell, David Sloan, Avis Hixon, and Guy D'Andrea of Discern Health and Adam Lustig, Andrea Hofelich and Kathryn Gleason of the National Pharmaceutical Council. The authors are also grateful for the insights provided by the multi-stakeholder Roundtable participants listed individually in Appendix B.

Discern Health

Discern Health is a consulting firm that works with clients across the private and public sectors to improve health and health care. Our focus is enhancing the value of health care services through quality-based payment and delivery models. These models align performance with incentives by rewarding doctors, hospitals, suppliers, and patients for working together to improve health outcomes and health care processes, while lowering total costs.

Discern has been involved in value-based purchasing projects since its founding in 2004. Discern's clients include a range of organizations—pharmaceutical companies, providers, payers, policymakers, purchasers, and national thought leadership organizations—that are driving the agenda for change in health care.

More information on Discern is available at www.discernhealth.com.

National Pharmaceutical Council

The National Pharmaceutical Council is a health policy research organization dedicated to the advancement of good evidence and science, and to fostering an environment in the United States that supports medical innovation. Founded in 1953 and supported by the nation's major research-based pharmaceutical companies, NPC focuses on research development, information dissemination, and education on the critical issues of evidence, innovation and the value of medicines for patients. For more information, visit www.npcnow.org and follow NPC on Twitter @npcnow.

Accountable Care Measures for High-Cost Specialty Care and Innovative Treatment

You Get What You Pay For—
Improving Measures for Accountable Care

Table of Contents

Executive Summary	3
Measures and Incentives in Accountable Care Systems	3
The Challenge of Measure Gaps	3
Key Findings	4
Solutions for Filling Gaps in Accountable Care Measure Sets	4
Recommendations for Improving Accountable Care Measurement	6
Background	7
The Purpose of Financial Incentives in Accountable Care	7
The Purpose of Measures in Accountable Care	10
Other Factors in Care Improvement in Accountable Care	14
Purpose	16
Methods	17
Overview	17
Condition Selection	17
Identification of a Representative Accountable Care Measure Set	18
Definition and Application of Logic Model	19
Multi-Stakeholder Roundtable	20
Findings	21
Condition-Specific Logic Model Results	21
Overall Logic Model Results and Analysis of Cross-Cutting Opportunities	35
Roundtable-Identified Priority Measurement Gaps	43

Solutions for Filling Gaps in Accountable Care Measure Sets	45
Rely on Monitoring Indicators and Operating Programs	45
Select Measures to Fill Priority Gaps in Accountable Care Measure Sets	45
Develop Measures to Fill Gaps in Available Measures	46
Alternatives to Measuring Every Condition	47
Recommendations for Improving Accountable Care Measurement	50
1. Identify and Prioritize Measure Gaps	50
2. Use Alternative Approaches to Improve Accountable Care Measurement	51
3. Use the Most Meaningful Measure Types to Fill Gaps	51
4. Address Barriers to Measurement	51
5. Assess Opportunities to Continuously Improve	52
Appendix A: Condition Selection Summary	53
Appendix B: Multi-Stakeholder Roundtable Participants	54
Appendix C1: Centers for Medicare and Medicaid Services (CMS) Medicare Shared Savings Program (MSSP) Accountable Care Organization Measures	55
Appendix C2: National Committee for Quality Assurance (NCQA) Accountable Care Organization Measures	59
Appendix D: Logic Model Results	61
Appendix E1: Cross-Cutting Measurement Areas	119
Appendix E2: Cross-Cutting Measurement Gap Areas	120

Executive Summary

Measures and Incentives in Accountable Care Systems

In response to growing concern about the rising cost and lagging quality of health care in the United States, policymakers, payers, and providers have looked to innovative systemic improvements and payment models that emphasize accountability for value; that is, for cost and quality of care. New accountable care system payment models are designed to replace fee-for-service incentives that promote overuse, and that do not support innovative approaches like care coordination, team-based care, telemedicine, diagnostics for targeting care, and other aspects of more personalized and preventive medicine. Instead, by paying for higher quality care at a lower cost, accountable care systems, such as clinically integrated networks or accountable care organizations (ACOs), are using payment models to implement higher value approaches.

Measurement of quality and cost of care is an integral component of accountable care, as measures help payers to reward better care, providers to take action to improve care, and patients to make informed decisions about where to seek care. Better measures can help enable higher quality care, facilitating the desired care reforms. Measurement also can serve as a related monitoring function to detect problems within an accountable care system, such as inappropriate use of services, whether through underuse or overuse of necessary care. In accountable care models that use financial incentives to reward providers for achieving savings, measures are one mechanism to help align financial incentives. Measures may be particularly important to gauge appropriate use of services for high-cost conditions and treatments that may be subject to pressures for short-term savings.

The Challenge of Measure Gaps

Gaps in measurement are missed opportunities for monitoring system performance, providing transparency to patients and purchasers, and improving quality. In an ideal world, accurate and costless measures of all-important dimensions of care would be available to support clinical decisions and payments, but measures are costly and imperfect, and many measurement gaps exist in health care. The focus of this paper is addressing measure gaps, which entails identifying, prioritizing, and filling key gaps.

Current accountable care measure sets prioritize conditions that are the traditional focus of population health (i.e., diabetes and heart disease); however, many prevalent and costly conditions are not represented in measure sets. The paper examines gaps in accountable care measure sets for 20 conditions by two mechanisms: an analysis of measure gaps for each condition, and a one-day Roundtable discussion to gather feedback from national thought leaders on the findings. The analytical process consisted of selecting conditions of high prevalence and/or cost as the research focus; comparing measures in current representative accountable care sets to the care processes prescribed in clinical guidelines to identify measure gaps; cataloging available measures to fill those gaps; determining remaining gaps for measure development; and examining results across the conditions to identify patterns.

Key Findings

Gaps in accountable care measure sets were evident across most of the reviewed conditions, with varying availability of existing measures to address key components of care. In the Centers for Medicare & Medicaid Services' (CMS) Medicare Shared Savings Program (MSSP) ACO measure set, measures directly applied to only eight of the 20 conditions examined, with the highest numbers of applicable measures pertaining to ischemic heart disease and diabetes.

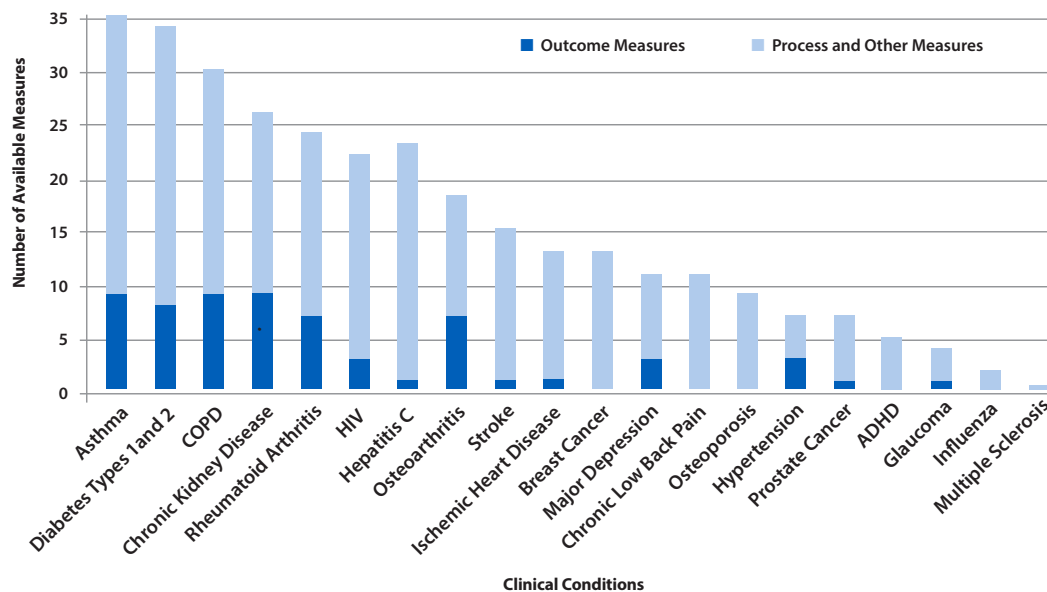
The graphic below shows the number of available measures, including outcome measures that could be used to fill gaps for specific conditions. It illustrates that the number of available measures identified in this project varies greatly by condition. Some conditions, such as asthma and diabetes, have many measures, while others, such as multiple sclerosis, have few. The majority of the available measures are process measures. A number of conditions do not have any outcome measures.

While there is variance in the number of outcome measures available for each condition, a lower number does not necessarily indicate a need for further development. A single measure may be sufficient for assessing outcomes for one condition, though other conditions may require multiple measures.

In addition, there were many aspects of care for the conditions studied for which there were no measures in the MSSP set nor in the universe of available measures. This finding points to the importance of investing in measure development to help assess the impact of accountable care and other health system reforms.

Solutions for Filling Gaps in Accountable Care Measure Sets

To address the identified measure gaps, accountable care program implementers would benefit from innovative ways of enhancing accountable care measure sets to support the goal of better results for the broad populations covered by their programs, including patients who require specialty care and



innovative treatment. Such patient-focused measures applied to existing health care systems could also help assess whether accountable care or other reforms are achieving the desired improvements in care. This paper offers program implementers workable solutions for improving accountable care measure sets.

Rely on Monitoring Indicators and Operating Programs

Before adding measures to accountable care measure sets, program implementers can apply utilization statistics and analytics from disease management programs as early warning indicators. Monitoring indicators can help identify problems in access to care and the need for measures to promote appropriate care, particularly as payment models are transitioning.

Fill Priority Gaps with Existing or New Measures

While it is not feasible to measure every aspect of care for every condition, program implementers should review their data to identify improvement opportunities and whether they need to add measures to their sets. Measures, including condition-specific outcomes and cross-cutting measures, are available for many of the conditions that are currently unaddressed in accountable care measure sets. Where measures are not available, measure development may be warranted.

Alternatives to Measuring Every Condition

We have developed several potential solutions for balancing the burden of data collection and measurement overload with the benefit of meaningful quality measurement information for accountability and improvement.

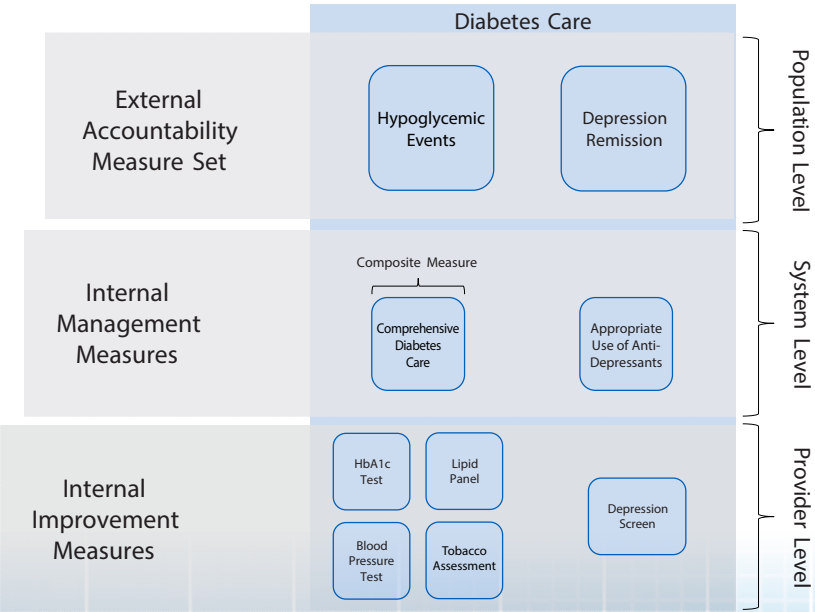
Use Cross-Cutting Measures

Cross-cutting measures offer efficient assessment of how care is being delivered across multiple conditions. While current accountable care sets use cross-cutting measures to an extent, use of cross-cutting measures should be expanded to increase focus on patient-centered care, care coordination, population health, and the complex needs of patients with multiple chronic conditions.

Apply Layered Measurement

Measures should be fit for purpose: measures that are suitable for external accountability may not generate the best information for internal management or improvement. The layered approach to measurement calls for using different, but related, measures at different levels to provide for the diversity of needs. Measure sets for external accountability should focus on outcome and experience measures that are meaningful to patients. A broader set of measures would be useful internally to support management and assessment of patient care at the system level. Still more measures are needed at the provider level to support internal process improvement and assess individual treatment effects.

Layered Measurement Approach (Diabetes Example)

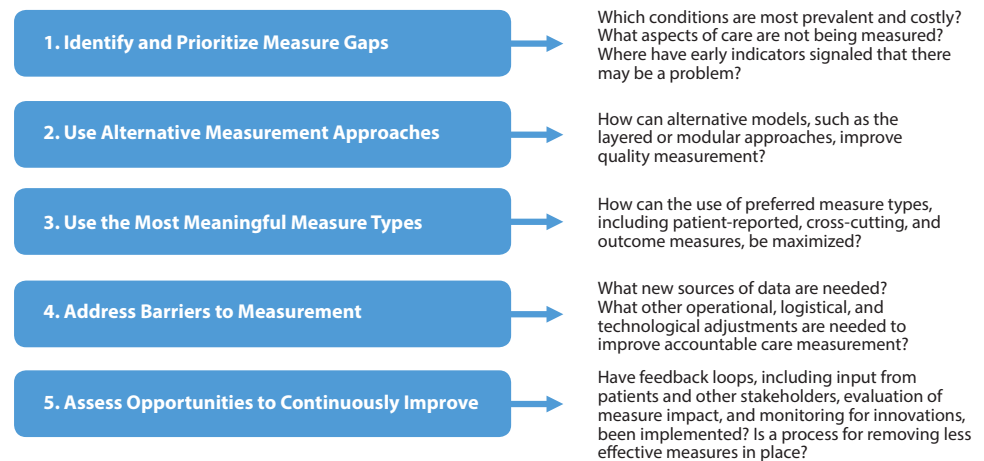


Adopt Modular Measurement

In some cases, it may not be feasible to assess quality for a specific patient population within the scope of a general accountable care measure set. A modular approach, applying a set of measures and incentives distinct to a certain subpopulation such as cancer patients, would allow a more granular view of quality and costs for a segment of the accountable care population. The modular measure set could be used in addition to the broader measure set.

Recommendations for Improving Accountable Care Measurement

Accountable care program implementers should review the measures in their sets to determine gaps and consider the range of solutions presented in this paper to improve accountable care measurement. This paper makes five recommendations to program implementers:



Accountable care systems are becoming more sophisticated, and accountable care measures should do so as well. Accountable care program implementers, in partnership with patients, providers and other stakeholders, must continue the conversation and work together to determine the best way to fill gaps in measure sets. Accountable care offers great potential for improving health and healthcare delivery while lowering costs; however, the transformation to higher value care must be balanced by measures to ensure the provision of appropriate care.

Background

Accountable care refers to the organization and delivery of health care services whereby providers are paid more for reaching certain quality and financial benchmarks for a specified population. Value-based purchasing (VBP) is a set of payment strategies being used by both public and private payers to drive quality improvement, reduce waste, and slow spending growth. VBP strategies generally link financial incentives to providers' performance in meeting benchmarks on a defined set of measures. There are several types of VBP arrangements, but in general, incentives are geared toward controlling cost in the context of improving quality.

The Purpose of Financial Incentives in Accountable Care

In recent years, there has been increasing concern about the national rise in health care spending and the cost of care for individual patients. The United States has at least twice the per capita spending on health care as many other Western countries but receives relatively low marks on many indicators of system quality.¹ Studies have suggested that billions of dollars spent in health care is actually wasted.² The country struggles with healthcare costs crowding out wages in an employer-based healthcare system and diverting public funds from other needs, such as education and defense.

At the same time, innovations in care delivery to address persistent gaps in quality of care are being implemented, including better monitoring systems, decision support tools, care coordination capabilities, and team-based approaches to care. Yet traditional payment systems provide little financial support for many of these services. In response to growing concerns about the cost and quality of care, public and private payers have increasingly been implementing payment models that incentivize cost reduction and achievement of better quality results, while giving providers more flexibility in how they deliver care.³

An often-cited driver of healthcare cost and quality problems is the widespread use of fee-for-service payment. As a result, while fee-for-service generally remains the underlying payment mechanism for clinician services, multiple payment reform models have been introduced to address and reverse the trends attributed to fee-for-service. A recent RAND report⁴ describes VBP program payment models in detail, including:

Pay for performance—Providers receive bonus payments or other rewards—or avoid payment penalties—if they meet certain financial, clinical, or other internally measured benchmarks, or combinations of benchmarks. The financial incentives encourage improvement in measured aspects of care.

Bundled payment—Providers receive an overarching payment for a specific episode of care defined by a set of diagnostic and procedure codes and a time window. By converting fee-for-service payments

¹ Davis K, Stremekis K, Squires D, Schoen C. Mirror, mirror on the wall, 2014 update: how the US health care system compares internationally. The Commonwealth Fund website. <http://www.commonwealthfund.org/publications/fund-reports/2014/jun/mirror-mirror>. Published June 16, 2014. Accessed August 7, 2014.

² Lallemand, NC. Health policy brief: reducing waste in health care. *Health Aff*. http://www.healthaffairs.org/healthpolicybriefs/brief.php?brief_id=82. Published December 13, 2012. Accessed September 29, 2014.

³ Damberg CL, Sorbero ME, Lovejoy SL, Martsolf G, Raaen L, Mandel D. Measuring success in health care value-based purchasing programs; findings from an environmental scan, literature review, and expert panel discussions. RAND Corporation website. http://www.rand.org/pubs/research_reports/RR306.html. Published 2014. Accessed August 7, 2014.

⁴ Ibid.

The Cost of Waste

Health policy experts have estimated that at least 20 percent of total healthcare expenditures could be saved each year by reducing waste, including **overuse** (unnecessary care or overtreatment), **underuse** (failure to deliver needed care), and **misuse** (medical errors and harm).*

*Berwick DM, Hackbarth AD. Eliminating waste in US health care. *JAMA*. 2012;307(14):1513-1516.

to a more fixed amount of payment, bundled payment gives providers flexibility to redirect resources to services that may benefit some patients but that are not reimbursed (e.g., care coordination) while also encouraging cost reductions. For example, providers may find ways to reduce the cost within the episode for an elective joint replacement, between the time when the decision to pursue surgery is made until completion of the rehabilitation process, such as by devoting more resources to coordinate care.

Shared savings programs—An organization of providers enters into an arrangement whereby providers that achieve quality benchmarks and savings beneath a certain threshold are entitled to receive a percentage of the savings. A shared savings arrangement may be coupled with shared risk, in which the organization loses money if savings are not achieved. Shared savings programs encourage cost reduction by providing additional payments if savings are achieved, or (in some cases) negative financial consequences if savings are not achieved. Shared savings enables providers to provide support activities that reduce costs but would not be reimbursed under fee-for-service.

Global payment—Providers receive a prospective lump sum payment that is expected to cover all medical care for a certain population of patients for a time period, usually a year. This approach encourages providers to be fiscally restrained so that the total cost of care for the population is less than the global payment, and enables them to redirect more resources to achieve cost savings.

In most VBP programs, quality measures are tied to whether providers receive financial rewards or influence how providers are tiered by health plans. Certain programs combine cost and quality measures into single indicators of efficiency (defined as quality output per unit cost input), and provide positive or negative consequences based on whether providers meet certain standards.

The primary purpose of VBP strategies is to limit the cost of care while improving quality; the scope of “cost of care” extends beyond the cost of merely delivering a treatment or conducting a test. Costs typically increase in proportion to poor health status of a patient. For example, the cost of care for a diabetic patient whose HbA1c level is adequately controlled is typically much less than for a diabetic patient whose HbA1c level is not adequately controlled. Therefore, incentivizing cost reduction should, at least in theory, improve quality and reduce the overall cost in care. In this way, financial incentives for cost reduction and quality care align well.

However, in some instances, cost reduction and improved quality of care may not align well. For example, pay for performance programs typically include few measures, so many conditions are not addressed; bundled payment programs may not address the appropriate use of the bundle, so a high volume of low-risk patients is preferred, and high-risk patients may be avoided. Shared savings programs generally focus on one year, so costly tests and interventions that have longer timeframes for cost savings may not be prioritized. In terms of a condition-specific example, the costs of a disease management program to improve HbA1c levels for diabetes patients are incurred upfront, while the cost savings from reduced complications from poorly controlled diabetes are not fully realized until years later. Shifting accountability for care when patients select a different provider because they are dissatisfied or for any other reason is known as “leakage” or “churn.” In this scenario, a provider may be rewarded less for providing high-quality care and penalized less for providing lower quality care, although the timeframe issue affects some VBP programs more than others.

Other factors, besides measures, mitigate against these quality problems. The additional flexibility for providers to devote more resources to activities that were previously poorly reimbursed and that can help particular patients leads to higher quality care in many instances, particularly for complex patients;

for example, enabling them to receive care at home and supporting teams of providers to work together in their care. Reflecting professional norms that emphasize improving outcomes for patients, clinicians in these alternative payment models have noted higher levels of job satisfaction. Because providers compete on quality as well as cost, and patients clearly care about longer term outcomes, the flexibility in VBP programs can facilitate competition that improves outcomes for the same costs. Supporting the collective importance of these factors, a number of bundled and person-level payment reforms have led to better outcomes for complex and frail elderly patients,^{5,6} with improvements in available measures of quality such as preventable admission rates and patient experience measures in Medicare and commercial ACO programs.^{7,8} Finally, many VBP reforms have started out with relatively modest changes in financial incentives; for example, the Medicare Shared Savings Program has been criticized for retaining too much of the fee-for-service payment system and thus not providing enough financial support for reforming care.^{9,10}

Nonetheless, changes in financial incentives have raised concerns, and the potential for negative consequences from VBP strategies has been noted among policymakers. Materials for a bundled payment discussion at the National Health Policy Forum¹¹ stated the following:

“Because providers could potentially achieve savings by stinting on or delaying care or by avoiding expensive patients, another related concern is whether the program has adequate quality measures to safeguard the health of beneficiaries and sufficient risk adjusters to ensure providers are not financially rewarded for simply avoiding higher cost patients.”

We would not contend that providers consciously seek to withhold beneficial interventions from patients to save money, or that VBP reforms have worsened quality of care. However, if there is an incentive to save money by doing less, the use of costly but effective treatments in some patients (e.g., treating patients with pre-diabetes where the impact is greatest in the distant future) might decrease without awareness that a decrease is occurring. As incentives become stronger and measurement capabilities continue to improve, measurement could play a more substantial role in supporting improvements in care associated with accountable care reforms, and lead to more confidence among providers, the public, and policymakers in effective reforms.

⁵ Shaw L. Program of All-Inclusive Care for the Elderly: A comprehensive, cost-effective alternative for frail elderly individuals. *N C Med J*. 2014;75(5):344-345.

⁶ Hoops A. CareMore: a model for caring for those at greatest risk. CareMore Health Group presentation at America's Health Insurance Plans Capitol Hill briefing. American's Health Insurance Plans website. <http://www.ahip.org/CareMoreSlides.aspx>. Published January 2012. Accessed September 29, 2014.

⁷ Centers for Medicare & Medicaid Services. Fact sheets: Medicare ACOs continue to succeed in improving care, lowering cost growth. CMS.gov website. <http://www.cms.gov/Newsroom/MediaReleaseDatabase/Fact-sheets/2014-Fact-sheets-items/2014-09-16.html>. Published September 16, 2014. Accessed September 23, 2014.

⁸ Song Z, et al. The 'Alternative Quality Contract' based on a global budget, lowered medical spending and improved quality. *Health Aff*. 2012;31(8):1885-1894.

⁹ Hackbarth GM, Chairman, Medicare Payment Advisory Commission. Letter to Marilyn Tavenner, Administrator, Centers for Medicare & Medicaid Services. June 16, 2014. MedPAC website. [http://www.medpac.gov/documents/comment-letters/comment-letter-to-cms-on-accountable-care-organizations-\(june-16-2014\).pdf?sfvrsn=0](http://www.medpac.gov/documents/comment-letters/comment-letter-to-cms-on-accountable-care-organizations-(june-16-2014).pdf?sfvrsn=0). Published 2014. Accessed September 24, 2014.

¹⁰ Mostashari F, Sanghavi D, McClellan M. Health reform and physician-led accountable care: the paradox of primary care physician leadership. *JAMA*. 2014;311(18):1855-1856.

¹¹ National Health Policy Forum. Bundled payment in Medicare: promise, peril and practice. Forum session April 20, 2012. Background information, p3. National Health Policy Forum website. <http://www.nhpf.org/library/details.cfm/2890>. Accessed August 7, 2014.

The Purpose of Measures in Accountable Care

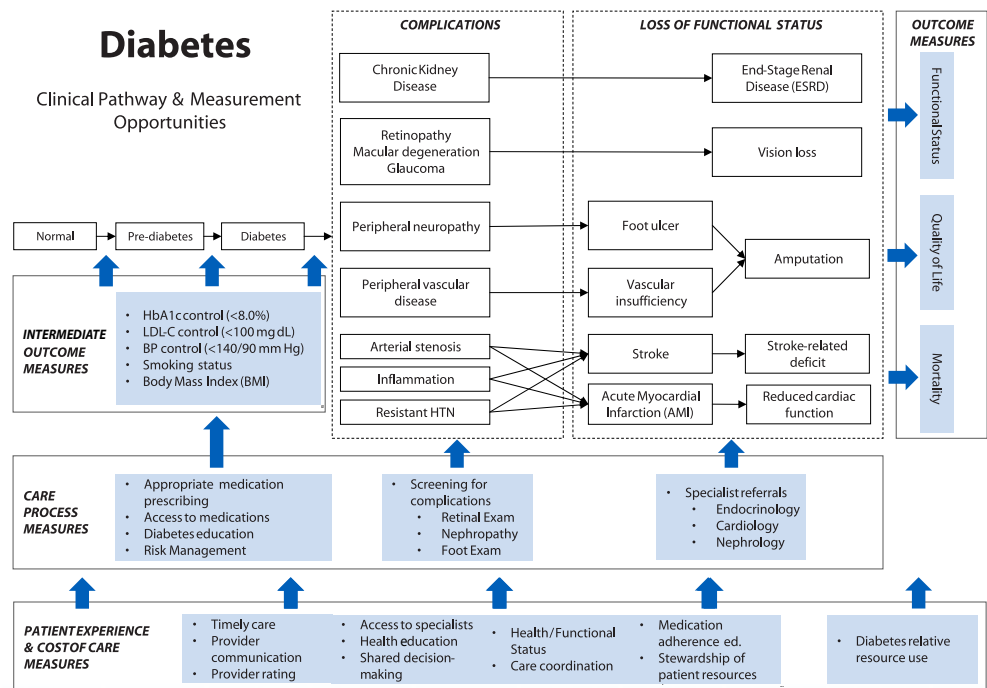
As providers are implementing approaches to improving care and reducing costs in response to incentives, quality measurement can help identify opportunities for improvement and to monitor progress over time. Measures yield data, and data informs decision making.

Specifically, healthcare performance measurement can:

- Support payment models that reward healthcare providers that deliver high quality and/or reduce costs;
- Inform patients, purchasers, and other stakeholders about which providers deliver the highest value, promoting provider competition on value;
- Highlight opportunities for improvement;
- Drive performance improvement processes within healthcare organizations; and
- Monitor for undesirable consequences from financial incentives.

Figure 1 below outlines the disease trajectory and care flow for diabetes patients. The shaded boxes at various points in the figure indicate opportunities for measurement, including process, intermediate outcome, and outcome measures specific to diabetes, as well as measures of patient experience and cost that apply across conditions. This diagram illustrates that there are a number of choices available in terms of what and when to measure for diabetes care, and that certain types of measures may be more suitable than others to evaluate quality at specific points in the clinical pathway. This paper will explore the measurement opportunities, availability of measures, and measure gaps for specific conditions and across conditions, and which types of measures are best suited for particular purposes of accountable care.

Figure 1. Diabetes Care Flow and Measurement Opportunities



Measurement is a critical tool for improving quality of care, but it is not the only tool, and is not sufficient in itself to ensure quality. As noted above, standards of physician professionalism and ethics encourage high-quality care with available resources, as do accreditation/certification programs and regulation of healthcare organizations and medical practice. Many physicians and organizations participating in flexible delivery models, such as ACOs, appreciate the opportunity to deliver care in ways that they believe are the best for their patients. Choice and competition among providers also can encourage higher quality, as informed patients may choose to change providers if they are aware of better options. Each of these factors, along with measurement, contribute to the improvement of quality of care.

Effect of Measurement

Experience has shown that the use of meaningful measures can drive quality improvement. Diabetes is an area that has had a long history of measurement and focused attention on improvement, and there is evidence of substantial gains in quality for diabetes care over time. One example is performance by health plans on the National Committee for Quality Assurance (NCQA) Healthcare Effectiveness Data and Information Set (HEDIS) Comprehensive Diabetes Care measure. This set includes measures that focus on various aspects of diabetes care including HbA1c screening and control, low-density lipoprotein (LDL) screening and control, blood pressure screening and control, eye exams, and nephropathy monitoring. Some of these aspects of care have been measured through HEDIS since 1999 and have demonstrated significant improvement. For certain measures, health plan mean performance has increased 15 percentage points over that time span.¹²

Another example of measured improvement in diabetes care over time is from the practicing providers (medical groups/clinics) who are part of Minnesota Community Measurement. Optimal Diabetes Care is a composite measure that evaluates whether patients reach all five treatment goals to reduce cardiovascular risk including: blood pressure <140/90 mm Hg, LDL <100 mg/dl, HbA1c <8, daily aspirin use for diabetes patients with a co-morbidity of ischemic vascular disease unless contraindicated, and documented tobacco-free status. HealthPartners member data shows dramatic improvements from 7.8 percent of diabetic patients receiving Optimal Diabetes Care (as defined by the measure) in 2000 to 41.9 percent in 2012.¹³ In parallel, poor outcomes such as rates of new cases of retinopathy (eye complications), leg amputations, and acute myocardial infarction (heart attacks) have been reduced. HealthPartners simultaneously measures total cost of care and total resource use on a per patient per month basis, and has estimated millions of dollars in savings over time for patients who receive optimal diabetes care.

¹² National Committee for Quality Assurance (NCQA). Improving quality and patient experience: the state of health care quality 2013. Available at <https://www.ncqa.org/ReportCards/HealthPlans/StateofHealthCareQuality.aspx>. Published 2013. Accessed August 7, 2014.

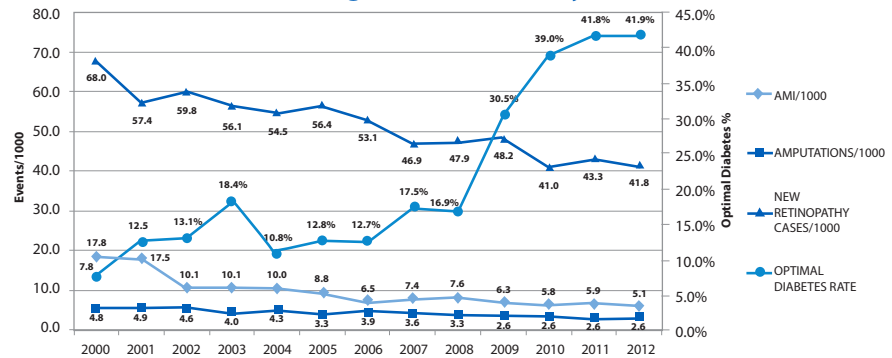
¹³ © HealthPartners. Slide used with permission of HealthPartners.

Figure 2. Measured Improvement in Diabetes Care by HealthPartners



HealthPartners®

Saves 417 Hearts, 72 Legs & 745 Pairs of Eyes Each Year



HealthPartners' 32,747 members with diabetes in 2012 suffered 417 fewer heart attacks, 72 fewer leg amputations and 745 people did not experience eye complications compared to what would have happened to the same 32,747 plus members in 2000.

Notes

- Current Optimal Diabetes Definition = Patients with diabetes (Type 1 or 2) ages 18-75 who reach five treatment goals: 1) Hemoglobin A1c less than 8, 2) Blood pressure less than 140/90mm/Hg, 3) LDL-C less than 100mg/dL, 4) Daily aspirin use for patients with a co-morbidity of Ischemic Vascular Disease (IVD) unless contraindicated, and 5) Documented tobacco-free status.
- Optimal Diabetes Rates taken from HealthPartners' yearly Clinical Indicators reports for years 2000 - 2008. HP Rates are compiled by taking a random sample of chart values from various medical groups; these values are then weighted by medical group population volume. Rates for 2009 - 2012 are pulled from Minnesota Community Measurement (MNCM.org). MNCM Rates are compiled by gathering full diabetic population data from various medical groups.
- A1c definition was <=7 for years 2000-2005. A1c definition was <7 for years 2006-2008. A1c definition from 2009 to current is <8.
- Blood pressure definition was <130/80 for years 2000-2010.

Gaps in Measure Sets

Measure gaps—in available measures and in use of available measures—are one of the challenges of measurement. Gaps in measure sets may occur due to the limited scope of the sets, or because measures that might fill gaps may not be available or are in development. Effectively addressing a measure gap requires identifying the gap, determining its importance, and selecting the right measure to fill the gap. These topics are the primary subjects of this paper.

Although accountable care programs have been evolving to include somewhat larger and more diverse sets of measures, existing performance measurement systems tend to focus on a limited set of clinical conditions. For example, the Medicare Shared Savings Program for Accountable Care Organizations includes 33 performance measures, several of which focus on a short list of chronic conditions that are particularly important to the Medicare population, such as diabetes, heart disease, and chronic obstructive pulmonary disease (COPD). By design, most accountable care populations are relatively large, with 5,000 or more patients (though many providers agree that 5,000 is a small population for which to assume full financial risk). These patients will have a diverse set of clinical and social needs. Many will have conditions, such as diabetes or COPD, that are the focus of existing ACO clinical performance measures, but many more will have acute or chronic conditions that are not addressed in measure sets.

The inevitable exclusion of many conditions from measure sets raises concerns. Some conditions, such as multiple sclerosis or hepatitis C, are relatively rare in the population and may not comprise a sufficient volume in an individual accountable care system for quality of care measurement to be feasible at the population level. Nonetheless, the cost of appropriate treatment for these conditions can be exceptionally high because of their specialty pharmaceutical regimens. Similarly, patients with specific combinations of comorbidities may have only one aspect of their care measured, because there are not enough patients (or the right measures) to assess quality of care for each combination.

The presence of measurement gaps and the need to assess the efficiency of reporting current measures suggests that further development and refinement of quality measures should be a priority. The National Quality Strategy (NQS) defines the outcomes that are of most interest to patients, payers, and policymakers. Additionally, increased alignment of measure sets with the NQS and across payers may strengthen the quality signal (highlighting what is important to understand about quality) and decrease the burden of data collection.¹⁴ Attention should be given to aligning the measures used in various system-level accountable care programs, including Medicare Shared Savings Program, Pioneer Program, Medicare Advantage Star Ratings, Meaningful Use of Health IT, and commercial ACOs. A further priority for closing the gaps in quality measures used with payment reforms might include areas where available, if limited, evidence suggests that the payment reforms are reducing access to needed treatments.

Measurements tied to payment reforms bring attention to the patients and aspects of care involved in the measures. As such, measurement systems influence clinical priorities and investment of quality improvement resources. If measurement systems evolve and expand to address important conditions, innovations, and populations—particularly in areas where there is at least suggestive evidence of emerging problems of underuse—payment reforms could help more patients receive the benefits of advances in care delivery and accountability.

Further Challenges in Measurement

Measure gaps are not the only challenge of measurement; other challenges include the small numbers of patients with certain conditions, short time horizons for measurement, inadequate evidence base, and insufficient data infrastructure. Some solutions to these challenges are proposed in this section and more are presented in the *Solutions for Filling Gaps in Accountable Care Measure Sets* section (see page 45).

A challenge for accountable care measurement is misalignment of time horizons between costs and benefits. Savings achieved from upfront program investments may not be realized until years later, when a patient might no longer be attributed to the system, causing the “churn” issue described earlier. This may be at least partially addressed by extending the time window of financial incentives to multi-year contracts, by developing measures that capture early indicators or markers of long-term benefit (e.g., viral load in HIV or hepatitis C) and by developing better evidence on the long-term cost offsets of quality care.

Measures also require strong evidence bases to ensure clinical appropriateness and to demonstrate that meeting the measure leads to desired outcomes. Strong evidence behind a measure promotes buy-in by providers and helps to bridge differences in perspectives among stakeholders. For some critical areas, the evidence base may be inadequate to link specific care practices to better outcomes, or evidence may change quickly, requiring a mechanism to rapidly update and adjust measures to comport with the most current evidence. For example, differences among disease-modifying anti-rheumatic (DMARD) medications for rheumatoid arthritis—particularly differences between biologic and non-biologic medications—are significant.¹⁵ While evidence comparing the effectiveness and risks

¹⁴ Higgins A, Veselovskiy G, McKown L. Provider performance measures in private and public programs: achieving meaningful alignment with flexibility to innovate. *Health Aff.* 2013;32(8):1453-1461.

¹⁵ John M Eisenberg Center for Clinical Decisions and Communications Science. *Medicines for Rheumatoid Arthritis; a Review of the Research for Adults*. Rockville, MD: Agency for Healthcare Research and Quality; 2012. AHRQ publication 12(13)-EHC025-A. Available at Pubmed Health website. <http://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0050554/>. Published November 2012. Accessed August 15, 2014.

between and among these types of medications is being developed, the best practice may be unclear to providers, causing variation in medication use and limiting the effectiveness of quality measurement for DMARD use.¹⁶

Even when evidence is available, the healthcare data infrastructure may not support collection of the necessary information to test and implement certain measures. New technology is promising—including improvements to electronic health records, clinical data registries, all-payer claims databases, mobile devices, patient portals, and wearable biomonitors—however, implementation of the electronic data platform has been slow, despite efforts by the Office of the National Coordinator to stimulate “meaningful use” and interoperability of health information technology. Program implementers are challenged to make the best use of the data they have, while planning how they will use better data in the future. Payment reforms that are accompanied by an improving measurement strategy can create a virtuous cycle. Many healthcare providers that are implementing VBP reforms are investing in health information technology to support their care reforms, and greater clarity about how these investments could lead to significant improvements in measurement could accelerate progress.

Other Factors in Care Improvement in Accountable Care

Although the combination of cost-reduction incentives and quality measures can be a powerful approach for promoting improvement in the healthcare system, incentives and measures are not the only tools that support better care and lower overall costs. They comprise only part of an overall improvement strategy. A broader goal of VBP programs is to transform the way care is delivered to enhance performance, thereby improving care and lowering overall costs. To transform care, organizations are striving to innovate and as such are using many different approaches under accountable care to promote system-wide improvement.

As noted above, many healthcare organizations are using accountable care payment reforms to implement important transformation strategies. These strategies include:

- *Care coordination mechanisms*—Improved administrative and technological methods of coordinating efforts across primary care, specialist care, hospitals, post-acute care, and pharmacies can improve overall patient experience, help to avoid costly mistakes, reduce costly duplication, and identify and prioritize patient care needs, promoting appropriate use of resources.
- *Population health management*—Better engagement between healthcare providers and community- and government-based programs, as well as analytics and risk stratification strategies, can promote health and wellness on a large scale and reduce the health burden of a population.
- *Interdisciplinary team-based care*—High-performing teams, which attend to communication and collaboration between multiple disciplines, are essential for building a more patient-centered, effective care delivery system, which improves care and reduces costs.
- *Data infrastructure and information exchange*—Better electronic health record (EHR) systems, along with better health information technology interoperability and capture of data through mechanisms such as clinical data registries, can support improvements in management at the point of care, coordination of care, and acquisition of patient-reported data.

¹⁶ Edward CJ, Campbell J, van Staa T, Arden NK. Regional and temporal variation in the treatment of rheumatoid arthritis across the UK: a descriptive register-based cohort study. *BMJ Open*. November 2012;2(6):e001603. <http://bmjopen.bmj.com/content/2/6/e001603.full?rss=1>. doi:10.1136/bmjopen-2012-001603.

- *Lean and other improvement strategies*—Lean and Six Sigma are examples of approaches to quality improvement (QI) intended to effect widespread change. They place the Plan-Do-Study-Act iterative cycle that forms the basis of most QI activities within a specific context that should provide a directed focus intended to optimize the QI process. The context these approaches use to advance quality is to focus on customers and their determinations of value, the removal of waste, and the identification of sources of variation and potential error.

Other factors that also contribute to better care in the context of payment reform include:

- *Competition and patient choice*—Of course, here as well, better quality measurement and reporting promotes better-informed consumer choices and competition among providers. As part of the consumerism movement, patients now have access to much more information about treatment options through the Internet, patient advocacy groups, apps, social media, and promotion of medical tourism.
- *Risk adjustment, reinsurance, and risk corridors*—Risk mitigation strategies promote access for vulnerable populations by protecting against adverse selection in the market while stabilizing premiums. For example, with risk adjustment based on health status, Medicare Advantage plans receive less revenue for attracting and keeping healthy beneficiaries; much larger payments are tied to chronically ill patients.

These important factors contributing to care improvement were not overlooked in the preparation of this paper. Although the paper focuses on the relationship between cost-reduction incentives and performance measurement, the potential solutions to the issues raised should be considered in a broader context that includes the many other mechanisms available for improving healthcare quality while lowering costs. Moreover, better performance measurement can support and reinforce all of these activities.

Purpose

This white paper provides an opportunity to explore the future of accountable care measure sets, specifically how they account for specialty care and innovative treatments across entire patient populations, especially for clinical areas that are not yet a focus of measurement. The paper examines use of existing measures and measure gaps, and potential solutions to address segments of populations with high-cost conditions that are not currently measured well or at all. The information and solutions presented here are intended to improve measure sets for accountable care programs.

Methods

Overview

To develop a deeper understanding of current accountable care measurement and gaps, we conducted research through two processes: (1) an analytical process, through which we reviewed specific conditions for measure gaps, and (2) a qualitative feedback process, through which we received input on the results of our analytical process from national thought leaders participating in a one-day Roundtable discussion.

The analytical process used to achieve the goals of this project included three major steps:

- 1) Selection of 20 clinical conditions as the focus of our research.
- 2) Application of a logic model to each condition to understand gaps in accountable care measure sets and gaps in existing measures. Through application of the logic model, we identified clinical guidelines for each condition, measurement gaps in an accountable care measure set, available measures to address gaps in the accountable care set, and measure gaps that were not covered by available measures.
- 3) Examination of results across all 20 conditions to identify patterns in measure gaps, and to identify cross-cutting measurement areas that could fill gaps for multiple conditions.

Condition Selection

To build the list of conditions for our study, we first conducted a literature search for lists of high-impact conditions from authoritative sources. These lists include conditions that are highly prevalent, are leading causes of death, and placed a large financial and logistical strain on the healthcare system. Sources for the list included the National Quality Forum (NQF),^{17,18} the Institute of Medicine,¹⁹ the Centers for Medicare and Medicaid Services,²⁰ the Centers for Disease Control and Prevention (CDC),²¹ and the Harvard Kennedy School of Government.²² We compiled these resources into a comprehensive list and removed duplications.

¹⁷ National Quality Forum. NQF report on measure gaps and inadequacies. National Quality Forum website. http://www.qualityforum.org/Publications/2012/05/NQF_Report_on_Measure_Gaps_and_Inadequacies.aspx. Published May 2012. Accessed May 8, 2014.

¹⁸ National Quality Forum. Committee report, prioritization of high-impact Medicare conditions and measure gaps. National Quality Forum website. http://www.qualityforum.org/Publications/2010/05/Committee_Report_Prioritization_of_High-Impact_Medicare_Conditions_and_Measure_Gaps.aspx. Published May 2010. Accessed May 8, 2014.

¹⁹ Institute of Medicine. *Crossing the Quality Chasm: A New Health System for the 21st Century*. Washington, DC: The National Academies Press; 2001.

²⁰ Centers for Medicare and Medicaid Services. Chronic conditions among Medicare beneficiaries, chartbook: 2012 edition. CMS.gov website. <http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/Chronic-Conditions/Downloads/2012Chartbook.pdf>. Published October 2012. Accessed May 8, 2014.

²¹ Hoyert DL, Xu JQ. Deaths: preliminary data for 2011. National vital statistics reports; vol 61 no 6. National Center for Health Statistics. Centers for Disease Control and Prevention website. http://www.cdc.gov/nchs/data/nvsr/nvsr61/nvsr61_06.pdf. Published October 2012. Accessed May 8, 2014.

²² Harvard University, John F Kennedy School of Government, Mossavar-Rahmani Center for Business and Government. Disease incidence and prevalence: summary of findings. <http://www.hks.harvard.edu/m-rcbg/hcdp/numbers/Disease%20Incidence%20Summary.pdf>. Updated January 27, 2008. Accessed May 8, 2014.

Because the cost of care for each condition was key to our project, we evaluated the expected relative costliness of each condition. Based on our preliminary knowledge of each condition on the list, we identified what we anticipated would be the high cost drivers in their respective diagnostic or treatment processes, including the use of specialty pharmaceuticals or high use of traditional pharmaceuticals, imaging, inpatient hospitalization, surgery (particularly for certain conditions, such as ischemic heart disease, glaucoma, and musculoskeletal conditions such as osteoarthritis), and other known high-cost diagnostic or treatment components. During this process, we consulted literature that included lists of conditions or treatments noted for their high relative direct and indirect costs of care.^{23,24}

Finally, we reviewed the list of conditions to ensure that it reflected a degree of diversity that would be beneficial to the project. The list was reviewed for: applicability to all ages, a range of ethnic and racial groups, and both genders; involvement of a range of specialty clinicians; inclusion of both acute and chronic conditions; and representation of diverse categories of cost drivers.

The condition selection process yielded the following list of 20 conditions:

- Asthma
- Attention Deficit Hyperactivity Disorder (ADHD)
- Breast Cancer
- Chronic Kidney Disease
- Chronic Low Back Pain
- Chronic Obstructive Pulmonary Disease (COPD)
- Diabetes
- Glaucoma
- Hepatitis C
- Human Immunodeficiency Virus (HIV)
- Hypertension
- Influenza
- Ischemic Heart Disease
- Major Depression
- Multiple Sclerosis
- Osteoarthritis
- Osteoporosis
- Prostate Cancer
- Rheumatoid Arthritis
- Stroke

A summary table of the condition selection factors is available in Appendix A.

Identification of a Representative Accountable Care Measure Set

To compare the impact and influence of current accountable care quality measurement to each condition's treatment priorities, and to determine additional measures needed to promote appropriate care, we sought a representative set of measures as a case study.

We used the Medicare Shared Savings Program Accountable Care Organization (MSSP ACO) measure set²⁵ as an example to assess the impact and influence of accountable care quality measurement on the treatment priorities for each condition. The MSSP ACO measure set is part of a federal government

²³ Kockaya G, Wertheimer A. What are the top most costly diseases for USA? The alignment of burden of illness with prevention and screening expenditures. *Health*. 2010; 2:1174-1178.

²⁴ IMS Institute for Healthcare Informatics. The use of medicines in the United States: review of 2011. IMS Institute website. http://www.imshealth.com/ims/Global/Content/Insights/IMS%20Institute%20for%20Healthcare%20Informatics/IHII_Medicines_in_U.S_Report_2011.pdf. Published April 2012. Accessed May 8, 2014.

²⁵ Medicare Fee for Service Shared Savings Program: 33 ACO quality measures. Centers for Medicare and Medicaid Services website. <http://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/sharedsavingsprogram/Downloads/ACO-Shared-Savings-Program-Quality-Measures.pdf>. Updated April 29, 2014. Accessed May 8, 2014.

accountable care program that represents a larger number of provider organizations than any other accountable care program. The MSSP ACO measure set includes 33 measures.

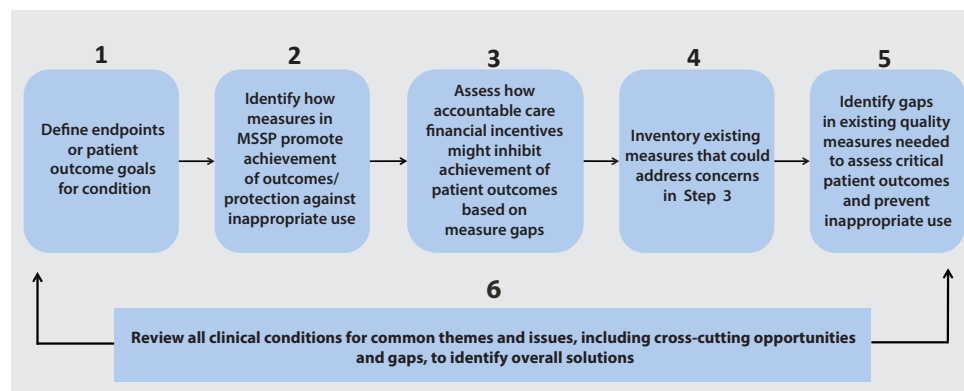
To provide further understanding of accountable care quality measurement, we compared the measures included in the MSSP ACO measure set to the measures included in the National Committee for Quality Assurance (NCQA) Accountable Care Organization accreditation program.²⁶

Definition and Application of Logic Model

Overview

To identify the implications of accountable care quality measurement and incentives for the 20 conditions, we developed a step-wise logic model (see Figure 3 below), structured to produce comparable results across the analysis for each condition. Specifically, the purpose of the logic model was to obtain the following data: (1) priority outcomes of treatment; (2) applicable accountable care measures; (3) possible areas of inappropriate use because of gaps in applicable accountable care measures for priority treatment endpoints, cost drivers, and financial incentives; (4) identification of other relevant quality measures; (5) identification of gaps in available measures; and (6) common measure gaps and issues across conditions to inform overall solutions.

Figure 3. Application of Logic Model



Process

Our approach to executing the logic model steps for each condition is described below:

Step 1: We identified diagnostic and management clinical practice guidelines, developed or endorsed by medical specialty societies and patient advocacy groups. We supplemented our initial research by searching the Agency for Healthcare Research and Quality (AHRQ) National Guidelines Clearinghouse.²⁷ Using the clinical guidelines, we defined the goals of care that treatment should achieve for patients.

Step 2: We compared the results of Step 1 to the available measures in the MSSP ACO set to understand where the ACO measures promoted achievement of the treatment goals for each condition. We labeled measures as directly applicable if the condition was included in the denominator, and

²⁶ Accountable care organization accreditation. National Committee for Quality Assurance website. <http://www.ncqa.org/Programs/Accreditation/AccountableCareOrganizationACO.aspx>. Accessed May 8, 2014.

²⁷ National Guideline Clearinghouse. Agency for Healthcare Research and Quality. www.guideline.gov. Accessed May 8, 2014.

indirectly applicable if the measures promoted achievement of treatment goals but that specific condition was not included in the denominator.

Step 3: Through further review of the clinical guidelines, we identified remaining aspects of care for each condition that were not directly addressed by the applicable MSSP ACO measures identified in Step 2, and which might be areas at risk for inappropriate care. We prioritized high-cost aspects of care as particularly at risk for inappropriate use in accountable care.

Step 4: We reviewed the aspects of care identified in Step 3 and conducted a scan of available measures that would address measure gaps and potentially promote appropriate use. To identify measures, we conducted condition-specific searches using the NQF Quality Positioning System tool²⁸ and the AHRQ National Quality Measures Clearinghouse,²⁹ supplemented by additional searches of relevant medical specialty society endorsed or developed measures. Further, we identified each measure as a process or an outcome measure, recognizing that measures of improved health outcomes might fill the need for many process measures.

Step 5: We identified remaining gaps in measurement between the aspects of care at risk for inappropriate use identified in Step 3 and the measures available for potential use found in Step 4. These gaps indicated condition-specific aspects of care where measures are not currently available, but where development could improve accountable care measurement.

Step 6: After completing the first five steps, we reviewed and summarized our condition-specific results and then compared the results for all conditions to identify common themes and issues, including opportunities and gaps in cross-cutting measurement for accountable care quality measure sets.

Multi-Stakeholder Roundtable

On July 14, 2014, the National Pharmaceutical Council and Discern Health convened a multi-stakeholder Roundtable in Washington, DC, on the topic of “Accountable Care Measures for High-Cost Specialty Care and Innovative Treatment.” The purpose of convening the Roundtable was to evaluate initial findings and proposed solutions for filling measure gaps. Roundtable participants represented accountable care system leaders, medical specialties, employers, patient advocacy groups, payers, measure developers, and federal officials.

Prior to the Roundtable, Discern surveyed participants on the condition-specific and cross-cutting results of applying the logic model to each of the 20 conditions. The results of the survey were incorporated into this white paper and discussed at the Roundtable. During the Roundtable discussion, participants offered their perspectives on priority gap areas in accountable care measurement, measurement challenges, potential solutions for improving accountable care measure sets, and prioritization of recommended action steps, all of which have been integrated throughout this white paper.

For a full list of Roundtable participants, please refer to Appendix B.

²⁸ Quality Positioning System. National Quality Forum website. <http://www.qualityforum.org/Qps/QpsTool.aspx>. Accessed May 8, 2014.

²⁹ National Quality Measures Clearinghouse. Agency for Healthcare Research and Quality website. www.qualitymeasures.ahrq.gov. Accessed May 8, 2014.

Findings

This section contains the results of our application of the logic model to the 20 conditions on three levels: (1) condition-specific logic model results, (2) overall logic model results and analysis of cross-cutting opportunities, and (3) priority measure gaps identified by the Roundtable participants. Detailed results are available in Appendix D, *Logic Model Results*, and Appendices E1 and E2, *Cross-Cutting Measurement Areas and Cross-Cutting Measurement Gap Areas*.

Condition-Specific Logic Model Results

Through application of the logic model, we derived condition-specific results detailing the measures in the MSSP ACO measure set that assess recommended services to achieve treatment goals, as well as the availability of measures to fill gaps in the measure set.

The condition-specific summaries below are organized alphabetically by condition, with the first paragraph of each summary providing an overview of the condition, care priorities noted in the reviewed guidelines, and details on unique or key diagnostic and treatment modalities. The second paragraph of each summary provides discussion of the condition's representation within the reviewed accountable care measure sets, the availability and types of performance measures we identified (measures that fill gaps for those aspects of care not addressed in the MSSP set), as well as remaining gaps between existing measures and priority areas at risk for inappropriate use. In addition, examples of potential monitoring indicators such as utilization rates and patient-reported data are suggested for some of the conditions. For high-cost conditions and their relevant aspects of care, program monitoring by payers or providers for early indicators of changes in utilization or patient well-being could aid in recognizing undesirable changes in practice patterns, indicating potentially inappropriate care in response to financial incentives.

Further, call-out boxes provide condition-specific prevalence and cost data, as well as an assessment of measure availability (low, moderate, high, or none) relative to other conditions for the following categories: (1) number of directly applicable MSSP ACO measures, (2) number of other available measures identified, (3) number of outcome measures included in the identified available measures, and (4) number of remaining gaps. While this assessment provides a frame for understanding programmatic inclusion and measure development priorities, we acknowledge that the need for and adequacy of measures may vary depending on the condition (e.g., a few outcome measures may be sufficient for one condition, but not for another condition). Therefore, while a "low" number of outcome measures indicates that there were a small number of these types of measures identified, it does not indicate that these measures are insufficient for comprehensively measuring outcomes.

Asthma

U.S. Adult Prevalence:
8%*

U.S. Child Prevalence:
9.3%*

Total Annual U.S. Cost:
\$56 billion**

*Asthma: data, statistics and surveillance. Centers for Disease Control and Prevention website. www.cdc.gov/asthma/asthma.htm.

Updated July 30, 2014.
Accessed September 8, 2014.

**Barnett SB, et al. Costs of asthma in the United States: 2002-2007. *J of Allergy Clin Immunol*. 2011;127:145-152.

Number of Available Measures

Direct MSSP ACO: Low

Other Available: High

Outcome: High

Remaining Gaps: High

ADHD

U.S. Adult Prevalence:
11% of youth 4-17*

Total Annual U.S. Cost:
\$36 billion-\$52 billion*

*Attention-deficit/hyperactivity disorder (ADHD). Centers for Disease Control and Prevention website. www.cdc.gov/ncbddd/adhd/data.html. Updated November 13, 2013.
Accessed September 8, 2014.

Number of Available Measures

Direct MSSP ACO: None

Other Available: Low

Outcome: None

Remaining Gaps: Low

Asthma

Asthma is a prevalent chronic lung condition affecting children and adults. Uncontrolled asthma may lead to exacerbations requiring costly inpatient or emergency room utilization. Guidelines from the Global Initiative for Asthma and the National Heart, Lung, and Blood Institute prioritize identification and reduction of exposure to risk factors, achievement and maintained control of symptoms, appropriate prevention and treatment of exacerbations, avoidance of adverse asthma medication effects, and prevention of mortality as the key outcomes of treatment. Priority diagnostic and treatment options include spirometry or peak expiratory flow (PEF) testing, allergenic skin testing and functional assessments, and prescribing for controller (preferred inhaled glucocorticosteroid) and reliever (preferred rapid-acting bronchodilator) medications. Lower cost services include education and training for self-management to maintain control and referrals for non-physician services (e.g., occupational therapy) when needed.

Applicable measures within the reviewed accountable care measure sets focus on admissions, which is included in the MSSP set, and appropriate prescribing of controller medications, and relative resource use, included in the NCQA set. Admissions measures may be useful monitoring indicators to screen for problems with asthma care and the need for additional asthma measures. Neither set addresses inclusion of glucocorticosteroid medications for exacerbations or asthma action plan development, areas where there are available measures. Available outcome measures for asthma that are not being used in accountable care measure sets include emergency department utilization, reported symptom-free days, and lost work/school days due to adverse symptoms. Aside from these measures, gaps in asthma care measurement remain, including issues relating to confirmatory, differential, and risk factor diagnoses; referrals to non-physician therapy; education for self-management; monitoring and treatment during exacerbations, as well as monitoring frequency of exacerbations; and adding to or escalating pharmacologic therapy.

Attention Deficit Hyperactivity Disorder (ADHD)

ADHD is a condition in which a patient has difficulty sustaining attention, has hyperactivity, and has impulsive behavior to a degree that is beyond what would be expected at a person's age. It is commonly viewed as a pediatric issue, but it can continue into adulthood. The outcome goals of ADHD treatment are to reduce symptoms and to teach condition-management skills to patients. Guidelines for treatment of ADHD, including those from the American Academy of Pediatrics, suggest that following careful diagnosis with a validated screening and diagnosis tool, clinicians provide patients with a combination of psychostimulants and cognitive/behavioral therapy. A patient's age at time of diagnosis may influence whether the first line of treatment is medication or therapy; clinicians are more likely to recommend therapy for very young patients (<5 years of age) to avoid prescribing medications to children. Stimulants are recommended for ADHD. Prior to the prescription of stimulants, patients should be evaluated for cardiovascular issues. During treatment, patients should be monitored for signs of unexpected altered behavior (like signs of depression) or physical complications as well as for drug effectiveness and adherence. Medication is the primary cost driver of ADHD care.

Because ADHD is primarily considered a pediatric concern, it is understandably not represented in the Medicare ACO measure set. The NCQA measure set includes a direct measure of follow-up care for children prescribed ADHD medications. Both measure sets have a blood pressure control measure, which is important for persons taking stimulants, though the measure only applies to adults. Outcome measures were not identified for ADHD. Issues of ADHD screening, referrals to behavioral therapy,

alterations of medication to maximize effectiveness and reduce side effects, and health checks before prescribing stimulants are unrepresented in these measure sets. Other available measures cover screening and health checks, leaving access to behavioral therapy as the most significant aspect of overall ADHD care that is not measured. The lack of measures for diagnosis and treatment of ADHD in adults is also an important gap. Efforts to maximize effectiveness and minimize medication side effects may be considered implicit in measures that recommend multiple follow-up visits with a clinician. In addition, pharmaceutical prescriptions may be a program monitoring indicator of appropriate use, but direct measures of expected treatment outcomes are unavailable.

Breast Cancer

Breast Cancer is a prominent form of cancer that affects a large number of women during their lifetimes. Guidelines from multiple cancer and women's care specialty organizations, including the American Cancer Society, state that the priority outcome of breast cancer treatment is to achieve permanent remission of the cancer while causing the minimum possible amount of physical trauma. Cancer is preferentially detected early through mammograms in women older than 40 years of age. Once a tumor is detected, a patient goes through a thorough diagnostic process that includes imaging techniques, molecular testing, and biopsy to identify the exact nature of the tumor. Treatment modalities may include a combination of radiation therapy, surgery, chemotherapy, and hormone treatment as dictated by the size and stage of the cancer. The more advanced the cancer, the more treatments need to be applied, and the more invasive, taxing, and expensive the treatments become. However, without such treatments, a breast cancer patient's prognosis is very poor.

While breast cancer screening is well represented in both of the reviewed accountable care measure sets, most other diagnostic, treatment, and post-treatment procedures are not. Outcome measures were not identified for breast cancer. Monitoring indicators for short-term complications might include emergency department visits and hospitalizations for conditions such as dehydration, pain, or infection. Measures have been developed for the diagnostic and treatment processes, including measures of breast imaging and biopsy, as well as for the use of adjuvant hormone therapy, chemotherapy, radiation, and surgery. The only aspect of care that is not touched on by available measures is the post-treatment phase, during which regular check-ins (including imaging) are required to evaluate potential recurrence of the cancer.

Chronic Kidney Disease

Chronic Kidney Disease (CKD) is a prevalent and debilitating chronic condition resulting in progressive loss of renal function, which may require costly interventions such as dialysis or kidney transplantation. Clinical guidelines for CKD treatment, including those produced through the Kidney Disease: Improving Global Outcomes program, as well as those developed by the Renal Physicians Association and the American Society for Nephrology, indicate that priority outcomes of treatment are: appropriately assessed and diagnosed stages of CKD; improved quality of life; prevented or treated comorbid conditions; slowed progression toward kidney failure; and, where possible, reversal of kidney damage. Key treatment modalities for achieving these goals include diagnostic lab testing and imaging, regular monitoring, dialysis and associated surgical/invasive services, and treatment for anemia (a common complication of CKD). Certain cross-cutting priorities, such as specialty referrals, team-based care, education, and monitoring for lifestyle changes, are also pertinent to CKD care.

Breast Cancer

U.S. Prevalence: 12% of women acquire in their lifetimes*

Total Annual U.S. Cost: \$20.5 billion**

*Surveillance, Epidemiology, and End Results Program. SEER stat fact sheets: breast cancer. National Cancer Institute. www.seer.cancer.gov/statfacts/html/breast.html. Accessed September 8, 2014.

**Cancer prevalence and cost of care projections. National Cancer Institute. www.costprojections.cancer.gov/expenditures.html. Accessed September 8, 2014.

Number of Available Measures

Direct MSSP ACO: Low

Other Available: Low

Outcome: None

Remaining Gaps: Low

Chronic Kidney Disease

U.S. Prevalence: 10%*

Total Annual Medicare Expenditures: \$45.5 billion**

*Diabetes public health resource: 2014 national chronic kidney disease fact sheet. Centers for Disease Control and Prevention website. <http://www.cdc.gov/diabetes/pubs/factsheets/kidney.htm>. Updated January 10, 2014. Accessed September 8, 2014.

**U.S. Renal Data System. *USRDS 2013 Annual Data Report: Atlas of Chronic Kidney Disease and End-stage Renal Disease in the United States*. Bethesda, MD: National Institute of Diabetes and Digestive and Kidney Diseases, National Institutes of Health; 2013. Available at <http://www.usrds.org/adr.aspx>.

Number of Available Measures

Direct MSSP ACO: None

Other Available: High

Outcome: High

Remaining Gaps: High

Reviewed accountable care measure sets include certain measures that apply indirectly to CKD care, such as body mass index (BMI) measurement and high blood pressure and depression screenings. Proxies for short-term preventable complications include emergency department use and hospitalization for dialysis complications or other disease complications. However, neither the MSSP nor NCQA sets contain measures evaluating renal replacement or other related medication therapy. Outcomes measures are available to assess adequate dosing for dialysis, appropriate vascular access points for dialysis treatment, and appropriate hemoglobin levels to guide erythropoiesis-stimulating agent (ESA) therapy (a high-cost medication used for anemia treatment). Areas where measures are not available include promoting appropriate initiation of dialysis, initiation of ESA therapy, and providing referrals for appropriate kidney transplantation, as well as low-cost areas such as monitoring for vascular access complications (e.g., stenosis, blood stream infections) and prescribing non-ESA therapies for anemia (such as iron supplements).

Chronic Low Back Pain

U.S. Prevalence: 26%*

Total Annual U.S. Cost:
\$100 billion**

*Deyo RA, Mirza SK, Martin BI. Back pain prevalence and visit rates: estimates from US national surveys, 2002. *Spine*. 2006;31(23):2724-2727.

**Safely managing chronic pain. *NIH Medline Plus*. Spring 2011;6(1):4. www.nlm.nih.gov/medlineplus/magazine/issues/spring11/articles/spring11pg4.html. Accessed September 8, 2014.

Chronic Low Back Pain

Chronic low back pain is a general term to describe non-specific back pain without an apparent neurological cause. Back pain is very common among adults. The priority outcome of back pain treatment is to reduce the amount of pain and to increase mobility in patients. Clinical guidelines by the American Academy of Orthopedic Surgeons recommend that a careful physical exam—and imaging, if warranted by results from the exam—be used to eliminate any “red flags” of neurological issues. Generally, over-the-counter or prescription medications are recommended to manage the pain, combined with physical/exercise therapy to increase mobility and strengthen core muscles. Surgery is recommended only in specific cases (such as when vertebral rubbing is the clear source of pain). Other guidelines from physical therapy, occupational therapy, and chiropractic societies emphasize the role of their represented therapies and generally advise against surgery.

Measures for low back pain treatment are not available in the MSSP ACO measure set. The only direct measure of low back pain in the NCQA ACO set is a measure that discourages inappropriate imaging for low back pain. Other measures available more widely discourage the unnecessary use of opioids, epidural steroids, and surgeries performed too soon following a diagnosis. Measures also promote advice against extended bed rest and in favor of movement and exercise. Outcome measures were not identified for chronic low back pain. Access to movement and manual therapy providers are not covered in available measures, nor are the use of recommended prescriptions. The priority outcomes of successfully reduced back pain or increased rate of motion are also not covered. Available low back pain measures are unique in that the majority already directly target high cost drivers and unnecessary procedures. However, very few address the different therapies or medical interventions that may be necessary to improve a patient’s condition.

Number of Available Measures

Direct MSSP ACO: None

Other Available: Low

Outcome: None

Remaining Gaps: Low

Chronic Obstructive Pulmonary Disease (COPD)

COPD is a chronic lung condition that progresses over time and leads to difficulty breathing, which may result in exacerbations requiring costly emergency room or hospital inpatient stays. Identified priority outcomes from the Global Initiative for Chronic Obstructive Lung Disease (GOLD) and American Thoracic Society guidelines include guided treatment based on disease severity, reduced and managed symptoms, and reduced risk for progression, exacerbation, and mortality. Important diagnostic and treatment services for achieving COPD outcomes include spirometry readings to confirm diagnoses, pulmonary therapy and prescribed long-acting bronchodilator controller medications and, in some cases, rapid-acting bronchodilator or inhaled corticosteroid medications for relief, improved functionality, and reduction in potentially avoidable complications. In severe cases, ventilation, oxygen therapy, or surgery may be required to maintain pulmonary function. Genetic testing and augmentation therapy is rarely used, but may be a factor in treatment. Other low-cost and potentially cross-cutting services include promoting lifestyle changes, such as tobacco cessation or diet and exercise, and referring patients to specialist care for further treatment.

There are few measures directly addressing COPD treatment outcomes in the MSSP accountable care measure set; specifically, it includes an ambulatory-sensitive condition admission measure focused on COPD and asthma patients. The NCQA ACO measure set includes measures promoting use of spirometry and assessment of COPD relative resource use. Tobacco cessation, an indirect measure, is particularly relevant to COPD care. Potential available measures outside of these sets promote aspects of care such as prescribing long-acting bronchodilators for control, systemic corticosteroids for exacerbations, and oxygen therapy for hypoxemia. Available outcome measures promote quality of life and functional status improvement after pulmonary rehabilitation, reduced emergency department and hospital admissions for exacerbations, and decreased tobacco use. Additional indicators for program monitoring could include increased rates of emergency department visits and hospital admissions. Gap areas in measurement that may be susceptible to inappropriate utilization include assessments and referrals for occupational health services, referrals for surgical interventions and ventilation, optimal prescribing for long-term controllers, assessment of functionality improvement, and appropriate genetic testing and therapy.

Diabetes Types 1 and 2

Diabetes is a highly prevalent metabolic condition resulting in elevated blood sugar, which may cause serious acute or long-term complications. Many of its associated treatment costs result from medication therapy or treatment for complications. According to guidelines from the American Diabetes Association and other endocrine specialty societies, priority outcomes of treatment include improving glycemic control, preventing development of complications and disease progression, and improving self-management education. Moderate- to high-cost services used to achieve these goals include prescriptions for anti-diabetic and related cardiovascular medications, screening tests and referrals for micro- and macro-vascular complications. While it may be infrequently utilized, bariatric or metabolic surgery to reduce body mass is another potential high-cost diabetic service. Potential low-cost drivers at risk for inappropriate use include lab tests for monitoring diabetic outcomes (e.g., HbA1c), and providing monitoring and education for lifestyle changes (a potential cross-cutting issue in other reviewed conditions).

COPD

U.S. Prevalence: 6.3%*

Total Annual Cost:
\$49.9 billion**

*Chronic obstructive pulmonary disease among adults—United States, 2011. Centers for Disease Control and Prevention. MMWR. November 23, 2012;61(46):938-943. www.cdc.gov/mmwr/preview/mmwrhtml/mm6146a2.htm. Accessed September 8, 2014.

**Chronic obstructive pulmonary disease (COPD) fact sheet. American Lung Association website. <http://www.lung.org/lung-disease/copd/resources/facts-figures/COPD-Fact-Sheet.html>. Published May 2014. Accessed September 8, 2014.

Number of Available Measures

Direct MSSP ACO: Low

Other Available: High

Outcome: High

Remaining Gaps: High

Diabetes Types 1 and 2

U.S. Prevalence: 9.3%*

Total Annual U.S. Costs:
\$245 billion**

*Centers for Disease Control and Prevention. *National Diabetes Statistics Report: Estimates of Diabetes and Its Burden in the United States*, 2014. Atlanta, GA: US Dept of Health and Human Services; 2014.

**American Diabetes Association. Economic costs of diabetes in the US in 2012. *Diabetes Care*. April 2013;36(4):1033-1046.

**Number of
Available Measures**

Direct MSSP ACO: High

Other Available: High

Outcome: High

Remaining Gaps:
Moderate

Diabetes care is a primary focus of quality measurement initiatives and accountable care programs. Along with ischemic heart disease, diabetes is one of the most closely measured conditions in reviewed accountable care sets. Specifically, the MSSP ACO measure set includes measures promoting HbA1c screening and outcomes, and prescribing for cardiovascular complications. The NCQA ACO measure set includes similar measures, as well as measures promoting screening for certain diabetic complications. Areas of diabetes treatment not represented in reviewed accountable care sets, but where measures are available, include prescribing for oral hypoglycemic agents, and counseling for lifestyle changes such as physical activity and weight loss. There are numerous diabetes-specific outcome measures available, such as rates of complication-based admissions, amputations, and hypo- and hyperglycemic events. Insulin prescribing (or prescribing insulin pump therapy), referring patients for weight loss programs and surgery when appropriate and providing dietary education, and referring patients to specialist care are not covered by existing measures, and are potential areas for measure development.

Glaucoma

U.S. Prevalence: 1.9%
(predominantly elderly)*

**Total Direct Annual U.S.
Costs:** \$1.5 billion**

*National Eye Institute. Glaucoma, open-angle. National Eye Institute, NIH, website. www.nei.nih.gov/eyedata/glaucoma.asp. Accessed October 8, 2014.

**Glaucoma Research Foundation. Glaucoma facts and stats. www.glaucoma.org/glaucoma/facts-statistics/glaucoma-facts-and-stats.php. Updated April 5, 2011. Accessed October 8, 2014.

Glaucoma

Glaucoma is a disorder, predominately affecting the elderly, in which the interocular pressure (IOP) of fluid pressure within the eye becomes too great, ultimately resulting in reduced eyesight or blindness. The primary outcome for glaucoma treatment is reduction of IOP to safe levels. Clinical guidelines for glaucoma treatment, including those from the American Academy of Ophthalmology, suggest a number of treatments of increasing invasiveness and cost that may be used to attempt to reduce IOP. The recommended first line treatment is the use of medicated eye drops. If those fail to reduce IOP, various types of surgeries, including trabeculectomy and implantation of eye shunts, may be attempted.

Glaucoma is not represented in the reviewed accountable care measure sets. Available measures exist more widely that address the priority outcome of IOP reduction and the need for screenings and patient education. The use of medication or surgeries is not covered in available measures, leaving significant measurement gaps in monitoring the use of potentially expensive treatments. In addition, a measure of the occurrence of patients who become blind—the primary outcome of poor treatment—is also not available.

**Number of
Available Measures**

Direct MSSP ACO: None

Other Available: Low

Outcome: Low

Remaining Gaps: Low

Hepatitis C (HCV)

Hepatitis C (HCV) is an infectious disease affecting the liver, and is often asymptomatic in patients but can result in adverse long-term outcomes such as cirrhosis. Prioritized outcomes for treatment, as identified from the American Association for the Study of Liver Diseases guidelines, are to accurately screen and diagnose HCV, provide education to reduce progression and transmission, and to reduce infection, morbidity, and mortality. Appropriate diagnostic services include anti-HCV assays, HCV Ribonucleic Acid (RNA) testing, and viral genotyping testing to guide treatment. Antiviral therapy is recommended to prevent viral RNA synthesis, and may require utilization of high-cost specialty pharmaceuticals. Liver transplantation may eventually be required because of cirrhosis caused by HCV, depending on the severity of the infection, and diagnostic services (e.g., imaging, biopsy) may be required prior to transplantation. Other lower cost services include education and monitoring for high-risk behaviors (e.g., alcohol consumption) and transmission, as well as referrals to liver specialists to guide treatment.

Hepatitis C is not currently measured in reviewed accountable care sets. The most specifically applicable measure, included in the NCQA ACO set, relates to initiating alcohol and drug treatment, an issue that may affect progression of liver disease or transmission of the virus. Measures promoting initiation of basic antiviral therapy, confirmatory RNA testing, and genotyping prior to initiating therapy, and screening and vaccinating for hepatitis A and B are available more widely, but are not included in reviewed accountable care sets. An important outcome measure for hepatitis C is available: the American Medical Association Physician Consortium for Performance Improvement has developed a measure assessing sustained virological response (SVR) for treatment naïve hepatitis C patients who have completed a full course of antiviral treatment. Further development of intermediate outcome measures may be important for evaluating quality and including in programs. Monitoring indicators may include emergency department visits and hospital admission rates. Gaps where measures do not exist include selection of optimal antiviral therapy and adherence counseling, as well as measures relating to monitoring for liver complications (e.g., fibrosis) and initiating liver transplantation.

Human Immunodeficiency Virus (HIV)

Immunodeficiency Virus (HIV) is a viral infection that reduces CD4+ T-cell count and may lead to acquired immunodeficiency syndrome (AIDS) and death. Department of Health and Human Services and Infectious Disease Society of America guidelines prioritize reducing HIV-related morbidity and prolonging quality and duration of survival, restoring and preserving immunologic function, suppressing HIV RNA viral load, preventing and treating comorbid conditions, and preventing transmission of HIV. The primary treatment method for achieving these outcomes is antiretroviral therapy (ART), a costly and burdensome pharmacologic intervention aimed at maintaining immunologic function and preventing opportunistic infections. Other medications for preventing viral resistance to ART may be needed. In addition, laboratory tests and assays are needed to monitor CD4 count, HIV RNA viral load, and drug resistance. Lower-cost aspects of treatment include screening for risk behaviors and other comorbid issues (such as cancer and other viral infections) and medication adherence monitoring.

HIV is not well represented within the reviewed accountable care measure sets, and indirectly applicable measures focus on preventive screening (e.g., breast, colorectal and cervical cancer) and, specifically within the NCQA set, initiating treatment for high-risk behaviors (e.g., alcohol and drugs) that may contribute to disease transmission or make patients less adherent. High- to moderate-cost

Hepatitis C

U.S. Prevalence: 1%*

Total Annual U.S. Cost:
\$6.5 billion**

*Hepatitis C information for health professionals. Centers for Disease Control and Prevention website. www.cdc.gov/hepatitis/hcv/hcvfaq.htm. Updated July 17, 2014. Accessed September 8, 2014.

**Razavi H, et al. Chronic hepatitis C virus (HCV) disease burden and cost in the United States. *Hepatology*. June 2013; 57(6):2164-2170.

Number of Available Measures

Direct MSSP ACO: None

Other Available:
Moderate

Outcome: Low

Remaining Gaps:
Moderate

HIV

U.S. Prevalence: 0.4%*

Total Annual U.S. Cost:
\$36.4 billion**

*HIV in the United States: at a glance. Centers for Disease Control and Prevention website. www.cdc.gov/hiv/statistics/basics/ata glance.html. Updated December 3, 2013. Accessed September 8, 2014.

**Hutchinson AB, et al. The economic burden of HIV in the U.S. in the era of highly active antiretroviral therapy. *J Acquir Immune Defic Syndr*. December 1, 2006;43(4):451-457.

Number of Available Measures

Direct MSSP ACO: None

Other Available: Moderate

Outcome: Low

Remaining Gaps: Moderate

treatment issues such as initiation of ART and monitoring CD4 and HIV RNA viral load tests to assess adequacy of therapy are not promoted in accountable care measure sets; however, measures have been developed and are available more widely to address these areas. Outcome measures promoting controlled RNA viral load and timely diagnosis of HIV are also available, but not included in accountable care measure sets. These measures are important intermediate outcomes that may inform provider performance in addition to other outcome measures such as reductions in opportunistic infections and should be considered for inclusion in programs. Opportunities for monitoring indicators may include ART prescriptions. Other measures address screening and vaccination for important risk factors, such as hepatitis, sexually transmitted diseases, and high-risk behaviors. Areas where there are no quality measures available in HIV treatment include optimal selection of ART medications, assessing ART side effects and adverse events, and utilization of medication-specific assays and resistance testing.

Hypertension

U.S. Prevalence: 29%-30% of adults*

Total Annual U.S. Cost: \$93.5 billion (including medications, treatment and missed days of work)**

*Keenan NL, Rosendorf KA. Prevalence of hypertension and controlled hypertension: United States 2005-2008. Centers for Disease Control and Prevention. *MMWR*. January 14, 2011;60(01) (suppl):94-97.

**High blood pressure frequently asked questions (FAQs). Centers for Disease Control and Prevention website. www.cdc.gov/bloodpressure/faqs.htm. Updated July 7, 2014. Accessed September 8, 2014.

Hypertension

Hypertension is a prevalent cardiovascular condition typified by chronically high blood pressure. Because hypertension is a costly condition and a risk factor for even more costly conditions (including ischemic heart disease, stroke, and CKD), hypertension is a high priority of focus in health care. Proposed guidelines of the JNC-8 working committee (building on JNC-7 guidelines), along with other specialty organization guidelines, state that the primary goal for treating hypertension is to maintain systolic and diastolic blood pressure levels within safe parameters. Guidelines further indicate that recommending changes to a patient's lifestyle—changes to diet, more exercise, and elimination of risky habits—are the first step in attempting to lower blood pressure. A variety of pharmaceuticals are also available to help reduce blood pressure, alone or in combination, when needed. Collectively, these treatment options help to prevent organ damage caused directly by high blood pressure and to prevent the development of other serious and costly conditions.

Accountable care measure sets contain measures of clinician counseling focused on lifestyle changes to improve wellness, which relate to care for hypertensive patients. Blood pressure control, an important outcome measure, as well as monitoring (both for the general public and for hypertensive patients specifically) and follow-up planning, are covered in the reviewed accountable care measure sets. In these sets, measures of the use of medications to help lower blood pressure—ACE inhibitors, ARBs, beta-blockers, etc.—only include patients in the denominator who have ischemic heart disease or heart failure. Some of the NCQA ACO measure set medication measures address the need for caution in the use of diuretics (another drug class prescribed to hypertensive patients) when the patient is taking other medications. Other available measures that evaluate the direct use of pharmaceuticals to treat hypertensive patients are available for some, but not all, recommendable medication classes. A serious potential outcome of hypertension is damage to the kidney, retinas, cerebrovascular, or cardiovascular systems, but no measures are available to directly assess such damage, although the outcomes of stroke, heart disease, and other conditions are obviously well measured conditions.

Number of Available Measures

Direct MSSP ACO: Moderate

Other Available: Low

Outcome: Moderate

Remaining Gaps: Low

Influenza

Influenza is a common viral infection that is seasonally prevalent in the U.S. population. Although popularly considered a nuisance sickness today, some strains can pose serious health challenges, particularly to the elderly and persons who are immune-compromised. The priority outcomes of influenza care are prevention through immunization or cure of the infection without complications. Guidelines for influenza treatment by the CDC and others recommend that clinicians diagnose influenza as soon as a patient reports symptoms, preferably within 48 hours, and that the diagnosis be made with a validated lab test. For patients who test positive for flu, but particularly patients for whom development of influenza symptoms poses a significant health risk, a clinician may prescribe antivirals, and in some cases, preemptively prescribe antivirals to patients to ensure against acquisition of the disease.

Influenza immunization is measured in the reviewed accountable care sets, likely to minimize the number of patients requiring subsequent treatment. Other measures available more widely are principally focused on immunization rates within specific, high-risk patient populations (such as the elderly). Outcome measures for influenza treatment were not identified; however, tracking occurrence rates and death rates may be sufficient. Measures of influenza diagnosis and treatment with antivirals are not covered in the accountable care sets reviewed or in other available measures.

Ischemic Heart Disease

Ischemic Heart Disease (IHD) is a prevalent and costly chronic cardiac condition that is caused by plaque build-up, resulting in narrowed arteries and reduced blood flow to the heart and yielding adverse outcomes such as heart attack or death. The primary goals of IHD treatment identified in the American College of Cardiology guidelines are to reduce risk of premature cardiovascular disease (CVD) death and prevent IHD complications that impair functional well-being. Other treatment outcomes include maintaining and restoring quality of life, eliminating ischemic symptoms, and improving patient self-management and lifestyle education. The key diagnostic and treatment modalities used to achieve these outcomes include revascularization procedures; prescribing anti-ischemic, antihypertensive, or lipid lowering agents; and appropriately utilizing diagnostic imaging and procedures (CCTA, nuclear MPI, CMR, or angiography). Other low-cost and potentially cross-cutting services include education and monitoring for patient lifestyle modifications, specialist referrals for comorbid conditions, and team-based care.

The reviewed accountable care measure sets include a number of measures focusing on IHD, including clinically validated outcome measures of lipid and blood pressure control, and process measures that promote prescribing for statins, antiplatelet therapies, and antihypertensive medications. Other areas of treatment, while not addressed in the accountable care sets, do have measures available: monitoring active lifestyle and assessing symptoms of angina, promoting prescribing and adherence to five categories of IHD medications (including anti-ischemic medications not covered in accountable care measure sets), and outpatient and inpatient referrals to cardiac rehabilitation, a potential moderate- to high-cost issue. There are a few outcome measures beyond those already incorporated into accountable care measure sets, including surgical outcomes (e.g., CABG complications/readmissions) and a measure that assesses potentially

Influenza

Annual U.S. Prevalence:
10%-20% (seasonal)*

Total Annual U.S. Cost:
\$10.4 billion**

*Prevalence and Incidence of Flu. CureResearch website. www.cureresearch.com/fi/flu/prevalence.htm. Published 2010. Accessed September 8, 2014.

**Concentra examines the true cost of the flu [press release]. Addison, TX: Concentra; November 18, 2011. www.concentra.com/newsroom/press-releases/concentra-examines-the-true-cost-of-the-flu/. Accessed September 8, 2014.

Number of Available Measures

Direct MSSP ACO: Low

Other Available: Low

Outcome: None

Remaining Gaps: Low

Ischemic Heart Disease

U.S. Prevalence: 6%*

Total Annual U.S. Cost:
\$109 billion**

*Prevalence of coronary heart disease—United States, 2006–2010. Centers for Disease Control and Prevention. *MMWR*. October 14, 2011;60(40):1377–1381. www.cdc.gov/mmwr/pdf/wk/mm6040.pdf. Accessed September 8, 2014.

**Heart disease facts. Centers for Disease Control and Prevention website. www.cdc.gov/heartdisease/facts.htm. Updated August 18, 2014. Accessed September 8, 2014.

**Number of
Available Measures**

Direct MSSP ACO: High

Other Available:
Moderate

Outcome: Low

Remaining Gaps: Low

Major Depression

U.S. Prevalence: 8%*

Total Annual U.S. Cost:
\$83.1 billion**

*QuickStats: prevalence of current depression among persons aged ≥ 12 years, by age group and sex—United States, National Health and Nutrition Examination Survey, 2007–2010. Centers for Disease Control and Prevention. *MMWR*. January 6, 2012;60(51):1747. www.cdc.gov/mmwr/preview/mmwrhtml/mm6051a7.htm. Accessed September 8, 2014.

**Greenberg PE, et al. The economic burden of depression in the United States: how did it change between 1990 and 2000? *J Clin Psychiatry*. December 2003;64(12):1465–1475.

**Number of
Available Measures**

Direct MSSP ACO: Low

Other Available: Low

Outcome: Low

Remaining Gaps: Low

avoidable complication rates for six chronic conditions, including IHD. While there are existing measures for key, high-cost modalities such as revascularization surgery, those measures tended to focus on hospital outcomes rather than appropriate use. These, along with optimal use of cardiac imaging and angiography, are potential areas for further measure development.

Major Depression

Depression is a common and increasingly diagnosed mood disorder. In its most severe form, depression decreases motivation, induces apathy, and potentially causes thoughts of suicide. Guidelines for the treatment of depression, including those from the American Psychiatric Association, recommend that major depression first be treated with a combination of selective serotonin reuptake inhibitors (SSRIs) and some form of psychotherapy/behavioral therapy. The medications can be adjusted to achieve remission in the patient's depression symptoms. Other medications, including antipsychotics, can support or enhance the effectiveness of SSRIs as needed. Where medications do not appear to be helpful, experimental brain stimulation techniques may be attempted.

Depression screening and follow-up is represented in the MSSP ACO measure set, and use of antidepressant medication is included in the NCQA ACO measure set. However, neither set contains measures that directly address how SSRIs are used or managed, depression remission, nor access to and utilization of behavioral therapies. However, measures are available more widely that do address suicide risk assessment, antidepressant use, remission, and access to mental health personnel. The remaining gaps in available depression measures address how (as opposed to if) antidepressants are used, how multiple medications may be combined, and how the effectiveness of the medications to suppress symptoms and prevent worsening of the condition is evaluated and monitored. In other words, available measures cover the plan of treatment and the prevention of serious outcomes, but not the care process in-between or the positive outcome of enduring depression remission. The gap is important in the context of financial incentives to reduce costs, since multiple medications or additional efforts would naturally be more expensive than sticking with first line treatments.

Multiple Sclerosis

Multiple sclerosis (MS) is a debilitating, degenerative auto-immune disorder that attacks the nervous system, typified by “attacks” of disruptive nervous system activity. MS affects different people in different ways; it can be sporadic in its effect or relentless. The priority outcome of MS treatment is to improve the quality of life of a patient and to reduce or prevent the symptoms of the disorder as much as possible. Guidelines, including those from the American Academy of Neurology, state that surveillance of the progression of MS is accomplished with regular MRIs, which are necessary to identify markers of disease progression throughout the body. There is no established cure for MS, though pharmacologic interventions, including specialty medications, are available to alleviate symptoms or reduce the likelihood of attacks (debilitating malfunctions of parts of the nervous system). To help patients deal with alterations to their movement abilities, patients may undergo physical/exercise therapy. In some cases, speech therapy may be necessary when the muscles of the throat and larynx are affected. Patients may also experience comorbid behavioral conditions, such as depression.

MS is unrepresented in accountable care measure sets, and is almost completely unrepresented in the universe of available clinical measures. One assessment tool and various drug study clinical trial outcome measures (e.g., drug vs. placebo) were identified. These are not performance measures for accountable care, but they do have potential for adaptation, as they address the primary outcomes sought from MS treatment. Indicators of emergency department and hospital use for issues attributed to MS, as well as steroid prescriptions, may be useful for program monitoring and determining the need for additional MS measures. Measurement gaps span the breadth of MS care, including assessment of imaging and physical examinations, access to therapists, monitoring of disease progression, and medication management and adherence.

Osteoarthritis

Osteoarthritis (OA) is a prevalent chronic condition resulting in loss of mobility that may lead to reduced patient quality of life and high indirect costs, such as work-related loss of productivity or home-care costs. Treatment guidelines from the American College of Rheumatology and the American Academy of Orthopaedic Surgeons include two key outcomes associated with OA treatment: pain reduction and improved functionality. Recommended treatment modalities include medications (analgesics and anti-inflammatories) and promotion of lifestyle modifications (exercise and physical activity). Areas at risk for underuse may include referrals to non-physician therapists (e.g., occupational/physical therapists) and referrals for needed surgical interventions (e.g., total hip/total knee arthroplasty). Low-cost priority areas include assessments for functionality and pain, and physical activity and weight loss monitoring, which is cross-cutting issue for other reviewed conditions.

Few measures within reviewed accountable care measure sets are relevant to OA treatment. Indirect measures of BMI screening, included in both the MSSP and NCQA sets, are important to OA treatment, as increased body mass may contribute to joint damage. In addition, a medication reconciliation measure included in the NCQA set specifically assesses analgesic use, a key component of pharmacologic treatment in OA. Regarding outcome measures, in addition to resource use measures, a suite of functional status assessment measures for patients undergoing rehabilitation therapy for functional limitations of various joints was identified. The measures (which also apply to rheumatoid arthritis patients) compare pre- and post-rehabilitation functional status change to determine readiness for discharge from therapy. Potential measures that address remaining gaps between treatment

Multiple Sclerosis

U.S. Prevalence:
0.095%*

Total Annual U.S. Cost:
\$6.8 billion**

*Noonan CW, et al.
The prevalence of multiple sclerosis in 3 US communities.
Prev Chronic Dis. January 2010;7(1):A12.

**Whetten-Goldstein K, Sloan FA, Goldstein LB, Kulas ED. A comprehensive assessment of the cost of multiple sclerosis in the United States. *Mult Scler.* October 1998;4(5):419-425.

Number of Available Measures

Direct MSSP ACO: None

Other Available: None

Outcome: None

Remaining Gaps: High

Osteoarthritis

U.S. Prevalence: 13.9%*

Average Total U.S. Cost PPPY: \$5,700*

*Arthritis: Osteoarthritis. Centers for Disease Control and Prevention website. www.cdc.gov/arthritis/basics/osteoarthritis.htm. Updated May 16, 2014. Accessed September 8, 2014.

Number of Available Measures

Direct MSSP ACO: None

Other Available:
Moderate

Outcome: None

Remaining Gaps: Low

and the accountable care measure sets may include promotion of other functional status and pain assessments, promotion of the use of over-the-counter analgesics and non-steroidal anti-inflammatory drugs (NSAIDs), promotion of exercise and physical activity through referrals to available programs, and monitored renal and gastrointestinal risks associated with analgesic use. Remaining high-cost gap areas for potential measure development include promotion of appropriate imaging assessments and initiation of joint surgery as needed.

Osteoporosis

U.S. Male Prevalence:

2%*

U.S. Female Prevalence:

10%*

Total Annual U.S. Cost:

\$19.1 billion**

*FastStats: Osteoporosis. Centers for Disease Control and Prevention website. www.cdc.gov/nchs/fastats/osteoporosis.htm. Updated November 21, 2013. Accessed September 8, 2014.

**Osteoporosis and bone health. American Academy of Orthopaedic Surgeons. *AAOS Now*. May 2009;3(5). www.aaos.org/news/aaosnow/may09/clinical8.asp. Accessed September 8, 2014.

Number of Available Measures

Direct MSSP ACO: None

Other Available: Low

Outcome: None

Remaining Gaps:

Moderate

Osteoporosis

Osteoporosis is a degenerative bone disease that primarily affects older adults (particularly women), and may increase a patient's risk for bone fractures resulting in expensive surgery, care, and reduced quality of life. Based on National Osteoporosis Foundation and national endocrinology specialist society guidelines, priority outcomes include: identified patient risk for fracture, reduced risk for future fractures, and improved outcomes using medication. The preferred method for assessing risk for fractures is bone mass density (BMD) testing, particularly through consistent testing with dual-energy x-ray absorptiometry (DEXA). Vertebral imaging may also be required to assess existing fractures. Pharmacologic prescribing for bisphosphonates, calcitonin, parathyroid hormone teriparatide, and/or estrogen/hormone therapy are recommended for treatment. Patients may also require relatively low-cost services such as fall/fracture risk screening and education, laboratory monitoring, and lifestyle counseling (including diet adjustments).

Accountable care sets under review include few directly related osteoporosis measures, but those that are included focus on important aspects of osteoporosis treatment. The MSSP ACO set includes a fall screening assessment measure indirectly related to osteoporosis, and the NCQA ACO set includes a measure promoting BMD scans and appropriate pharmacologic therapy for older women who have suffered a fracture. Other existing measures outside of accountable care sets focus on similar issues, services, and treatments; certain measures specifically promote DEXA scans for BMD testing. Additional measures promote low-cost prescribing for vitamin D or calcium supplements, recommended for all osteoporosis patients. Outcome measures were not identified for osteoporosis; fracture rates could be a potential indicator for program monitoring. Remaining measure gaps include promotion of vertebral imaging, lifestyle counseling, and optimal selection of pharmacologic therapy, areas where financial incentives to reduce costs may affect service.

Prostate Cancer

Prostate cancer is common among men. Compared to other forms of cancer, prostate cancer is relatively slow growing, though tumors can become very large, can interfere with life and health, and can become metastatic. The priority outcome of prostate cancer treatment is to achieve permanent remission of the cancer while causing the minimum possible amount of physical trauma. Because of its slow growing nature and because of the uncomfortable nature of physical prostate screenings, guidelines (including those from the American Cancer Society) recommend that only patients over 50, or patients with a genetic proclivity for cancer (as a known racial/ethnic risk factor or a history of prostate cancer in the family), need regular testing. Patients who are elderly or who have a poor overall life expectancy are not recommended for regular screening. If a tumor is detected, and if diagnostics reveal that it will be a health concern within a patient's expected lifespan, then the clinician has a range of treatment options available depending on the size, specific location, and stage of the tumor, including radiation, surgery, hormonal treatment and related medications, cryotherapy, cancer vaccines and (in metastatic cancer) chemotherapy, and combinations of these. As the size and stage of the cancer increases, the more expensive, invasive, and physically taxing treatments become.

Measures directly related to prostate cancer are absent from reviewed accountable care measure sets. Measures have been developed and utilized more widely that address some treatment options, including the need to counsel patients about their other treatment options. Outcome measures were not identified for prostate cancer. Specific screening measures for prostate cancer (like those developed for breast or colorectal cancer), or post-treatment surveillance measures, are not available. Monitoring indicators for short-term complications might include emergency department visits and hospitalizations for conditions such as dehydration, pain, or infection. Furthermore, no measures are available for initiation of chemotherapy or radiation treatment for appropriate cases, or that directly measure the desired outcomes of cancer treatment: remission and survival rates.

Rheumatoid Arthritis

Rheumatoid Arthritis (RA) is a degenerative joint condition resulting in pain and reduced functionality or immobility. Focusing on recommendations from the American College of Rheumatology, the following priority outcomes of treatment are: controlling ongoing joint damage, preventing loss of function accompanying joint damage, and reducing pain. Treatment modalities used to achieve these goals include disease modifying anti-rheumatic drug (DMARD) therapy, prescriptions for analgesics and NSAIDs to reduce symptoms (including pain), and referral for surgical interventions to improve functional status. Associated lower cost services include diagnostic lab testing and imaging for monitoring disease progression, rheumatologist engagement, and monitoring for complications of DMARD therapy (e.g., GFR measurement, liver function testing).

Accountable care measure sets reviewed have very limited measures related to rheumatoid arthritis. The NCQA ACO set includes a measure promoting initiation of DMARD therapy, but neither the NCQA set nor the MSSP set include measures promoting baseline lab data collection, contraindication monitoring for DMARD use, functionality assessments, and altering ineffective DMARD therapy, areas where RA measures are available. A suite of outcome measures (which also apply to osteoarthritis patients) that assess change in functional status before and after

Prostate Cancer

U.S. Prevalence: 15% of men acquire in their lifetimes (mostly elderly).*

Annual U.S. Cost: \$16.3 billion**

*Surveillance, Epidemiology, and End Results Program. SEER stat fact sheets: Prostate Cancer. National Cancer Institute. www.seer.cancer.gov/statfacts/html/prost.html. Accessed September 8, 2014.

**Cancer prevalence and cost of care projections. National Cancer Institute. www.costprojections.cancer.gov/expenditures.html. Accessed September 8, 2014.

Number of Available Measures

Direct MSSP ACO: None

Other Available: Low

Outcome: Low

Remaining Gaps: Moderate

Rheumatoid Arthritis

U.S. Prevalence: 0.5%-1%*

Average Direct U.S. Cost PPPY: \$5,763*

Average Indirect U.S. Cost PPPY: \$2,785*

*Arthritis: Rheumatoid arthritis. Centers for Disease Control and Prevention website. www.cdc.gov/arthritis/basics/rheumatoid.htm. Updated November 19, 2012. Accessed September 8, 2014.

Number of Available Measures

Direct MSSP ACO: None

Other Available:
Moderate

Outcome: Low

Remaining Gaps:
Moderate

Stroke

Annual Total Deaths from Stroke in U.S.:
130,000 (1 in 19 deaths)*

Total Annual U.S. Cost:
\$38.6 billion*

*Division for Heart Disease and Stroke Prevention. Stroke fact sheet. Centers for Disease Control and Prevention website. www.cdc.gov/dhbsp/data_statistics/fact_sheets/fs_stroke.htm. Updated August 20, 2014. Accessed September 8, 2014.

Number of Available Measures

Direct MSSP ACO: None

Other Available:
Moderate

Outcome: Low

Remaining Gaps: None

rehabilitation and readiness for discharge from therapy was identified. As these measures monitor outcomes of physical rehabilitation, and not other aspects of RA treatment, additional measure development to interpret treatment outcomes would help accountable care systems interpret success. Indicators that assess emergency department utilization for flare-ups may be useful to monitor for treatment effectiveness. Other services, such as patient monitoring for adherence to DMARD therapy and referrals for appropriate surgery, are not covered by existing measures and represent potential areas for measure development.

Stroke

Stroke occurs when a cerebrovascular artery is occluded or ruptures, causing an area of the brain to be cut off from its nutrient and oxygen supply. The result is serious brain damage and, in many cases, death. Diagnostic and treatment guidelines (like those from the American Stroke Association) strongly emphasize the need for both speed and thoroughness of evaluation. The first line of stroke care is prevention, through promotion of lifestyle choices—and sometimes preventative medication—to control blood pressure. At-risk persons and their families should be educated on the signs of stroke so that, when these appear, the patient or family knows to seek treatment immediately. Diagnostics, which include a neurological exam and imaging to ensure there is no hemorrhage or other simultaneous conditions, should take no more than an hour to begin, perform, and evaluate. Once the evaluation is complete, ischemic stroke patients should immediately be given intravenous tPA, a drug that will promote blood perfusion. The sooner this is done, the more likely the patient will regain normal functioning once treatment is concluded. The results of a stroke may include movement, speech, and mental dysfunction. Access to appropriate rehabilitative therapies is crucial for months following the event.

The reviewed accountable care measure sets do not include measures of stroke care. However, organizations have developed measures (predominantly The Joint Commission) that effectively cover the entire episode of care, including the diagnostic, treatment, and post-treatment rehabilitation and preventive medications phases of care.

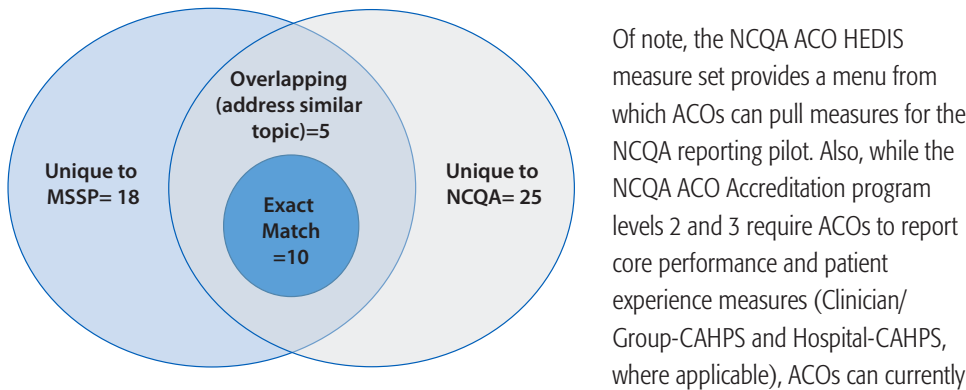
Overall Logic Model Results and Analysis of Cross-Cutting Opportunities

The following section provides overview analysis of condition-specific measure use in both the MSSP and NCQA ACO measure sets, availability of performance measures not included in accountable care sets, availability of outcome measures among these other measures, and remaining measure gaps.

Accountable Care Set Measures (Logic Model Step 2)

We compared clinical guidelines for each of the 20 conditions to the two representative accountable care measure sets: the CMS MSSP ACO measure set, and the NCQA ACO HEDIS measure set. These measure sets are included in Appendices C1 and C2. While there is overlap between the measures included in these sets, there are also important differences. Figure 4 illustrates instances where the exact same measure occurs in both sets, instances where measures addressing overlapping (but not identical) issues in the same condition occur in both sets, and measures that are unique to either set. The NCQA measure set is larger and covers a wider population.

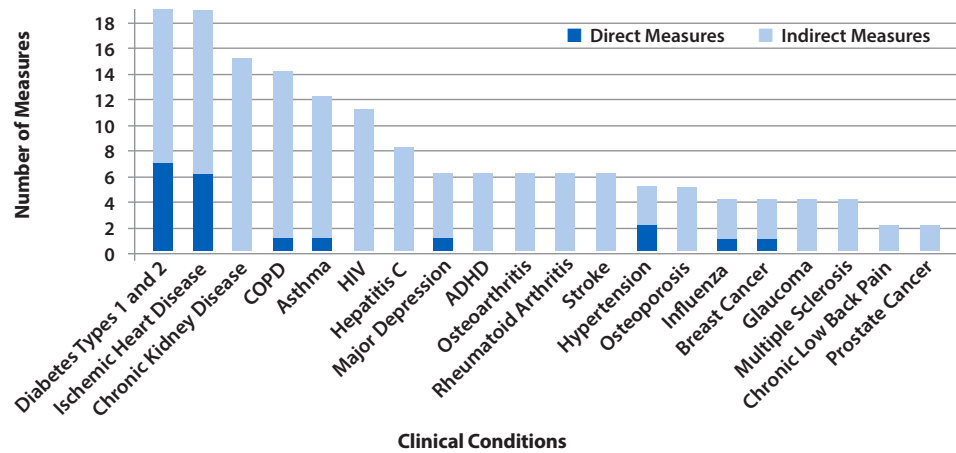
Figure 4. Comparison of MSSP and NCQA measure sets



choose from ACO HEDIS measures or from National Quality Forum (NQF)-endorsed measures implemented in regional collaborative quality improvement initiatives. The goal is that ACOs will report performance for the ACO Accreditation program using a core set of widely agreed-on performance measures once NCQA has established benchmarks. The reporting pilot is likely to provide data for this analysis.

Both sets were evaluated for measures that either directly or indirectly apply to the 20 selected conditions. For the MSSP ACO measure set, Figure 5a shows that measures directly apply to eight of the 20 conditions examined. A measure was considered to indirectly apply if it addressed an aspect of care important to a condition without specifically mentioning the condition in the measure’s denominator. For example, multiple patient-reported CAHPS measures apply indirectly to each of the conditions, and some measures related to wellness—such as tobacco use and screening for depression—also apply to multiple conditions.

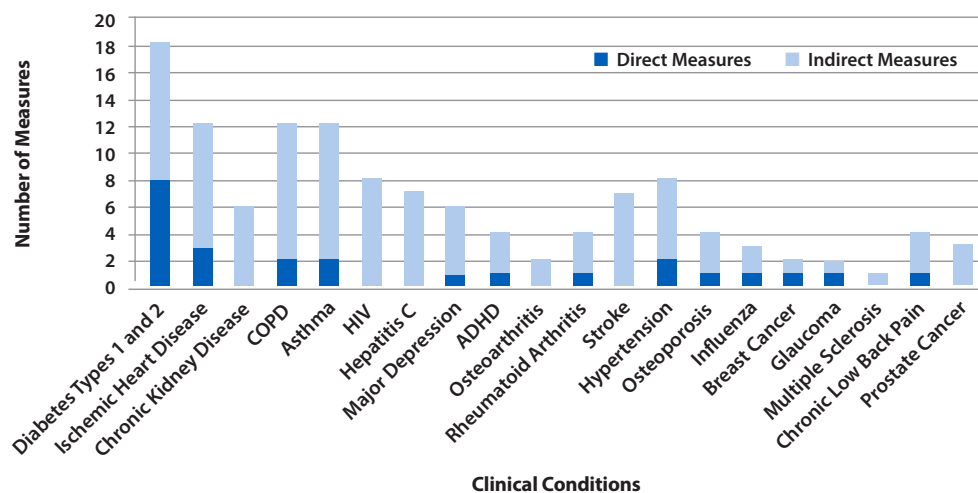
Figure 5a. Number of MSSP Direct and Indirect Measures by Condition



The highest numbers of applicable measures in the MSSP set pertain to ischemic heart disease and diabetes, which reflects the high prevalence of these conditions among the Medicare population. However, some conditions that are highly prevalent among the elderly, such as stroke and osteoarthritis, are not represented in the measure set, indicating that the measure set does not address all prominent health conditions present in the program's population. Additionally, conditions that are not present or prevalent among the Medicare population, such as ADHD, are also not represented by direct measures.

In contrast, the NCQA ACO set has more measures that apply directly to one of the 20 conditions than the MSSP set (see figure 5b). Because the NCQA set does not include the CAHPS measures, fewer of the NCQA set measures apply indirectly to a wide array of conditions than the MSSP set measures.

Figure 5b. Number of NCQA ACO Direct and Indirect Measures by Condition



Categorization of Accountable Care Gaps by Cost of Services (Logic Model Step 3)

In order to evaluate the accountable care measurement gaps in the context of potential financial incentives, we organized each clinical service area not covered by accountable care measures (or gaps between the accountable care sets and the clinical guidance for each condition) into one of three categories (low, moderate, or high), associated with the potential cost of providing the service. The criteria for assigning these categories are described below:

Category 1—Aspects of care with relatively low costs

- Patient education (including medication adherence education)
- Screening/immunizations
- Simple lab tests (e.g., blood chemistry)
- Setting and following up on appointments
- Over-the-counter medications
- Simple imaging (e.g., plain films, ultrasound)

Category 2—Aspects of care with moderate costs

- Traditional medications
- Complex imaging (e.g., CT scan, MRI)
- Advanced lab testing (e.g., genotyping, molecular probes)
- Invasive diagnostics (e.g., catheterization, biopsy)
- Referrals (e.g., specialty care; behavioral, occupational, and physical therapy)

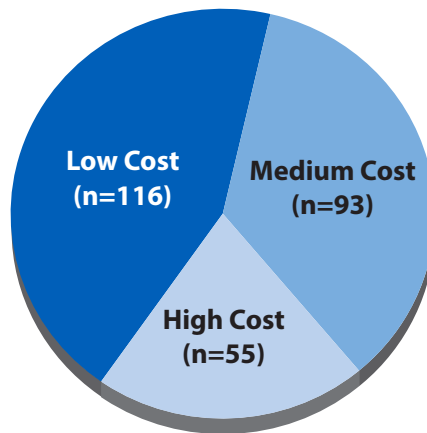
Category 3—Aspects of care with relatively high costs

- Surgical procedures
- Specialty medications
- Long-term, chronic medications
- Hospitalization

Every condition evaluated had a mix of high- and low-cost components that may be services at risk for inappropriate use. For example, for cancer care, we found that the need for regular appointments was a gap related to relatively low-cost activities (e.g., setting up appointments, screening mammograms), whereas the gaps related to the duration of cancer treatment and how different treatment modalities are used in combination (e.g., surgery, radiation, chemotherapy) are for high-cost activities.

The proportion of gaps by rank in costliness is demonstrated in Figure 6.

Figure 6. Proportion of Accountable Care Gaps by Rank in Costliness of Services



By this methodology, more than half of the measure gaps identified in the 20 conditions were categorized as pertaining to moderate-to-high cost factors. This finding suggests that the majority of gaps may be sensitive to financial incentives for cost control.

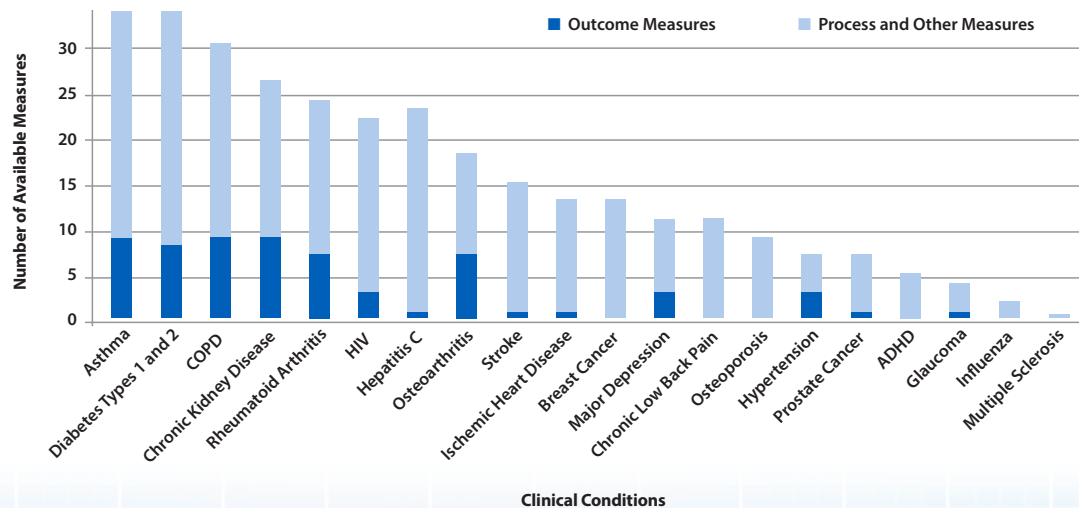
Availability of Measures to Fill Gaps (Logic Model Step 4)

After each accountable care measure set was evaluated against each of the 20 conditions, and after areas of clinical care not covered by the measure set were identified, measures sources were

scanned for available measures that directly apply to each condition and that might supplement the accountable care sets (Step 4 of the logic model).

Figure 7 illustrates that the number of available process and outcome measures identified in this project varies greatly by condition. Some conditions, such as asthma and diabetes, have a variety of developed measures, reflecting the prominence of these conditions in healthcare reform discussions as well as the diversity and extent of the processes necessary to care for these conditions (including physician and lab-conducted tests, pharmacologic prescription and adherence, and relevant patient education). Other conditions that also have diverse and extensive care processes, such as breast cancer, have not generated the same number of available measures. Other conditions have many measures developed that target overlapping processes or outcomes (influenza, for example, has multiple measures of immunization rate that address different patient populations such as those in hospitals or nursing homes). Some conditions have both process and outcome measures available, while other conditions have no outcome measures at all. The availability of outcome measures is discussed in more detail below.

Figure 7. Number of Direct Available Measures by Condition



Outcome Measures

Figure 7 further demonstrates the availability of outcome measures (i.e., measures that promote achievement of a health state resulting from care³⁰) among the identified available measures for each condition. Outcome measures may assess resolution of condition (e.g., remission or a cure) or avoidance of an adverse outcome (e.g., complication or readmission). While process measures assess a provider's actions toward achieving a goal, outcome measures provide insight into whether services and procedures are affecting actual change.

Certain conditions had a higher number of outcomes measures within the available quality measures. For example, outcome measures relating to asthma and COPD care assess emergency department or hospital utilization for condition-related exacerbations, optimal control, and quality of life and functional capacity after pulmonary rehabilitation. Diabetes outcome measures promote reduced hospital admissions, complication rates, and hypo- and hyperglycemic events.

The majority of conditions had a limited number of available outcome measures, while some conditions did not have any outcome measures. For example, we identified a general oncology measure for measuring pain for patients undergoing radiation—while this is an important issue, measures relevant to other concerns, such as remission rates, were not available.

We note that the total number of outcome measures available relative to each condition may not fully represent the actual measurement need. Providers may be able to demonstrate sufficient outcomes under accountable care using a single outcome measure for certain conditions, while other conditions may require multiple outcome measures. For example, a chronic condition such as diabetes may require outcome measures relating to complication rates, resource use, and mental health status, while an acute condition such as influenza may be addressed with population-level measures of infection and mortality rates.

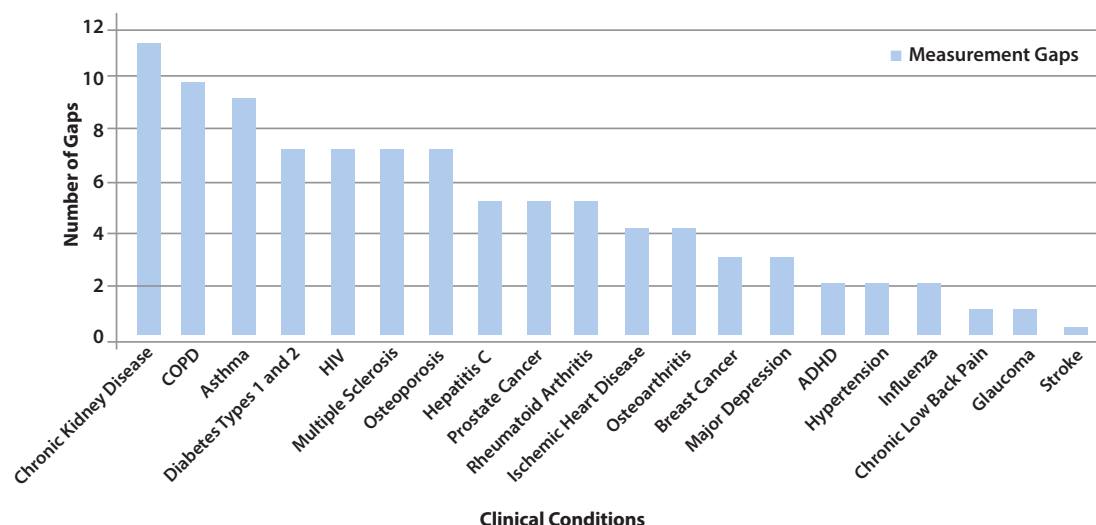
Remaining Measurement Gaps (*Logic Model Step 5*)

After comparing the unmeasured areas found in Step 3 of the logic model to the available measures, we found a number of measurement gaps for each condition that were covered neither by the accountable care sets or the otherwise available measures. Gaps identified included diagnostic and treatment processes or recommendations that were specifically referenced in clinical guidelines.

For this paper, the number of measures that were relevant to each condition is secondary in importance to the number of identified measure gaps. The number of gaps shown in Figure 8 represents for each condition the number of aspects of treatment identified through our study where there was neither a measure in the MSSP ACO set nor in the universe of available measures to address it (i.e., gaps for measure development identified in Stage 5 of our logic model).

³⁰ Selecting health outcome measures for clinical quality measurement. Agency for Healthcare Research and Quality website. <http://www.qualitymeasures.ahrq.gov/tutorial/HealthOutcomeMeasure.aspx>. Updated May 29, 2014. Accessed May 8, 2014.

Figure 8. Number of Gaps for Which There Are No Available Measures



The number of gaps for each condition varied, and not always directly proportional to the number of available measures. For example, although there are a relatively high number of available measures identified for CKD, we still found multiple aspects of care for CKD not covered by the measures. In contrast, some conditions are well covered by measures, such as stroke, for which we identified no gaps. We note that in this methodology, not all gaps are of equal weight, and because of this, the raw number of gaps identified should not be interpreted as representative of the importance of measurement for certain conditions.

The analysis of measure gaps identified a range of areas that represent opportunities for potential measure development. These opportunities are consistent with the findings of other efforts^{31,32,33,34} that identify and prioritize measure gaps. Condition-specific gaps that represent measure development opportunities include:

- Lifestyle modification education and monitoring for diet and exercise
- Health risk assessment
- Monitoring disease progression
- Comorbid condition referral/treatment
- Referrals to non-physician services
- Education and means to prevent disease transmission
- Measures of effectiveness

³¹ National Quality Forum. NQF report on measure gaps and inadequacies. National Quality Forum website. http://www.qualityforum.org/Publications/2012/05/NQF_Report_on_Measure_Gaps_and_Inadequacies.aspx. Published May 2012. Accessed June 15, 2014.

³² National Quality Forum. 2012 NQF measure gap analysis. National Quality Forum website. http://www.qualityforum.org/Publications/2013/03/2012_NQF_Measure_Gap_Analysis.aspx. Accessed June 15, 2014.

³³ National Quality Forum. MAP pre-rulemaking report: 2014 recommendations on measures for more than 20 federal programs. National Quality Forum website. http://www.qualityforum.org/Publications/2014/01/MAP_Pre-Rulemaking_Report_2014_Recommendations_on_Measures_for_More_than_20_Federal_Programs.aspx. Accessed June 15, 2014.

³⁴ National Quality Forum. MAP pre-rulemaking report - February 2013. National Quality Forum website. http://www.qualityforum.org/Publications/2013/02/MAP_Pre-Rulemaking_Report_-_February_2013.aspx. Accessed June 15, 2014.

Of note, the quantification of gaps refers to areas for measurement rather than to specific measures. These areas could conceivably be filled by one or another type of measure (e.g., process, outcome) with a preference for filling gaps with outcome measures where feasible. Gap-filling priorities are discussed further in the *Solutions for Filling Gaps in Accountable Care Measure Sets* section (see page 45).

Cross-Cutting Measures and Gaps (Logic Model Step 6)

Both the MSSP and NCQA ACO measure sets contain measures that are applicable to multiple conditions, including some measures that are either directly or indirectly applicable to more than one of the 20 conditions that we evaluated. Appendix E1, *Cross-Cutting Measurement Areas*, captures the MSSP ACO measures that cross conditions. Appendix E2, *Cross-Cutting Measurement Gap Areas* captures measurement gaps that cross conditions. The use of available cross-cutting measures and identification of gaps in cross-cutting measures in accountable care measure sets is summarized below.

Patient Experience

This category includes measures of experience of care, as reported by the patient.

- *Use of Available Measures*—Patient experience measures collected through CAHPS survey questions apply broadly across multiple conditions. The CAHPS survey questions in the MSSP measure set represent cross-cutting topics such as patient-clinician communication, patient engagement, and care transitions. Some of the CAHPS survey questions related to access to specialists and health/functional status are more applicable to burdensome or debilitating conditions.
- *Measure Gaps*—The CAHPS measures included in the ACO MSSP set represent a range of issues and are a significant step toward understanding patient experience in accountable care. However, measures that focus on shared decision making, patient activation, and patient-reported outcomes such as functional status and health-related quality of life remain important gaps for accountable care program measure sets.

Prevention/Healthy Behaviors

This category includes measures promoting effective prevention practices, including screening, education, and monitoring for services that reduce overall risk of acquiring or worsening of a condition.

- *Use of Available Measures*—Measures of recommended lifestyle modifications to promote health and wellness, such as BMI or tobacco use assessment, are included in the MSSP ACO set. They are widely applicable to multiple conditions, as a deficit in overall wellness can exacerbate the negative effects of most conditions. Further, measures of preventive care in the set are either directly or indirectly applicable to several conditions. For example, influenza vaccination is directly applicable to the influenza condition, but is also important for conditions that make patients more susceptible to infection, such as HIV. Measures in the MSSP ACO set for pneumococcal vaccination, depression screening, fall risk assessment, and breast and colorectal cancer screening are also broadly applicable.
- *Measure Gaps*—Although there are measures in the MSSP ACO set that promote certain lifestyle modifications, education for, and monitoring of, appropriate nutrition and exercise are not addressed. In general, measures in the set are not sufficient to address the full range of preventive interventions included in clinical guidelines for the conditions (e.g., hepatitis immunization, prostate cancer screening). Newer screens, such as genetic testing to identify certain risk factors, are also not included. Other measurement gaps associated with prevention include environmental risk

assessments for patients with chronic illnesses, such as asthma, and monitoring patients who are at risk of progressing to a more severe form of a condition, such as depression.

Care Coordination

This category includes measures that promote effective communication and coordination of care so that services are connected and are delivered in an appropriate, consistent, and timely manner by all providers.

- *Use of Available Measures*—Measures of care coordination in the MSSP ACO set are limited to assessment of preventable inpatient admissions, such as for COPD and heart failure, and hospital readmissions (readmissions may also be considered a safety measure). The readmissions measure is especially applicable to those conditions that either require an admission for treatment, such as stroke, or for which the hospital admission represents an extreme outcome of a condition, such as depression, or conditions where patients may be admitted for complications or avoidable exacerbations such as COPD.
- *Measure Gaps*—Measurement of access and referrals to non-physician services is a consistent gap in the MSSP measure set. Behavioral health therapy for depressed patients, physical/occupational therapy for patients with neurological conditions such as stroke or MS, or physical/occupational therapy for patients with conditions such as osteoarthritis or rheumatoid arthritis where mobility and functionality are impaired, are examples of services that are important for achieving treatment goals and should be monitored for appropriate use.

Patient Safety

This category includes measures of preventable medical errors that could negatively impact patient outcomes.

- *Use of Available Measures*—The MSSP measure set contains a medication reconciliation measure, and although medication reconciliation is generally applicable to the initiation of treatment for many conditions, the MSSP measure only covers reconciliation post-inpatient stay.
- *Measure Gaps*—We found gaps in measures in the MSSP set for education and treatment initiation for high-risk behaviors generally, and specifically for alcohol and drug education and treatment initiation. Education regarding the prevention of disease transmission is also a notable measure gap.

Clinical Effectiveness

This category includes measures that promote appropriate services to ensure that providers optimally apply diagnostics and treatments.

- *Use of Available Measures*—Certain measures included in the MSSP set that are discussed in previous categories, such as medication reconciliation, also may apply within the context of clinical effectiveness. For example, medication management is an important aspect of effective treatment (and care coordination), but because the primary goal of medication reconciliation is to avoid adverse consequences for patients, we placed medication reconciliation within the patient safety category.
- *Measure Gaps*—Gaps relating to clinical effectiveness of treatment include measurement of confirmatory or differential diagnostic services; appropriate prescribing, management, and monitoring of medication adherence; and appropriate recommendations and decision making regarding surgical options. An additional measure gap identified for multiple conditions relates to escalation of treatment; that is, the

decision to pursue a more invasive, costly, or risky treatment option when a less intensive option has already been tried without success. Examples are disparate and include: transitioning a glaucoma patient from medication to surgical treatment, increasing the dosage or the number of prescriptions for a depressed patient, or beginning dialysis for patients who have chronic kidney disease.

A subsequent review of the NCQA ACO measure set found similar cross-cutting measure areas as in the MSSP ACO set, such as lifestyle modification, prevention, screening, and readmissions. However, the NCQA set includes additional measures that are broadly applicable to the list of 20 conditions. For example, the NCQA set includes multiple medication review measures in addition to the post-discharge medication reconciliation measure.

Roundtable-Identified Priority Measurement Gaps

As part of the Roundtable discussion, participants reviewed examples of the condition-specific and cross-cutting measure gaps, and then prioritized key measure gaps within current accountable care programs. The Roundtable participants identified the following measure types (listed in no particular order) as priority gaps that need to be addressed in accountable care sets:

Outcome Measures

Condition-specific outcome measures are meaningful to providers, patients, and payers because they evaluate desired treatment endpoints. Effective outcome measures can replace structure and process measures, which assess provider adherence to a multitude of standards of care at single points in time. Whereas process measures are prescriptive, outcome measures allow for flexibility and innovation in achieving care delivery goals. However, outcome measures may present challenges for program implementers, such as complexities related to risk adjustment, data collection, and attribution.

Examples of priority outcome measures identified by the group include mortality, complications, functional status, and readmissions.

Cross-Cutting Measures

Cross-cutting measures efficiently assess quality across multiple conditions and promote shared accountability. Cross-cutting measures broaden the impact of measurement while decreasing the burden of data collection. In addition, cross-cutting measures apply to the entire care team and encourage teamwork.

Examples of needed cross-cutting measures that were discussed at the Roundtable include medication adherence, avoidance of polypharmacy, improved patient safety, and coordination of care.

Measures of Patient-Centeredness

Quality to a patient is not necessarily the same as quality to a provider or payer. Measure developers and accountable care program implementers should proactively engage with patients to understand their measurement priorities, and development of new measures and measure sets should reflect those priorities. Accountable care measure sets should balance standardized population-level measures against the need for flexibility to allow for personalization, accounting for patient life flow and aspirations.

Examples of types of patient-centered measures needed include shared decision making, shared care plan documentation and adherence, experience of care, readiness, activation, patient-reported health status, symptoms and functional status.

Appropriateness Measures

Measures of appropriateness are needed to address the balance between costs (monetary and non-monetary risks) and benefits of diagnostics and treatments. Accountable care systems should evaluate underuse, overuse, and misuse to encourage appropriate care.

Examples of appropriateness measures include “Use of Imaging Studies for Low Back Pain” and “Avoidance of Antibiotic Treatment in Adults with Acute Bronchitis,” which are both part of the NCQA ACO measure set.

Cost of Care Measures

While total cost of care for the population may be a part of accountable care program incentive structures (e.g., shared savings), cost measures should be considered for accountable care measure sets to provide information about value, as value is a function of cost as well as clinical and service quality. Program implementers need to understand long-term costs, cost-offsets, and clinical benefits to determine overall value. Like other outcome measures, cost of care measures are complex and require significant research and development efforts to develop effective, standardized measures for inclusion in accountable care sets.

Examples of cost of care measures include total cost of care, condition-specific or episode of care costs for subpopulations, and patient out-of-pocket costs. Relative resource use measures examine the intensity of service use in the context of fixed price for specific conditions.

Composite Measures

Composite measures that roll up multiple outcome and process measures for a specific condition can be useful both for internal system monitoring, such as for use on information dashboards, and improvement initiatives, as well as to simplify public reporting of system performance to consumers. Integration of early warning indicators, such as utilization metrics like emergency room use or readmissions, into program dashboards could further inform internal system management and quality measurement needs.

An example of a composite measure is the Optimal Diabetes Care measure, which is scored as all-or-nothing for important aspects of care, including blood pressure screening and control, eye exam, foot exam, nephropathy screening and tobacco screening.

Solutions for Filling Gaps in Accountable Care Measure Sets

To evaluate care for a large population, accountable care measure sets should be assessed for breadth (e.g., inclusion of conditions requiring specialized treatment), depth (e.g., capture of innovative aspects of treatment), and new designs (e.g., applicability to patients with multiple chronic conditions). We found through our analysis that gaps exist in the breadth and depth of accountable care measure sets, and those gaps may lead to suboptimal care where financial incentives to control costs are not balanced by quality measures.

Accountable care program implementers need solutions for monitoring the quality of specialty care and innovative treatments, particularly where shared savings incentives for lowering costs are not expected to result in higher quality of care. We have identified the following potential solutions as options and reviewed them during the Roundtable, where the participants discussed the pros and cons of the various measurement approaches for improving accountable care measure sets.

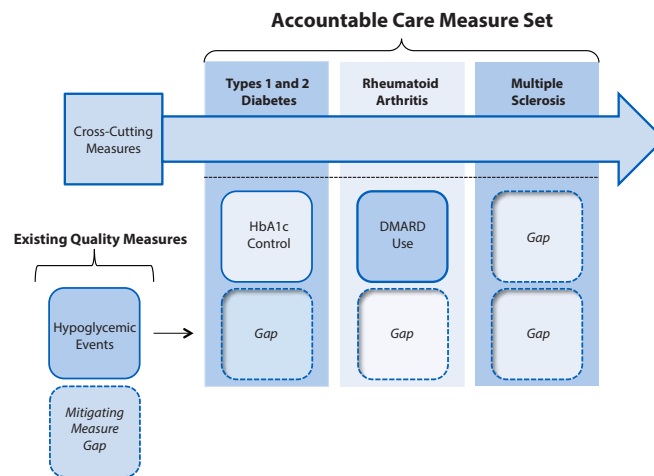
Rely on Monitoring Indicators and Operating Programs

As an adjunct to performance measures, early warning indicators can aid in identifying delays in care and the need to explore undesirable trends and changes in practice patterns, especially as payment models are transitioning. Indicators, such as utilization statistics, may be simpler and quicker to acquire than performance measures. For example, Quality Improvement Indicators in development by the Pharmacy Quality Alliance (PQA) are intended to be used as tools to evaluate the quality of internal processes and outcomes of care, but without the obligation of external public reporting or comparison. In addition, many operating programs, such as case, disease, and population health management programs and patient and clinical registries, have ongoing analytics and monitoring functions that provide valuable information. Accountable care program implementers can organize measures, indicators, and other information streams into dashboards to obtain comprehensive views of value for various patient populations, specifically vulnerable populations.

Select Measures to Fill Priority Gaps in Accountable Care Measure Sets

Our findings show gaps in both direct and cross-cutting measures within accountable care measure sets for the clinical conditions we examined; moreover, our findings show that there are measures available to fill some of those gaps. Certain additional condition-specific measures could provide valuable information to providers and patients, and including those measures may be appropriate to create a more complete measure set for the objectives of a specific accountable care program. However, Roundtable participants emphasized that it is not feasible nor desirable to measure everything, and the data collection and implementation burden inherent in simply filling gaps with more measures would quickly become prohibitive. Participants suggested that program implementers should review their data to identify the most important opportunities for improvement and measure gaps for their populations, and then use available measures to fill priority gaps in their measure sets.

Figure 9. Selecting Measures to Fill Gaps



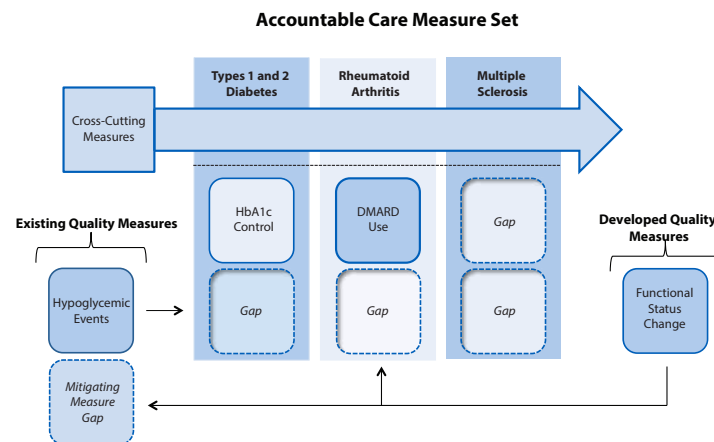
When available, outcome measures would be the most useful measures for filling gaps; for example, measures of viral load in patients being treated for HIV or hepatitis C. The use of certain gene transcription factors as biomarkers for the progress of cancer treatment is also promising as a measure, as evidence shows their link to disease control, prognosis, and adherence to therapy. At the same time, Roundtable participants suggested that while some condition-

specific measures would be valuable to fill the high-priority measure gaps that they had defined, program implementers should first consider the alternatives to measuring every condition that are discussed below.

Develop Measures to Fill Gaps in Available Measures

While measures are available outside of accountable care measure sets for certain conditions, other conditions have gaps that require measure development. Where the evidence points to the need for new measures, especially evidence of quality gaps that are exacerbated by payment reforms, a call and

Figure 10. Developing Measures to Fill Gaps



funding for measure development may be warranted. Some of the reasons why measure gaps persist beyond lack of funding include the limited evidence base, relatively low prevalence and costs of the condition in the population, methodological issues such as risk adjustment and denominator size (which relates to prevalence), and

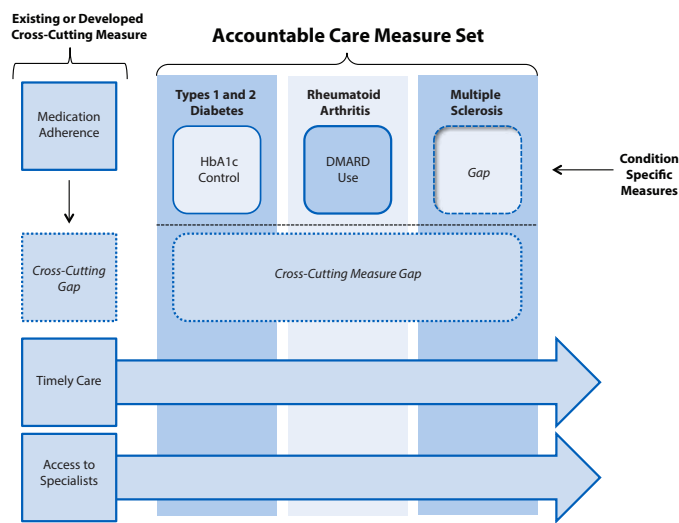
available data sources. Roundtable participants suggested that measure development may provide a valuable opportunity to prioritize new and important areas that need focus, such as the development of outcome measures. Measure development also provides an opportunity to think outside of the use of existing measures and data sources, though the resources (time and money) needed for development

and implementation, including the process for integration of measurement into workflow, must be considered.

Alternatives to Measuring Every Condition

Given the just sensitivity to measurement burden for providers, program implementers should strive to evaluate quality and cost of care without measuring every aspect of care for every condition. Alternate or adjunct strategies for evaluating performance are presented below.

Figure 11. Cross-Cutting Measures



Cross-Cutting Measures

Cross-cutting measures relate either indirectly or directly to more than one clinical condition. By promoting the use of cross-cutting measures, accountable care programs may broaden the impact across conditions for system-wide improvement. For example, our research identified that the MSSP ACO measure set uses several cross-cutting measures, including patient experience measures that are part of

CAHPS, readmissions measures, and tobacco use and depression screening and follow-up measures. Importantly, cross-cutting measures are particularly useful for addressing the complex issues of the large and growing population of individuals with multiple chronic conditions who benefit from a patient-centered approach to care coordination across their multiple conditions.

Roundtable participants emphasized that using cross-cutting measures to fill gaps is preferred over condition-specific measures because cross-cutting measurement is more efficient, more patient-centered, promotes teamwork and shared accountability across providers, and may help overcome small numbers issues for certain condition-specific measures. Cross-cutting measures may also be a good way to evaluate outcomes, patient-centered care, and appropriateness, which are three of the priority measurement gaps identified by Roundtable participants. To the extent that cross-cutting measures are less prescriptive than condition-specific process measures, they can also encourage innovation in care.

Specific gaps in cross-cutting topics we previously noted include medication adherence and access to specialists and non-physician clinicians. What may be more striking is a lack of available measures to fill cross-cutting measurement gaps for the following areas: lifestyle modification education and monitoring for diet and exercise, health risk assessment, monitoring disease progression, comorbid condition referral/treatment, referrals to non-physician services, education and means to prevent disease transmission, and measures of clinical effectiveness. These areas represent additional opportunities for broad, high-impact cross-cutting measurement in accountable care.

Layered Approach

Measures are important tools for management and improvement, as well as for accountability. While everything cannot and should not be measured within accountable care measure sets for external accountability, providers can benefit from broader measure sets to assist them with internal management and improvement.

Providers may find it advantageous to base internal performance incentives on a much broader “management measure set” to push external accountability incentives out to the front lines. In addition, even broader “improvement measure sets” are necessary to monitor progress on priorities that have been determined externally and internally.

For example, a layered measurement approach for diabetic patients could include many of the aspects of care described in the Diabetes Care Flow and Measurement Opportunities diagram (Figure 1, page 10), and arranged as described below and illustrated in Figure 12:

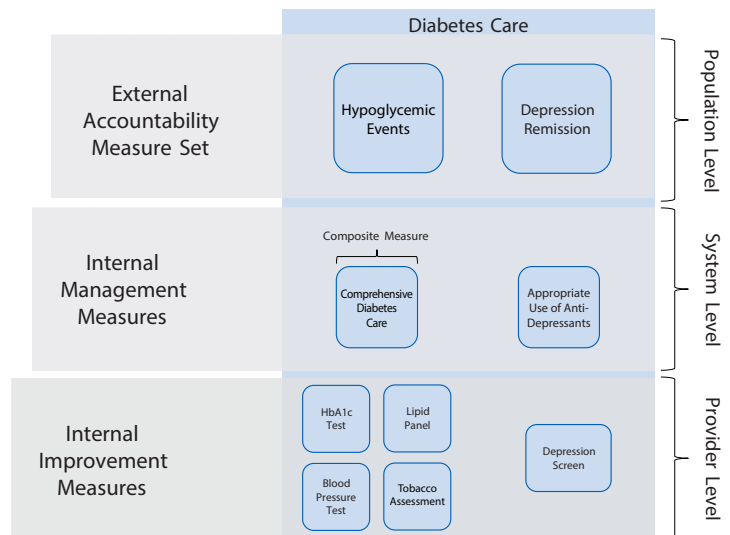
- Externally reported population-level outcome measures, such as complication rates or incidence of adverse events (e.g., syncope related to hypoglycemia);
- Internally reported system-level measures to monitor outcomes, such as a composite measure of HbA1c levels, LDL, and blood pressure; and
- Internal process improvement measures, such as ordering appropriate tests, to provide guidance for improvement at the provider level.

Measure sets for external accountability, internal management, and improvement—at the population, system, and provider levels—should be complementary across levels, easy to administer, and embedded into workflow to the extent possible to strengthen the incentives for achieving improvement and reducing the frustration and burden that result when the administrative cost of data collection exceeds the benefit of the additional information. Using outcome measures preferentially for external accountability measure sets would allow more flexibility for choice of internal management and improvement measures to target aspects of care deemed important in achieving those outcomes.

Roundtable participants pointed out that a layered measurement approach is a desirable solution because it encourages linking measures across levels of external accountability, system-level management, and frontline improvement. Participants suggested that the top layer of measures for external accountability should employ patient-reported outcome and cross-cutting measures; the middle layer for internal management should contain appropriateness and composite measures; and

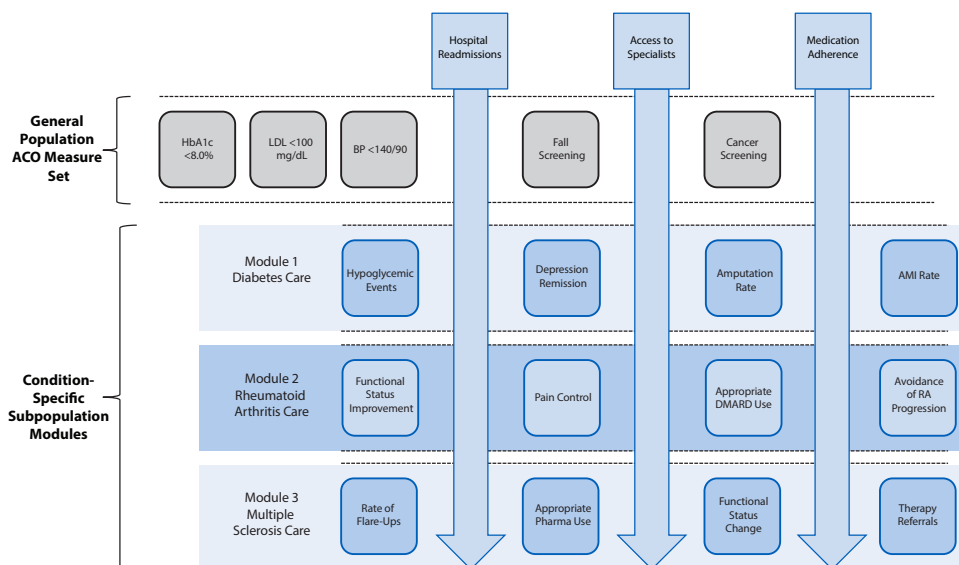
Figure 12. Layered Approach

Layered Measurement Approach (Diabetes Example)



the lower layer for internal improvement should focus on specific processes to support the particular improvement priorities of the system. They noted that while this approach allows for flexibility and nimbleness, it does require comprehensive planning to create causal linkages among measures at various levels of accountability.

Figure 13. Modular Approach



Modular Approach

A modular approach to applying incentives and measures to a certain segment within an accountable care population may be an attractive option for program implementers and providers. Where there is interest in focusing attention on a certain condition or cluster of conditions, such as cancer care, the specialty care for that subpopulation could be carved out for the application of a broader set of quality measures. This approach would include one or more measure sets for distinct subpopulation(s) of interest, in addition to the general-purpose measure set for the population as a whole. Providers would continue to be accountable for cross-cutting measures and for the total costs of the subpopulation of patients receiving specialty care; however, they also would be accountable for an additional set of quality and cost measures specifically related to the subpopulation. The modular approach could be particularly effective in addressing a known quality problem for a particular provider or subpopulation.

Roundtable participants agreed that a modular measure set approach would allow for measurement focus on a particular subpopulation and may be compatible for use with clinical data registries; however, they also suggested that setting benchmarks for a modular approach may be challenging, as measurement priorities across accountable care systems would not necessarily be consistent. Examples of instances particularly well suited to the modular approach include centers of excellence; specific patient populations such as newly diagnosed cancer patients and pediatric patients; bundled payment arrangements; and opportunities for development or testing of measures.

Recommendations for Improving Accountable Care Measurement

The following recommendations are derived from the findings of our analysis and the Roundtable discussion, where participants identified action steps, factors for prioritizing measure gaps, and considerations for implementing solutions in accountable care measure sets.

1. Identify and Prioritize Measure Gaps

The methods described in this paper provide a framework for identifying measure gaps for conditions. We have identified measure gaps for 20 conditions in the paper, but the approach could be used to assess measure gaps for other conditions relevant to the population of an accountable care program. Measure gaps should be considered in the context of programmatic and organizational goals and structure (e.g., improvement targets, type of incentive used) and from the perspective of multiple stakeholders, particularly patients, whose views of quality may differ from those of providers and policymakers.

When prioritizing gaps for conditions and aspects of care in measure sets, accountable care program implementers should consider the following factors:

- **National Quality Strategy (NQS) priorities.** The NQS serves as a blueprint that helps to prioritize and synchronize quality measurement and improvement efforts. Program implementers should evaluate gaps in measure sets against the aims and priorities of the NQS.
- **Prevalence.** Measuring and improving care for the most common conditions is likely to have a high impact. This implies that priority condition-specific measures for a commercial accountable care program would look somewhat different from that for a Medicare accountable care program, given the different populations. However, broadly applicable cross-cutting measures, such as for patient experience or care coordination, may be similar across programs.
- **Cost.** Cost drivers for conditions (e.g., surgery, specialty pharmaceuticals, imaging) inform identification of the most expensive conditions, which are priorities for measuring cost of care. A method for categorizing aspects of care by relative cost, which can be used for ranking measurement opportunities, is outlined in the *Categorization of Accountable Care Gaps by Cost of Services* section (see page 37).
- **Variability in clinical or cost outcomes.** High variability in clinical outcomes or total/episode costs raises questions about practice patterns and the evidence base to support them. Incomplete evidence exacerbates the differences in perspectives about value of care for various stakeholders. Conditions with high variability in clinical or cost outcomes for specific aspects of care represent opportunities for improvement and are good candidates for measurement.
- **Early warning indicators.** While not meant to be used as an independent quality signal, early indicators for monitoring potential quality problems, gathered from utilization or patient-reported outcome data, can identify inappropriate use for high-cost conditions. Early warning indicators of problematic change in practice patterns, particularly in response to payment reforms, can point to the need for further investigation and measurement.

2. Use Alternative Approaches to Improve Accountable Care Measurement

This paper describes models—specifically the *layered and modular approaches* described in the *Solutions for Filling Gaps in Accountable Care Measures Sets* section (see page 45)—as efficient and flexible adjuncts to accountable care measure sets, which are constrained in depth and breadth for reasons presented throughout the paper. The layered and modular approaches are meant to optimize measurement efforts by focusing the measures on specific purposes, such as external accountability or internal improvement for the layered approach or a specific subpopulation for the modular approach.

3. Use the Most Meaningful Measure Types to Fill Gaps

While there are various ways to measure quality, use of certain types of measures is preferred, when feasible. The National Quality Forum (NQF) and the NQF-convened National Priorities Partnership and Measure Applications Partnership have offered guidance on measure selection strategy and measures for specific programs.^{35,36,37} This guidance has identified that measures broadly crossing conditions and including the patient's perspective are among the most valuable to healthcare stakeholders. The advantages of cross-cutting measures and patient-reported outcome measures are discussed in the *Cross-Cutting Measures and Gaps* section (see page 41).

As discussed in various sections of this paper, the strongest measure types include:

- *Outcome measures*, which are meaningful to patients and providers, allow for flexibility and innovation in improving care, and can efficiently replace multiple process measures;
- *Cross-cutting measures*, which assess care across conditions, settings, and time;
- *Patient-reported measures*, which emphasize the outcomes that matter most to patients, such as functional status and quality of life;
- *Cost and efficiency measures*, which help determine overall value when used with clinical and service quality measures; and
- *Composite measures*, which roll up multiple process and outcome measures to provide aggregate information useful for program management and patient decision making.

4. Address Barriers to Measurement

Revisions to measurement strategies for accountable care will require concurrent operational, logistical, and technological adjustments to effectively implement the changes. One of the major barriers to measurement is inadequate data availability. Creative new data sources, particularly for patient-reported information, are needed to support feasibility of measurement. Program implementers also need new approaches to using current data to address small denominators for certain patient populations. Examples of such approaches may include leveraging all-payer claims databases, aggregating patients

³⁵ National Quality Forum. MAP pre-rulemaking report - February 2013. National Quality Forum website. http://www.qualityforum.org/Publications/2013/02/MAP_Pre-Rulemaking_Report_-_February_2013.aspx. Published February 2013. Accessed June 15, 2014.

³⁶ National Quality Forum. MAP pre-rulemaking report: 2014 recommendations on measures for more than 20 federal programs. National Quality Forum website. http://www.qualityforum.org/Publications/2014/01/MAP_Pre-Rulemaking_Report__2014_Recommendations_on_Measures_for_More_than_20_Federal_Programs.aspx. Published January 2014. Accessed June 15, 2014.

³⁷ National Quality Forum. 2012 NQF measure gap analysis. National Quality Forum website. http://www.qualityforum.org/Publications/2013/03/2012_NQF_Measure_Gap_Analysis.aspx. Published March 2013. Accessed June 15, 2014.

by geography or treatment type, or by aggregating applicable measures into composites. This paper also has raised the need for building the evidence base, longer-term contracts for financial incentives, clearer patient attribution to providers, and alignment of measures across programs to alleviate data collection burden for providers.

5. Assess Opportunities to Continuously Improve

The measures needed for accountable care will evolve as the healthcare system continues to change, and as medical and information technology advance. In addition to monitoring changes in the broader environment, program implementers should set up feedback loops and information dashboards to continuously monitor fluctuations in quality and opportunities for improvement.

Following application of a measure set, program implementers should periodically reevaluate it to determine whether the measures included are appropriate for continued use. This entails gathering and analyzing feedback from stakeholders—patients, providers, purchasers, and payers—to understand impact (e.g., reach, effectiveness) of measures, implementation barriers, any unintended consequences, evolving clinical evidence and guidelines, and lessons learned. Patients and patient advocacy groups should be engaged to provide input on what matters most to them and in defining solutions for generating that information.

Program implementers also should monitor the innovation pipeline for new treatments or methods that are outside the range of their current measurement systems or that alter the standard of care. Programs should have processes in place to evaluate and improve measure sets when appropriate. Actions to improve measure sets may include adding new measures, modifying current measures, or phasing out measures that are no longer priorities to make room for more meaningful measures.

Appendix A: Condition Selection Summary

Condition	Step 1 - Prevalence Considerations							Step 2 - Cost Considerations				
	NQF High Priority 2010 ³⁸	NQF 2012 Priority Measure Gaps ³⁹	CDC High Causes of Death ⁴⁰	Medicare Chart-book ⁴¹	Harvard Incidence ⁴²	Direct Costs (in billions \$) ⁴³	Pharma Spend (in billions \$) ⁴⁴	Anticipated Cost Drivers				
								Specialty Drug	Surgery	Imaging	Risk of Hospital Stay	Other Direct Costs
Cardiovascular												
Ischemic Heart Disease	✓		✓	✓	✓	313.8	20.1		✓	✓	✓	
Hypertension				✓	✓	54.2	7.6					
Cancer												
Breast Cancer	✓					10.7	23.2	✓	✓	✓		Cosmetic Implant
Prostate Cancer	✓						23.2	✓	✓	✓		
Kidney and GI												
Diabetes	✓	✓		✓	✓	127.8	19.6					
Chronic Kidney Disease	✓	✓	✓	✓							✓	Dialysis
Psychiatry/Neurology												
Major Depression	✓	✓			✓	40.4	11-18.2					
Attention Deficit Hyperactivity Disorder							7.9					
Stroke	✓	✓	✓	✓	✓	45.9				✓	✓	Rehabilitation
Multiple Sclerosis							7.1	✓		✓		
Pulmonary												
COPD	✓			✓		27.8	21				✓	
Asthma				✓	✓	14.6	21					
Influenza			✓			11.4						
Other												
Osteoporosis	✓	✓		✓				✓		✓		
Rheumatoid Arthritis	✓	✓					12	✓				
Osteoarthritis	✓	✓				24.7			✓			Rehabilitation
Glaucoma					✓							
Chronic Low Back Pain					✓				✓	✓		Rehabilitation
HIV				✓	✓	9.4	10.3	✓				
Hepatitis C							3.7	✓				

³⁸ National Quality Forum. NQF report on measure gaps and inadequacies. National Quality Forum website. http://www.qualityforum.org/Publications/2012/05/NQF_Report_on_Measure_Gaps_and_Inadequacies.aspx. Published May 1, 2012. Accessed May 8, 2014.

³⁹ National Quality Forum. Committee report, prioritization of high-impact Medicare conditions and measure gaps. National Quality Forum website. http://www.qualityforum.org/Publications/2010/05/Committee_Report_Prioritization_of_High-Impact_Medicare_Conditions_and_Measure_Gaps. Published May 2010. Accessed May 8, 2014.

⁴⁰ Hoyert DL, Xu JQ. Deaths: preliminary data for 2011. National vital statistics reports; vol 61, no. 6. National Center for Health Statistics. Centers for Disease Control and Prevention website. http://www.cdc.gov/nchs/data/nvsr/nvsr61/nvsr61_06.pdf. Published October 10, 2012. Accessed May 8, 2014.

⁴¹ Centers for Medicare & Medicaid Services. Chronic conditions among Medicare beneficiaries, chartbook: 2012 edition. CMS.gov website. <http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/Chronic-Conditions/Downloads/2012Chartbook.pdf>. Published October 2012. Accessed May 8, 2014.

⁴² Harvard University, John F. Kennedy School of Government, Mossavar-Rahmani Center for Business and Government. Disease incidence and prevalence: summary of findings. <http://www.hks.harvard.edu/m-rcbg/hcdp/numbers/Disease%20Incidence%20Summary.pdf>. Updated January 27, 2008. Accessed May 8, 2014.

⁴³ Kockaya G, Wertheimer A. What are the top most costly diseases for USA? The alignment of burden of illness with prevention and screening expenditures. *Health*. 2010;2:1174-1178. Please note that the cost figures used in the initial condition selection process were reviewed and updated as needed with more comprehensive data from various sources; these updated figures are reflected in the Condition-Specific Logic Model Results section.

⁴⁴ IMS Institute for Healthcare Informatics. The use of medicines in the United States: review of 2011. IMS Institute website. http://www.imshealth.com/ims/Global/Content/Insights/IMS%20Institute%20for%20Healthcare%20Informatics/IHII_Medicines_in_US_Report_2011.pdf. Published April 2012. Accessed May 8, 2014.

Appendix B: Multi-Stakeholder Roundtable Participants

Name	Title	Affiliation	Role
Mark McClellan, MD, PhD	Senior Fellow and Director, Health Care Innovation and Value Initiative	Brookings Institution	Co-Chair
Jerry Penso, MD, MBA	Chief Medical and Quality Officer	American Medical Group Association	
Mary Barton, MD, MPP	Vice President, Performance Measurement	National Committee for Quality Assurance	Participant
Andrew Baskin, MD	Interim Chief Medical Officer and National Medical Director for Quality Performance	Aetna	
Jill Berger, MSA, MPP	Vice President, Health and Welfare Plan Management and Design	Marriott International	
Marc Boutin, JD	Executive Vice President and Chief Operating Officer	National Health Council	
Joel Brill, MD, AGAF	Lead Physician, Colonoscopy Bundled Payment Initiative	American Gastroenterological Association	
Vincent Bufalino, MD, FAHA	Senior Vice President, Advocate Cardiovascular Institute; Senior Medical Director of Cardiology, Advocate Medical Group	American Heart Association Representative	
Helen Burstin, MD, MPH	Chief Scientific Officer	National Quality Forum	
David Domann, MS, RPh	Director, Health Policy, Advocacy, and Quality	North American Pharmaceuticals for Johnson & Johnson	
Woody Eisenberg, MD, FACP	Senior Vice President, Performance Measurement and Strategic Alliances	Pharmacy Quality Alliance	
Bill Kramer, MBA	Executive Director, National Health Policy	Pacific Business Group on Health	
Jonathan Nasser, MD	Co-Chief Clinical Transformation Officer	Crystal Run Healthcare	
Frank Opelka, MD, FACS	Medical Director Quality and Health Policy	American College of Surgeons	
Hoangmai Pham, MD, MPH	Acting Director, Seamless Care Models Group, Center for Medicare and Medicaid Innovation	Centers for Medicare & Medicaid Services	
Terri Postma, MD	Medical Officer, Performance-Based Payment Policy Group, Center for Medicare	Centers for Medicare & Medicaid Services	
Lewis Sandy, MD, MBA	Executive Vice President, Clinical Advancement	UnitedHealth Group	
Richard Schilsky, MD, FASCO	Chief Medical Officer	American Society of Clinical Oncology	
William Shrank, MD	Chief Scientific Officer and Chief Medical Officer, Provider Innovation and Analytics	CVS Health	

Appendix C1: Centers for Medicare and Medicaid Services (CMS) Medicare Shared Savings Program (MSSP) Accountable Care Organization Measures⁴⁵

MSSP #	Measure Title	NQF #	Domain	Steward	Description
1	CAHPS: Getting Timely Care, Appointments, and Information	0005	Patient/Caregiver Experience	Agency for Healthcare Research & Quality (AHRQ)	CMS has finalized the use of the [adult 12 month] Clinician and Group Consumer Assessment of Health Care Providers and Systems (CG CAHPS) to assess patient and caregiver experience of care. [This measure indicates whether a patient is getting quick and timely access to care when the patient petitions for care.]
2	CAHPS: How Well Your Providers Communicate	0005	Patient/Caregiver Experience	AHRQ	CMS has finalized the use of the [adult 12 month] Clinician and Group Consumer Assessment of Health Care Providers and Systems (CG CAHPS) to assess patient and caregiver experience of care. [This measure indicates whether a provider listened respectfully to patient concerns, explained things clearly, and was informed about the patient's issues.]
3	CAHPS: Patients' Rating of Provider	0005	Patient/Caregiver Experience	AHRQ	CMS has finalized the use of the [adult 12 month] Clinician and Group Consumer Assessment of Health Care Providers and Systems (CG CAHPS) to assess patient and caregiver experience of care. [Indicates (scale of 1 to 10) overall patient rating of provider.]
4	CAHPS: Access to Specialists	0005	Patient/Caregiver Experience	AHRQ	CMS has finalized the use of the [adult 12 month] Clinician and Group Consumer Assessment of Health Care Providers and Systems (CG CAHPS) to assess patient and caregiver experience of care. [This measure indicates how easy it was to get appointments with specialists and whether or not the specialists were aware of key aspects of patient medical histories.]
5	CAHPS: Health Promotion and Education	0005	Patient/Caregiver Experience	AHRQ	CMS has finalized the use of the [adult 12 month] Clinician and Group Consumer Assessment of Health Care Providers and Systems (CG CAHPS) to assess patient and caregiver experience of care. [This measure indicates if someone on the health care team discussed disease prevention, eating habits, exercise, health goals, emotional state, and stress.]
6	CAHPS: Shared Decision Making	0005	Patient/Caregiver Experience	AHRQ	CMS has finalized the use of the [adult 12 month] Clinician and Group Consumer Assessment of Health Care Providers and Systems (CG CAHPS) to assess patient and caregiver experience of care. [This measure indicates if the provider discussed whether a patient may or may not have needed medication or surgery, or discussed the extent to which a patient would want family and friends to be given information on health status.]

⁴⁵ Centers for Medicare & Medicaid Services. Accountable Care Organization 2014 Program Analysis Quality Performance Standards Narrative Measure Specifications. <http://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/sharedsavingsprogram/Downloads/ACO-NarrativeMeasures-Specs.pdf>. Published June 30, 2014. Accessed September 4, 2014.

MSSP #	Measure Title	NQF #	Domain	Steward	Description
7	CAHPS: Health Status/ Functional Status	0006	Patient/Caregiver Experience	AHRQ	CMS has finalized the use of the [adult 12 month] Clinician and Group Consumer Assessment of Health Care Providers and Systems (CG CAHPS) to assess patient and caregiver experience of care. [This measure indicates current patient-reported mental and physical health status, and the level to which health status affects day-to-day functioning.]
8	Risk Standardized All Condition Readmission	1789	Care Coordination/ Patient Safety	Centers for Medicare and Medicaid Services(CMS) (adapted)	Risk-adjusted percentage of Accountable Care Organization (ACO) assigned beneficiaries who were hospitalized who were readmitted to a hospital within 30 days following discharge from the hospital for the index admission.
9	Ambulatory Sensitive Conditions Admissions: Chronic Obstructive Pulmonary Disease (COPD) or Asthma in Older Adults (ACO version 1.0)	0275	Care Coordination/ Patient Safety	AHRQ Prevention Quality Indicator #5	All discharges with an ICD-9-CM principal diagnosis code for COPD or asthma in adults aged 40 years and older, for ACO assigned or aligned Medicare fee-for-service (FFS) beneficiaries with COPD or asthma, with risk-adjusted comparison of observed discharges to expected discharges for each ACO. This is a ratio of observed to expected discharges.
10	Ambulatory Sensitive Conditions Admissions: Heart Failure (HF) (ACO version 1.0)	0277	Care Coordination/ Patient Safety	AHRQ PQI #8	All discharges with an ICD-9-CM principal diagnosis code for HF in adults aged 18 years and older, for ACO assigned or aligned Medicare fee-for-service (FFS) beneficiaries with HF, with risk-adjusted comparison of observed discharges to expected discharges for each ACO. This is a ratio of observed to expected discharges.
11	Percent of Primary Care Physicians who Successfully Qualify for an EHR Program Incentive Payment	N/A	Care Coordination/ Patient Safety	CMS	Percentage of Accountable Care Organization (ACO) primary care physicians (PCPs) who successfully qualify for either a Medicare or Medicaid Electronic Health Record (EHR) Incentive Program incentive payment.
12	Medication Reconciliation	0097	Care Coordination/ Patient Safety	American Medical Association Physician Consortium for Performance Improvement (AMA-PCPI)/ NCQA	Percentage of patients aged 65 years and older discharged from any inpatient facility (e.g., hospital, skilled nursing facility, or rehabilitation facility) and seen within 30 days following discharge in the office by the physician providing on-going care who had a reconciliation of the discharge medications with the current medication list in the outpatient medical record documented.
13	Falls: Screening for Future Fall Risk	0101	Care Coordination/ Patient Safety	National Committee for Quality Assurance (NCQA)	Percentage of patients aged 65 years and older who were screened for future fall risk at least once within 12 months.
14	Influenza Immunization	0041	Preventive Health	AMA-PCPI	Percentage of patients aged 6 months and older seen for a visit between October 1 and March 31 who received an influenza immunization OR who reported previous receipt of an influenza immunization.
15	Pneumococcal Vaccination for Patients 65 Years and Older	0043	Preventive Health	NCQA	Percentage of patients aged 65 years and older who have ever received a pneumococcal vaccine.

MSSP #	Measure Title	NQF #	Domain	Steward	Description
16	Body Mass Index (BMI) Screening and Follow-Up	0421	Preventive Health	CMS	Percentage of patients aged 18 years and older with a calculated BMI in the past six months or during the current visit documented in the medical record AND if the most recent BMI is outside of normal parameters, a follow-up plan is documented within the past six months or during the current visit.
17	Tobacco Use: Screening and Cessation Intervention	0028	Preventive Health	AMA-PCPI	Percentage of patients aged 18 years and older who were screened for tobacco use one or more times within 24 months AND who received cessation counseling intervention if identified as a tobacco user.
18	Screening for Clinical Depression and Follow-Up Plan	0418	Preventive Health	CMS	Percentage of patients aged 12 years and older screened for clinical depression during the measurement period using an age appropriate standardized depression screening tool AND if positive, a follow-up plan is documented on the date of the positive screen.
19	Colorectal Cancer Screening	0034	Preventive Health	NCQA	Percentage of patients aged 50 through 75 years who received the appropriate colorectal cancer screening.
20	Breast Cancer Screening	0031	Preventive Health	NCQA	Percentage of women aged 40 through 69 years who had a mammogram to screen for breast cancer within 24 months.
21	Screening for High Blood Pressure and Follow-Up Documented	N/A	Preventive Health	CMS	Percentage of patients aged 18 years and older seen during the measurement period who were screened for high blood pressure (BP) AND a recommended follow-up plan is documented based on the current blood pressure reading as indicated.
22	Diabetes Composite (All or Nothing Scoring): Diabetes Mellitus: Hemoglobin A1c Control (<8.0 percent)	0729	At-Risk—Diabetes	Minnesota (MN) Community Measurement (CM)	Percentage of patients aged 18 to 75 years of age with diabetes mellitus who had HbA1c <8.0 percent.
23	Diabetes Composite (All or Nothing Scoring): Diabetes Mellitus: Low Density Lipoprotein Control (LDL-C)	0729	At-Risk—Diabetes	MN CM	Percentage of patients aged 18 to 75 years of age with diabetes mellitus who had LDL-C <100 mg/dL.
24	Diabetes Composite (All or Nothing Scoring): Diabetes Mellitus: High Blood Pressure Control	0729	At-Risk—Diabetes	MN CM	Percentage of patients aged 18 to 75 years of age with diabetes mellitus who had a blood pressure <140/90 mm Hg.
25	Diabetes Composite (All or Nothing Scoring): Tobacco Non-Use	0729	At-Risk—Diabetes	MN CM	Percentage of patients aged 18 to 75 years of age with a diagnosis of diabetes who indicated they were tobacco non-users.

MSSP #	Measure Title	NQF #	Domain	Steward	Description
26	Diabetes Composite (All or Nothing Scoring): Diabetes Mellitus: Daily Aspirin or Antiplatelet Medication Use for Patients with Diabetes and Ischemic Vascular Disease	0729	At-Risk—Diabetes	MN CM	Percentage of patients aged 18 to 75 years of age with diabetes mellitus and ischemic vascular disease with documented daily aspirin or antiplatelet medication use during the measurement year unless contraindicated.
27	Diabetes Mellitus: Hemoglobin A1c Poor Control	0059	At-Risk—Diabetes	NCQA	Percentage of patients aged 18 through 75 years with diabetes mellitus who had most recent hemoglobin A1c >9.0 percent.
28	Hypertension (HTN): Controlling High Blood Pressure	0018	At-Risk—Hypertension	NCQA	Percentage of patients aged 18 through 85 years of age who had a diagnosis of hypertension (HTN) and whose blood pressure was adequately controlled (< 140/90 mm Hg) during the measurement year.
29	Ischemic Vascular Disease (IVD): Complete Lipid Panel and LDL Control (<100 mg/dL)	0075	At-Risk—Ischemic Vascular Disease	NCQA	Percentage of patients aged 18 years and older with Ischemic Vascular Disease who received at least one lipid profile within 12 months and whose most recent LDL-C level was in control (<100 mg/dL).
30	Ischemic Vascular Disease (IVD): Use of Aspirin or Another Antithrombotic	0068	At-Risk—Ischemic Vascular Disease	NCQA	Percentage of patients aged 18 years and older with Ischemic Vascular Disease with documented use of aspirin or another antithrombotic.
31	Heart Failure: Beta-Blocker Therapy for Left Ventricular Systolic Dysfunction (LVSD)	0083	At-Risk—Heart Failure	AMA-PCPI	Percent of patients aged 18 years and older with a diagnosis of heart failure with a current or prior left ventricular ejection fraction (LVEF) <40 percent who were prescribed beta-blocker therapy either within a 12 month period or when seen in the outpatient setting or at each hospital discharge.
32	Coronary Artery Disease (CAD) Composite (All or Nothing Scoring): Lipid Control	0074	At-Risk—Coronary Artery Disease	CMS/AMA-PCPI	Percentage of patients aged 18 years and older with a diagnosis of coronary artery disease seen within a 12-month period who have a LDL-C result <100 mg/dL OR patients who have a LDL-C result ≥100 mg/dL and have a documented plan of care to achieve LDL-C <100 mg/dL, including at a minimum the prescription of a statin.
33	Coronary Artery Disease (CAD) Composite (All or Nothing Scoring): Angiotensin-Converting Enzyme (ACE) Inhibitor or Angiotensin Receptor Blocker (ARB) Therapy—Diabetes or Left Ventricular Systolic Dysfunction (LVEF 40 percent)	0066	At-Risk—Coronary Artery Disease	CMS/AMA-PCPI	Percentage of patients aged 18 years and older with a diagnosis of coronary artery disease seen within a 12 month period who also have diabetes OR a current or prior Left Ventricular Ejection Fraction (LVEF) <40 percent who were prescribed ACE inhibitor or ARB therapy.

Appendix C2: National Committee for Quality Assurance (NCQA) Accountable Care Organization Measures⁴⁶

Title	Domain
Adult Body Mass Index (BMI) Assessment	Prevention and Screening
Weight Assessment for Children/Adolescents	Prevention and Screening
Childhood Immunization Status	Prevention and Screening
Immunizations for Adolescents	Prevention and Screening
Breast Cancer Screening	Prevention and Screening
Cervical Cancer Screening	Prevention and Screening
Colorectal Cancer Screening	Prevention and Screening
Chlamydia Screening in Women	Prevention and Screening
Care for Older Adults: Medication Review	Prevention and Screening
Appropriate Testing for Children With Pharyngitis	Respiratory Conditions
Appropriate Treatment for Children With Upper Respiratory Infection	Respiratory Conditions
Avoidance of Antibiotic Treatment in Adults With Acute Bronchitis	Respiratory Conditions
Use of Spirometry Testing in the Assessment and Diagnosis of Chronic Obstructive Pulmonary Disease (COPD)	Respiratory Conditions
Use of Appropriate Medications for People With Asthma	Respiratory Conditions
Cholesterol Management for Patients With Cardiovascular Conditions	Cardiovascular Conditions
Controlling High Blood Pressure (BP)	Cardiovascular Conditions
Diabetes—HbA1C level <8 percent	Diabetes
Diabetes—HbA1C level >9 percent	Diabetes
Diabetes—Retinal Eye Exam	Diabetes
Low Density Lipoprotein Control (LDL-C) <100 mg/dL	Diabetes
Nephropathy test (microalbumin)	Diabetes
BP reading <140/90 mm Hg	Diabetes
BP reading <140/80 mm Hg	Diabetes
Disease Modifying Anti-Rheumatic Drug Therapy for Rheumatoid Arthritis	Musculoskeletal Conditions
Osteoporosis Management in Women Who Had a Fracture	Musculoskeletal Conditions
Use of Imaging Studies for Low Back Pain	Musculoskeletal Conditions
Antidepressant Medication Management	Behavioral Health
Follow-Up Care for Children Prescribed ADHD Medication	Behavioral Health
Follow-Up After Hospitalization for Mental Illness	Behavioral Health
Annual Monitoring for Patients on Persistent Medications	Medication Management
Medication Reconciliation Post-Discharge	Medication Management
Potentially Harmful Drug-Disease Interactions in the Elderly	Medication Management
Use of High-Risk Medications in the Elderly	Medication Management
Initiation and Engagement of Alcohol and Other Drug Dependence Treatment	Access/Availability of Care

⁴⁶ National Committee for Quality Assurance. HEDIS 2013 Technical Specifications for ACO Measurement. http://www.ncqa.org/Portals/0/HEDISQM/HEDIS2013/ACO_Core_Measure_List_9.6.12.pdf. Published 2013. Accessed September 10, 2014.

Title	Domain
All-Cause Readmissions	Utilization and Relative Resource Use
Relative Resource Use for People With Diabetes (in development)	Utilization and Relative Resource Use
Relative Resource Use for People With Asthma (in development)	Utilization and Relative Resource Use
Relative Resource Use for People With Cardiovascular Conditions (in development)	Utilization and Relative Resource Use
Relative Resource Use for People With Hypertension (in development)	Utilization and Relative Resource Use
Relative Resource Use for People With COPD (in development)	Utilization and Relative Resource Use

Appendix D: Logic Model Results

Asthma

Guidelines Assessed

Year	Organization	Title
2012	Institute for Clinical Systems Improvement	Diagnosis and Management of Asthma
2012	Global Initiative for Asthma	Global Strategy for Asthma Management and Prevention
2007	National Heart, Lung and Blood Institute	Guidelines for the Diagnosis and Management of Asthma
1995	American Academy of Allergy Asthma and Immunization	Practice Parameters for the Diagnosis and Treatment of Asthma

Guideline Conclusions

Treatment Outcome
Identify and reduce exposure to risk factors (e.g., allergens or occupational inhalants)
Achieve and maintain control of symptoms
Prevent and treat exacerbations appropriately
Avoid adverse effects from asthma medications
Prevent asthma mortality

Priority Issues

Priority Issues
Appropriate routing and prescribing of asthma medication
Utilization of spirometry and peak expiratory flow (PEF) testing to assess diagnosis
Assessment and education for risk factors and triggers

ACO MSSP Measures

#	Measure Title	Indirect	Direct
1	CAHPS: Timely Care	✓	
2	CAHPS: Provider Communication	✓	
4	CAHPS: Specialist Access	✓	
5	CAHPS: Health Promotion and Education	✓	
6	CAHPS: Shared Decision Making	✓	
7	CAHPS: Health/Functional Status	✓	
8	All-Cause Readmission	✓	
9	Chronic Obstructive Pulmonary Disease/Asthma Admissions		✓
12	Medication Reconciliation	✓	
14	Influenza Immunization	✓	
16	Body Mass Index (BMI) Screening	✓	
17	Tobacco Screening and Cessation	✓	
TOTALS		11	1

NCQA ACO Measures

#	Measure Title	Indirect	Direct
1	Adult BMI Assessment	✓	
2	Weight Assessment for Children	✓	
3	Childhood Immunization Status	✓	
4	Immunizations for Adolescents	✓	
9	Medication Review for Older Adults	✓	
10	Appropriate Testing for Children With Pharyngitis	✓	
11	Appropriate Treatment for Children With Upper Respiratory Infection	✓	
12	Avoidance of Antibiotic Treatment for Acute Bronchitis	✓	
14	Use of Appropriate Medications for Asthma		✓
31	Medication Reconciliation Post-Discharge	✓	
35	All-Cause Readmissions	✓	
37	Relative Resource Use for People With Asthma		✓
TOTALS		10	2

Financial Incentives Impact on Treatment Goals

Adverse Outcome	At-Risk Service/Issue	Cost Risk
Continued exposure to risk factors	Allergen skin testing	2
	Appropriate bronchial testing	3
	Referral to occupational therapy	2
	Education and monitoring for risk factors	1
Uncontrolled symptoms	Symptom assessment	1
	Spirometry/PEF testing	1
	Confirmatory testing	1
	Differential diagnosis testing	1
	Education for PEF testing	1
	Glucocorticosteroid testing in children	2
	Guided self-management	1
	Referral to adolescent peer support group	2
	Controller medication prescribing	2
	Referral to specialist care (e.g., pulmonologist)	2
Exacerbations and adverse outcomes	Sub-optimal reliever medication prescribing	2
	Inclusion of glucocorticosteroid in regimen	2
	Increasing medication dosage	2
	Functional assessment during exacerbation	1
	Arterial blood gas measurement during exacerbation	1
	Glucocorticosteroid administration during exacerbation	2
	Inhaler review post-exacerbation	1
Adverse effects from asthma medications	Inhaler selection	2
	Controller medication selection	2
	Controller medication adherence monitoring	1
	Add-on controller medication prescribing	2
	Add-on controller medication use	2
	Assessment of medication dose equivalent	1
	Osteoporosis screening	1
Asthma-related mortality	Oxygen administration during exacerbation	3
	Beta2-agonist therapy during exacerbation	3

Other Available Quality Measures

NQF	Measure Steward	Measure Title	Measure Type
0001	American Medical Association Physician Consortium for Performance Improvement (AMA-PCPI)	Asthma assessment	Process
0025	IPro	Management plan for people with asthma	Process
0036	National Committee for Quality Assurance (NCQA)	Use of appropriate medications for people with asthma (ASM)	Process
0047	AMA-PCPI	Asthma: pharmacologic therapy for persistent asthma	Process
0143	The Joint Commission	Children's Asthma Care (CAC)-1: Relievers for inpatient asthma	Process
0144	The Joint Commission	CAC-2 Systemic corticosteroids for inpatient asthma	Process
0283	Agency for Healthcare Research and Quality (AHRQ)	Asthma in younger adults admission rate (PQI 15)	Outcome
0338	The Joint Commission	CAC-3: Home management plan of care (HMPC) document given to patient/caregiver	Process
0548	Pharmacy Quality Alliance	Suboptimal asthma control (SAC) and absence of controller therapy (ACT)	Process
0620	ActiveHealth Management	Asthma short-acting beta agonist inhaler for rescue therapy	Process
0709	Bridges to Excellence	Proportion of patients with a chronic condition that have a potentially avoidable complication during a calendar year	Outcome
1381	Alabama Medicaid Agency	Asthma emergency department visits	Outcome
1560	NCQA	Relative resource use for people with asthma	Resource Use
1799	NCQA	Medication management for people with asthma (MMA)	Process
1800	NCQA	Asthma medication ratio (AMR)	Process
N/A	AMA-PCPI/NCQA	Asthma: Tobacco use screening—ambulatory care setting	Process
N/A	Centers for Medicare and Medicaid Services (CMS)	Draft: Asthma condition episode for CMS episode grouper	Resource Use
N/A	CMS	Functional status assessments and goal setting for patients with asthma	Process
N/A	Health Resources and Services Administration (HRSA)	Asthma: average number of lost work days and/or school days in the past 30 days	Outcome
N/A	HRSA	Asthma: average number of symptom-free days in the previous two weeks	Outcome
N/A	HRSA	Asthma: percent of patients evaluated for environmental triggers other than environmental tobacco smoke (dust mites, cats, dogs, molds/fungi, cockroaches) either by history of exposure and/or by allergy testing	Process
N/A	HRSA	Asthma: percent of patients older than 5 years with moderate or severe persistent asthma who have established a "personal best" peak flow	Process
N/A	HRSA	Asthma: percent of patients who have had a visit to an emergency department (ED)/urgent care office for asthma in the past six months	Outcome
N/A	HRSA	Asthma: percent of patients with a reported exposure to environmental tobacco smoke at last visit	Outcome
N/A	HRSA	Asthma: percent of patients with a severity assessment at last contact (visit or phone)	Process
N/A	HRSA	Asthma: percent of patients with documented self-management goals in the last 12 months	Process
N/A	HRSA	Asthma: percent of patients with persistent asthma at last contact who are on an anti-inflammatory medication	Process

NQF	Measure Steward	Measure Title	Measure Type
N/A	Institute for Clinical Systems Improvement (ICSI)	Diagnosis and management of asthma: percentage of hospitalized patients with asthma who are discharged on an inhaled anti-inflammatory medication	Process
N/A	ICSI	Diagnosis and management of asthma: percentage of patients whose asthma is controlled who are seen by a healthcare clinician every one to six months	Process
N/A	ICSI	Diagnosis and management of asthma: percentage of patients whose asthma is not controlled or have change in medication or clinical status, who are seen by a healthcare clinician within two to six weeks	Process
N/A	ICSI	Diagnosis and management of asthma: percentage of patients with an emergency department visit or inpatient admission for an asthma exacerbation who are discharged from the emergency department or inpatient setting with an asthma discharge plan	Process
N/A	ICSI	Diagnosis and management of asthma: percentage of patients with assessment of asthma control using a validated questionnaire at the last visit related to asthma	Process
N/A	ICSI	Diagnosis and management of asthma: percentage of patients with asthma who return to the emergency department for treatment of asthma within 30 days of last visit to the emergency department	Outcome
N/A	ICSI	Diagnosis and management of asthma: percentage of patients with spirometry or peak flow at the last visit related to asthma	Process
N/A	Minnesota Community Measurement	Optimal asthma care-control component	Outcome

Remaining Quality Measure Gaps

Gap	Cross-Cutting Measurement Domain
Adjusting controller medication	N/A
Appropriate add-on controller medication	Effectiveness
Measurement of exacerbation frequency	Effectiveness
Assessment of dosage or routing associated with medication technology	Effectiveness
Clinically appropriate response during an exacerbation	N/A
Specialist referrals	Care Coordination
Referrals to non-primary care physician or therapy services	Care Coordination
Confirmatory, differential, and risk factor diagnoses	Care Coordination
Self-management education	Prevention

Attention Deficit Hyperactivity Disorder (ADHD)

Guidelines Assessed

Year	Organization	Title
2011	American Academy of Pediatrics	ADHD: clinical practice guideline for the diagnosis, evaluation, and treatment of attention-deficit/hyperactivity disorder in children and adolescents
2011	GroupHealth	ADHD: Adult diagnosis and treatment guide

Guideline Conclusions

Treatment Outcome
Accurate diagnosis
Control/reduction of hyperactivity symptoms
Minimized side effects/complications from pharmaceuticals
Improved behavioral health/coping techniques

Priority Issues

Priority Issues
Thorough ADHD screening
Access to behavioral therapy
Physical examination
Medication management
Medication adherence

ACO MSSP Measures

#	Measure Title	Indirect	Direct
4	CAHPS: Access to Specialists	✓	
6	CAHPS: Shared Decision Making	✓	
16	Body Mass Index (BMI) Screening and Follow-Up	✓	
17	Tobacco Use: Screening and Cessation Intervention	✓	
18	Clinical Depression Screening	✓	
21	High Blood Pressure Screening	✓	
TOTALS		6	0

NCQA ACO Measures

#	Measure Title	Indirect	Direct
9	Medication Review for Older Adults		✓
28	Follow-up Care for Children Prescribed ADHD Medication	✓	
16	Controlling High Blood Pressure	✓	
30	Annual Monitoring for Persistent Medications	✓	
TOTALS		3	1

Financial Incentives Impact on Treatment Goals

Adverse Outcome	At-Risk Service/Issue	Cost Risk
Inaccurate diagnosis	Checks with surveys to accurately diagnose	1
Poor behavioral health/coping techniques	Access to behavioral health therapists to educate and offer lifestyle coaching mechanisms	2
	Coordination between primary care physicians, behavioral therapists and other mental health professionals	2
Uncontrolled hyperactivity symptoms	Medication application for very young patients who have severe behavioral disruption	2
	Medication prescription based on age, physical or social circumstances	2
Increased risk of side effects/complications from pharmaceuticals	Monitoring at early stages to titrate medications to alleviate or remove side effects	1
	Counseling to promote medication adherence	1

Other Available Quality Measures

NQF	Measure Steward	Measure Title	Measure Type
0106	Institute for Clinical Systems Improvement (ICSI)	Diagnosis of attention deficit hyperactivity disorder (ADHD) in primary care for school age children and adolescents	Process
0108	National Committee for Quality Assurance (NCQA)	Follow-up care for children prescribed ADHD Medication (ADD)	Process
0107	ICSI	Management of attention deficit hyperactivity disorder (ADHD) in primary care for school age children and adolescents	Process
N/A	ICSI	Diagnosis of attention deficit hyperactivity disorder (ADHD) in primary care for school age children and adolescents: percent of patients diagnosed with ADHD who have cardiovascular history assessed before psychostimulant medication is prescribed	Process
N/A	ICSI	Diagnosis and management of attention deficit hyperactivity disorder (ADHD) in primary care for school-age children and adolescents: percentage of patients newly diagnosed with ADHD whose medical record contains documentation of screening for other primary conditions and comorbidities, as defined in the guideline (for example, depression, anxiety, oppositional-defiant disorder)	Process

Remaining Quality Measure Gaps

Gap	Cross-Cutting Measurement Domain
Insufficient diagnosis, treatment, monitoring for adults with ADHD	Patient Safety
Insufficient access to behavioral health	Care Coordination

Breast Cancer

Guidelines Assessed

Year	Organization	Title
2014	American Cancer Society	Guidelines for Early Detection of Cancer
2014	National Comprehensive Cancer Network (NCCN)	NCCN Clinical Practice Guidelines in Oncology: Breast Cancer
2013	American Society of Clinical Oncologists (ASCO)	Use of pharmacologic interventions for breast cancer risk reduction: ASCO clinical practice guideline
2013	ASCO	Breast cancer follow-up and management after primary treatment: ASCO clinical practice guideline
2012	American College of Radiology (ACR)	ACR Appropriateness Criteria: Palpable breast masses
2011	American College of Obstetricians and Gynecologists	Breast cancer screening

Guideline Conclusions

Treatment Outcome
Elimination of Cancer/Remission
Extended lifespan

Priority Issues

Priority Issues
Early detection
Thorough but appropriate diagnostic process
Type- and stage-specific treatment
Surgical intervention
Radiation intervention
Hormonal therapy intervention
Chemotherapy intervention

ACO MSSP Measures

#	Measure Title	Indirect	Direct
4	CAHPS: Access to Specialists	✓	
6	CAHPS: Shared Decision Making	✓	
12	Medication Reconciliation	✓	
20	Breast Cancer Screening		✓
TOTALS		3	1

NCQA ACO Measures

#	Measure Title	Indirect	Direct
5	Breast Cancer Screening		✓
35	All Cause Readmissions	✓	
TOTALS		1	1

Financial Incentives Impact on Treatment Goals

Adverse Outcome	At-Risk Service/Issue	Cost Risk
Failure to achieve remission/reduced lifespan	Mammography when yearly check-ins required	1
	Extent or modality of biopsy	2
	Extent of molecular testing	2
	Extent of imaging	2
	Radiation when indicated	3
	Chemotherapy when indicated	3
	Surgery when indicated	3
	Hormonal therapy when indicated	3
	Combination of treatments when indicated	3
	Duration of treatment when remission appears certain but not proven	2
	Clinical visits post-treatment to ensure no relapse	2

Other Available Quality Measures

NQF	Measure Steward	Measure Title	Measure Type
0219	Commission on Cancer, American Cancer Society (ACS)	Post breast conservation surgery irradiation	Process
0220	Commission on Cancer, ACS	Adjuvant hormonal therapy	Process
0221	Commission on Cancer, ACS	Needle biopsy to establish diagnosis of cancer precedes surgical excision/resection	Process
0387	American Medical Association Physician Consortium for Performance Improvement (AMA-PCPI)	Oncology: hormonal therapy for stage IC through IIC, estrogen receptor/progesterone receptor positive breast cancer	Process
0391	AMA-PCPI	Breast cancer resection pathology reporting-pT category (primary tumor) and pN category (regional lymph nodes) with histologic grade	Process
0508	AMA-PCPI	Inappropriate use of "probably benign" assessment category in mammography screening	Process
0509	AMA-PCPI	Reminder system for mammograms	Process
0559	ACS	CO559: Combination chemotherapy is considered or administered within four months (120 days) of diagnosis of women under 70 years of age with American Joint Committee on Cancer (AJCC) T1c, or Stage II or III hormone receptor negative breast cancer	Process
1857	ASCO	Patients with breast cancer and negative or undocumented human epidermal growth factor receptor 2 (HER2) status who are spared treatment with trastuzumab	Process
1858	ASCO	Trastuzumab administered to patients with AJCC stage I (T1c)- III and human epidermal growth factor receptor 2 (HER2) positive breast cancer who receive adjuvant chemotherapy	Process
1878	ASCO	Human epidermal growth factor receptor 2 (HER2) testing in breast cancer	Process
0383	AMA-PCPI	Oncology: Plan of care for pain—medical oncology and radiation oncology (paired with 0384)	Process
0384	AMA-PCPI	Oncology: pain intensity quantified—medical oncology and radiation oncology (paired with 0383)	Process

Remaining Quality Measure Gaps

Gap	Cross-Cutting Measurement Domain
Cancer treatment duration/completion	Patient Safety
Cancer treatment combination	Patient Safety
Post-treatment surveillance	Prevention/Patient Safety

Chronic Kidney Disease (CKD)

Guidelines Assessed

Year	Organization	Title
2013	American College of Physicians	Screening, Monitoring, and Treatment of Stage 1-3 Chronic Kidney Disease
2012	Kidney Disease Improving Global Outcomes (KDIGO)	Clinical Practice Guidelines for the Evaluation and Management of Chronic Kidney Disease
2012	U.S. Preventive Services Task Force	Kidney Disease (Chronic) Screening Recommendations
2010	Renal Physicians Association	Shared Decision Making in the Appropriate Initiation of and Withdrawal From Dialysis
2006	National Kidney Foundation	Hemodialysis Adequacy
2006	National Kidney Foundation	Peritoneal Dialysis Adequacy
2006	KDIGO	Clinical Practice Guidelines for Vascular Access
2005	KDIGO	Clinical Practice Guideline for Anemia in Chronic Kidney Disease
2003	Renal Physicians Association	Appropriate Patient Preparation for Renal Replacement Therapy

Guideline Conclusions

Treatment Outcome
Assess and appropriately diagnose staging of CKD
Prevent and treat comorbid conditions
Slow the patient's progression toward kidney failure
Reverse the disease/kidney damage where possible
Maintain or improve patient quality of life

Priority Issues

Priority Issues
Renal Replacement Therapy management and access
Shared decision making and conservative management
Maintaining and improving patient quality of life
Assessment and treatment for anemia
Preventing and treating infections
Nephrology referrals and engagement
Appropriate diagnosis and monitoring of disease progression

ACO MSSP Measures

#	Measure Title	Indirect	Direct
1	CAHPS: Timely Care	✓	
2	CAHPS: Provider Communication	✓	
4	CAHPS: Specialist Access	✓	
5	CAHPS: Health Promotion and Education	✓	
6	CAHPS: Shared Decision Making	✓	
7	CAHPS: Health/Functional Status	✓	
8	All-Cause Readmission	✓	
12	Medication Reconciliation	✓	
14	Influenza Immunization	✓	
15	Pneumococcal Vaccination	✓	
16	Body Mass Index (BMI) Screening	✓	
17	Tobacco Screening and Cessation	✓	
18	Clinical Depression Screening	✓	
21	High Blood Pressure Screening	✓	
28	Hypertension: Controlling High Blood Pressure	✓	
TOTALS		15	0

NCQA ACO Measures

#	Measure Title	Indirect	Direct
1	Adult BMI Assessment	✓	
9	Medication Review for Older Adults	✓	
31	Medication Reconciliation Post-Discharge	✓	
32	Potentially Harmful Drug-Disease Interactions in the Elderly	✓	
33	Use of High-Risk Medications in the Elderly	✓	
35	All-Cause Readmissions	✓	
TOTALS		6	0

Financial Incentives Impact on Treatment Goals

Adverse Outcome	At-Risk Service/Issue	Cost Risk
Non-assessment of level of CKD and risk for progression	Review to assign CKD cause	1
	Confirmatory diagnosis testing	1
Development of comorbid complications	Hypertension monitoring and prescribing	1
	Metabolic bone disease testing	2
	Metabolic acidosis prescribing	1
	Blood stream infection monitoring	1
	Intermittent Hemodialysis (IHD) treatment	1
	Kidney-drug contraindication testing	1
	Contrast imaging	1
Further progression to kidney disease	Disease progression monitoring underuse (e.g., labwork and imaging)	1
	Referrals to kidney specialists	2
	Team-based care decision-making	1
	Acute Kidney Injury (AKI) monitoring	1
	Diet/nutrition education	1
	Lifestyle change education	1
	Immunization/vaccination	1
	Renal replacement therapy education and planning	1
Non-reversal of disease/damage	Laboratory testing for anemia	1
	Iron therapy for anemia	1
	Iron status testing	1
	Erythropoiesis-Stimulating Agents (ESA) therapy prescribing	3
	Hemoglobin testing	1
	ESA therapy selection	3
	Pure red cell aplasia prescribing	2
	Red cell transfusion	2
	Dialysis	3
	Dialysis therapy monitoring (e.g., dosing etc.)	1
Reduced quality of life	Vascular access placement	2
	Vascular access complication monitoring	1
	Renal transplantation	3
	End-of-life care	3
	Health/quality of life assessment	1

Other Available Quality Measures

NQF	Measure Steward	Measure Title	Measure Type
0247	Centers for Medicare and Medicaid Services (CMS)	Hemodialysis adequacy clinical performance measure I: Hemodialysis adequacy—Monthly measurement of delivered dose	Process
0251	Kidney Care Quality Alliance	Vascular Access—Functional arteriovenous fistula (AVF) or arteriovenous (AV) graft or evaluation for placement	Outcome
0252	CMS	Assessment of iron stores	Process
0255	CMS	Measurement of serum phosphorus concentration	Process
0256	CMS	Hemodialysis vascular access—Minimizing use of catheters as chronic dialysis access	Process
0258	Agency for Healthcare Research and Quality (AHRQ)	CAHPS in-center hemodialysis survey	Outcome
0259	Society for Vascular Surgery	Hemodialysis vascular access decision making by surgeon to maximize placement of autogenous arterial venous fistula	Process
0260	RAND Corporation	Assessment of health-related quality of life (physical & mental functioning)	Process
0261	CMS	Measurement of serum calcium concentration	Process
0262	Kidney Care Quality Alliance	Vascular access—Catheter vascular access and evaluation by vascular surgeon for permanent access	Process
0318	CMS	Peritoneal dialysis adequacy clinical performance measure III—Delivered dose of peritoneal dialysis above minimum	Outcome
0320	Kidney Care Quality Alliance	Patient education awareness—Physician level	Process
0321	American Medical Association Physician Consortium for Performance Improvement (AMA-PCPI)	Adult kidney disease: Peritoneal dialysis adequacy: solute	Outcome
0323	AMA-PCPI	Adult kidney disease: Hemodialysis adequacy: solute	Outcome
0324	Kidney Care Quality Alliance	Patient education awareness—Facility level	Process
0370	CMS	Monitoring hemoglobin levels below target minimum	Outcome
0570	IMS Health	Chronic Kidney Disease (CKD): Monitoring phosphorous	Process
0571	IMS Health	Chronic Kidney Disease (CKD): Monitoring parathyroid hormone (PTH)	Process
0574	IMS Health	Chronic Kidney Disease (CKD): Monitoring calcium	Process
0621	ActiveHealth Management	Non-Diabetic Nephropathy—Use of ACE (angiotensin-converting-enzyme) inhibitor or ARB (angiotensin II receptor blockers) therapy	Process
0627	ActiveHealth Management	Chronic Kidney Disease with LDL (low density lipoprotein) greater than or equal to 130—use of lipid lowering agent	Process
1633	AMA-PCPI	122 Adult Kidney Disease (CKD): Blood pressure management	Outcome
1666	AMA-PCPI	Adult Kidney Disease: Patients on erythropoiesis stimulating agent (ESA)—Hemoglobin level >12.0 g/dL	Outcome
1668	AMA-PCPI	Adult Kidney Disease: Laboratory testing (lipid profile)	Process
N/A	Kidney Care Quality Alliance	End stage renal disease (ESRD): percentage of eligible Medicare hemodialysis patients at the facility during the calendar year with a median URR value of 65 percent or higher	Outcome
N/A	Kidney Care Quality Alliance	End stage renal disease (ESRD): percentage of all ESRD patients aged 18 years and older with medical record documentation of a discussion of renal replacement therapy modalities conducted by the nephrologist or other healthcare professional within the nephrologist's practice at least once during the 12-month reporting period	Process

Remaining Quality Measure Gaps

Gap	Cross-Cutting Measurement Domain
Appropriate initiation of renal replacement therapy	N/A
Appropriate initiation of kidney transplantation	Patient Safety
Appropriate selection of ESA therapy	Effectiveness
Monitoring disease progression by utilizing imaging studies	Prevention
Monitoring for complications in vascular access for dialysis patients	N/A
Appropriate nephrology referrals	Care Coordination
Monitoring and testing glomerular filtration rate (GFR) and albuminuria levels	Prevention
Non-ESA treatment for anemia	N/A
Prescribing for metabolic bone disease and acidosis	N/A
Lifestyle change management	Care Coordination
Appropriate AKI monitoring	N/A

Chronic Low Back Pain

Guidelines Assessed

Year	Organization	Title
2014	American Academy of Orthopedic Surgeons	OrthoInfo: Low Back Pain
2012	American Physical Therapy	Low back pain: clinical practice guideline linked to [International Standards]
2012	Institute for Clinical Systems Improvement (ICSI)	Adult acute and subacute low back pain
2011	American College of Occupational and Environmental Medicine	Low back disorders
2008	American Chiropractic Association	Best practices and practice guidelines

Guideline Conclusions

Treatment Outcome
Elimination of pain or effective pain management

Priority Issues

Priority Issues
Eliminating "red flags"
Patient education
Manual and physical therapy
Imaging appropriateness
Judicious medication
Judicious surgery as a last resort

ACO MSSP Measures

#	Measure Title	Indirect	Direct
5	CAHPS: Health Promotion and Education	✓	
6	CAHPS: Shared Decision Making	✓	
TOTALS		2	0

NCQA ACO Measures

#	Measure Title	Indirect	Direct
9	Medication Review for Older Adults	✓	
26	Use of Imaging Studies for Low Back Pain		✓
30	Annual Monitoring for Persistent Medications	✓	
33	Use of High-Risk Medications in the Elderly	✓	
TOTALS		3	1

Financial Incentives Impact on Treatment Goals

Adverse Outcome	At-Risk Service/Issue	Cost Risk
Ongoing pain	Neurological work-up to determine if there are red flags to back pain	1
	Access to manual or physical therapists that could provide needed pain relief, support and education	2
	Use of surgery where indicated, and only after other options attempted	3
	Use of prescription medication where indicated	2

Other Available Quality Measures

NQF	Measure Steward	Measure Title	Measure Type
0313	National Committee for Quality Assurance (NCQA)	Back pain: advice against bed rest	Process
0314	NCQA	Back pain: advice for normal activities	Process
0315	NCQA	Back Pain: appropriate imaging for acute back pain	Process
0309	NCQA	Back pain: appropriate use of epidural steroid injections	Process
0322	NCQA	Back pain: initial visit	Process
1317	NCQA	Back pain: recommendation for exercise	Process
0310	NCQA	Back pain: shared decision making	Process
0305	NCQA	Back pain: surgical timing	Process
N/A	ICSI	Adult acute and subacute low back pain: percentage of patients who are prescribed opioids	Process
N/A	ICSI	Adult acute and subacute low back pain: shared decision making specialist	Process
N/A	ICSI	Assessment and management of chronic pain—chemical dependency	Process

Remaining Quality Measure Gaps

Gap	Cross-Cutting Measurement Domain
Access to manual or physical therapists	Care Coordination

Chronic Obstructive Pulmonary Disease (COPD)

Guidelines Assessed

Year	Organization	Title
2014	Global Initiative for Chronic Obstructive Lung Disease	Global Strategy for the Diagnosis, Management, and Prevention of Chronic Obstructive Pulmonary Disease
2013	Institute for Clinical Systems Improvement	Diagnosis and Management of Chronic Obstructive Pulmonary Disease
2011	American College of Physicians	Diagnosis and Management of Stable Chronic Obstructive Pulmonary Disease
2008	U.S. Preventive Services Task Force	Screening for Chronic Obstructive Pulmonary Disease Using Spirometry Recommendations
2004	American Thoracic Society	Standards for the Diagnosis and Management of Patients with COPD

Guideline Conclusions

Treatment Outcome
Determining the severity of the disease to guide treatment
Reducing symptoms
Reducing risk for progression, exacerbations and mortality
Improving quality of life and functionality

Priority Issues

Priority Issues
Appropriate routing and prescribing of COPD medication
Utilization of spirometry for diagnosis and severity assessment
Assessment of risk factors
Ongoing monitoring of disease progression

ACO MSSP Measures

#	Measure Title	Indirect	Direct
1	CAHPS: Timely Care	✓	
2	CAHPS: Provider Communication	✓	
4	CAHPS: Specialist Access	✓	
5	CAHPS: Health Promotion and Education	✓	
6	CAHPS: Shared Decision Making	✓	
7	CAHPS: Health/Functional Status	✓	
8	All-Cause Readmission	✓	
9	COPD/Asthma Admissions		✓
12	Medication Reconciliation	✓	
14	Influenza Immunization	✓	
15	Pneumococcal Vaccination	✓	
16	Body Mass Index (BMI) Screening	✓	
17	Tobacco Screening and Cessation	✓	
18	Clinical Depression Screening	✓	
TOTALS		13	1

NCQA ACO Measures

#	Measure Title	Indirect	Direct
1	Adult BMI Assessment	✓	
2	Weight Assessment for Children	✓	
3	Childhood Immunization Status	✓	
4	Immunizations for Adolescents	✓	
9	Medication Review for Older Adults	✓	
10	Appropriate Testing for Children with Pharyngitis	✓	
11	Appropriate Treatment for Children with Upper Respiratory Infection	✓	
12	Avoidance of Antibiotic Treatment for Acute Bronchitis	✓	
13	Use of Spirometry in COPD Diagnosis and Assessment		✓
31	Medication Reconciliation Post-Discharge	✓	
35	All-Cause Readmissions	✓	
40	Relative Resource Use for People with COPD		✓
TOTALS		10	2

Financial Incentives Impact on Treatment Goals

Adverse Outcome	At-Risk Service/Issue	Cost Risk
Undetermined disease severity	Spirometry for disease assessment	1
	Diagnostic problem review	1
	Medical history/risk factor review	1
	Symptom assessment tool	1
	Comorbidity management	2
	Lung volume/diffusing capacity testing	1
	Oximetry and arterial blood gas (ABG) testing	2
	Alpha-1 Antitrypsin deficiency testing	2
	Exercise testing	1
	Differential diagnosis testing	1
	Risk factor identification	1
	Inhaler education	1
Ongoing unmanaged symptoms	Alpha-1 Antitrypsin augmentation	3
	Referral to pulmonary therapy	2
	Pulmonary health/COPD education	1
	Nutritional education	1
	Osteoporosis screening	1

Disease progression, exacerbations, and mortality	Immunizations/vaccinations	1
	Oxygen therapy	2
	Non-invasive ventilation	2
	Surgical interventions (lung volume reduction surgery, bronchoscopic lung volume reduction, etc.)	3
	Add-on long-acting inhaled corticosteroids	2
	Bronchodilator therapy	2
	Medication administration selection	2
	Disease progression monitoring	1
	Beta2-agonist therapy during exacerbations	3
	Systemic corticosteroids during exacerbations	3
	Monitoring during exacerbations	2
	Discharge assessment after inpatient stay	3
	Post-discharge monitoring	1
Improving patient quality of life and functionality	Functional assessment/quality of life monitoring	1

Other Available Quality Measures

NQF	Measure Steward	Measure Title	Measure Type
0080	American Medical Association Physician Consortium for Performance Improvement (AMA-PCPI)	Chronic Obstructive Pulmonary Disease (COPD): assessment of oxygen saturation	Process
0091	AMA-PCPI	COPD: spirometry evaluation	Process
0102	AMA-PCPI	COPD: inhaled bronchodilator therapy	Process
0275	Agency for Healthcare Research and Quality (AHRQ)	Chronic obstructive pulmonary disease (PQI 5)	Outcome
0549	National Committee for Quality Assurance (NCQA)	Pharmacotherapy management of COPD exacerbation (PCE)	Process
0577	NCQA	Use of spirometry testing in the assessment and diagnosis of COPD (SPR)	Process
0628	ActiveHealth Management	COPD with exacerbations—Use of long-acting bronchodilator therapy	Process
0700	American Association of Cardiovascular and Pulmonary Rehabilitation	Health-related quality of life in COPD patients before and after pulmonary rehabilitation	Outcome
0701	American Association of Cardiovascular and Pulmonary Rehabilitation	Functional capacity in COPD patients before and after pulmonary rehabilitation	Outcome
0709	Bridges to Excellence	Proportion of patients with a chronic condition that have a potentially avoidable complication during a calendar year	Process
1561	NCQA	Relative resource use for people with COPD	Resource Use
1825	ActiveHealth Management	COPD—Management of poorly controlled COPD	Process
1891	Centers for Medicare and Medicaid Services (CMS)	Hospital 30-day, all-cause, risk-standardized readmission rate (RSRR) following chronic obstructive pulmonary disease (COPD) hospitalization	Outcome
N/A	CMS	Functional status assessments and goal setting for patients with chronic obstructive pulmonary disease	Process
N/A	Institute for Clinical Systems Improvement (ICSI)	Diagnosis and management of chronic obstructive pulmonary disease (COPD): percentage of COPD patients seen in emergency room for COPD-related exacerbations in one month	Outcome
N/A	ICSI	Diagnosis and management of chronic obstructive pulmonary disease (COPD): percentage of COPD patients who require hospital admission for COPD-related exacerbations in one month	Outcome

N/A	ICSI	Diagnosis and management of chronic obstructive pulmonary disease (COPD): percentage of COPD patients with two or more hospitalizations over a 12-month period	Outcome
N/A	ICSI	Diagnosis and management of chronic obstructive pulmonary disease (COPD): percentage of patients with a diagnosis of COPD who had spirometry testing to establish COPD diagnosis	Process
N/A	ICSI	Diagnosis and management of chronic obstructive pulmonary disease (COPD): percentage of patients with COPD and smokers who quit smoking (100 percent quit-rate goal)	Outcome
N/A	ICSI	Diagnosis and management of chronic obstructive pulmonary disease (COPD): percentage of patients with COPD who are asked about smoking and smoking exposure at every visit with clinician	Process
N/A	ICSI	Diagnosis and management of chronic obstructive pulmonary disease (COPD): percentage of patients with COPD who are prescribed appropriate therapy	Process
N/A	ICSI	Diagnosis and management of chronic obstructive pulmonary disease (COPD): percentage of patients with COPD who are smokers who have assessment of readiness to attempt smoking cessation	Process
N/A	ICSI	Diagnosis and management of chronic obstructive pulmonary disease (COPD): percentage of patients with COPD who have discussed advance care planning, including healthcare directives (or advanced directives) and goals of care with their healthcare professional	Process
N/A	ICSI	Diagnosis and management of chronic obstructive pulmonary disease (COPD): percentage of patients with moderate or severe COPD who have been referred to a pulmonary rehabilitation or exercise program	Process
N/A	ICSI	Diagnosis and management of chronic obstructive pulmonary disease (COPD): percentage of COPD patients seen in emergency room for COPD-related exacerbations in one month	Outcome
N/A	NCQA	Pharmacotherapy management of COPD exacerbation: percentage of COPD exacerbations for members 40 years of age and older who had an acute inpatient discharge or emergency department (ED) visit between January 1 and November 30 of the measurement year and who were dispensed a bronchodilator within 30 days of the event	Process
N/A	NCQA	Pharmacotherapy management of COPD exacerbation: percentage of COPD exacerbations for members 40 years of age and older who had an acute inpatient discharge or ED visit on or between January 1 and November 30 of the measurement year and who were dispensed a systemic corticosteroid within 14 days of the event	Process
N/A	PCPI	Chronic obstructive pulmonary disease (COPD): percentage of patients aged 18 years and older with a diagnosis of COPD and an oxygen saturation less than or equal to 88 percent or a PaO ₂ less than or equal to 55 mm Hg who prescribed long-term oxygen therapy	Process
N/A	PCPI	Chronic obstructive pulmonary disease (COPD): percentage of patients aged 18 years and older with a diagnosis of COPD and dyspnea for whom exercise training was recommended	Process
N/A	PCPI	Chronic obstructive pulmonary disease (COPD): percentage of patients aged 18 years and older with a diagnosis of COPD who were assessed for COPD symptoms at least annually	Process

Remaining Quality Measure Gaps

Gap	Cross-Cutting Measurement Domain
Referral for surgical and non-surgical interventions	Effectiveness
Non-deferral to clinically sub-optimal medications	Effectiveness
Monitoring health during exacerbations	N/A
Post-exacerbation monitoring	N/A
Medication adherence	Patient Safety
Improvement of functional status	Patient Experience
Assessment of occupational risk factors	Prevention
Differential diagnoses	Care Coordination
Genetic testing and therapy	Prevention
Education and support for certain lifestyle modifications	Prevention

Diabetes Types 1 and 2

Guidelines Assessed

Year	Organization	Title
2014	American Diabetes Association	Standards of Medical Care in Diabetes
2012	Institute for Clinical Systems Improvement	Diagnosis and Management of Diabetes Mellitus in Adults, Type 2
2012	American College of Physicians	Oral Pharmacologic Treatment of Type 2 Diabetes Mellitus
2011	American Association of Clinical Endocrinologists (AACE)	AACE Medical Guidelines for Clinical Practice for Developing a Diabetes Mellitus Comprehensive Care Plan
2011	American College of Physicians	Use of Intensive Insulin Therapy for the Management of Glycemic Control in Hospitalized Patients
2008	The Endocrine Society	Primary Prevention of Cardiovascular Disease and Type 2 Diabetes in Patients at Metabolic Risk
2008	U.S. Preventive Services Task Force	Diabetes Mellitus Screening Recommendations

Guideline Conclusions

Treatment Outcome
Improve glycemic control
Prevent development of complications and disease progression
Improve self-management knowledge
Improve patient functionality and quality of life

Priority Issues

Priority Issues
Oral antidiabetic medication prescribing
Insulin therapy
Complication prevention
HbA1c testing and goals
Glucose screening and monitoring
Diabetes progression screening
Diabetes self-management education

ACO MSSP Measures

#	Measure Title	Indirect	Direct
1	CAHPS: Timely Care	✓	
2	CAHPS: Provider Communication	✓	
4	CAHPS: Specialist Access	✓	
5	CAHPS: Health Promotion and Education	✓	
6	CAHPS: Shared Decision Making	✓	
8	All-Cause Readmission	✓	
12	Medication Reconciliation	✓	
14	Influenza Immunization	✓	
15	Pneumococcal Vaccination	✓	
16	Body Mass Index (BMI) Screening	✓	
17	Tobacco Screening and Cessation	✓	
18	Clinical Depression Screening	✓	
21	High Blood Pressure Screening	✓	
22	Diabetes: HbA1c Control		✓
23	Diabetes: Lipoprotein Control		✓
24	Diabetes: High Blood Pressure Control		✓
25	Diabetes: Tobacco Non-Use		✓
26	Diabetes: Aspirin or Antiplatelet Use		✓
27	Diabetes: HbA1c Poor Control		✓
33	Angiotensin-converting enzyme (ACE) Inhibitor/Angiotensin receptor blockers (ARB) Therapy for Diabetes/Left Ventricular Ejection Fraction (LVEF)		✓
TOTALS		13	7

NCQA ACO Measures

#	Measure Title	Indirect	Direct
1	Adult BMI Assessment	✓	
2	Weight Assessment for Children	✓	
3	Childhood Immunization Status	✓	
9	Medication Review for Older Adults	✓	
15	Cholesterol Management for Cardiovascular	✓	
16	Controlling High Blood Pressure (BP)	✓	
17	Diabetes—HbA1c level <8 percent		✓
18	Diabetes—HbA1c level >9 percent		✓
19	Diabetes—Retinal Eye Exam		✓
20	Diabetes—Low Density Lipoprotein-Control <100 mg/dL		✓
21	Diabetes—Nephropathy test		✓
22	Diabetes—BP reading <140/90 mm Hg		✓
23	Diabetes—BP reading <140/80 mm Hg		✓
30	Annual Monitoring for Persistent Medications	✓	
31	Medication Reconciliation Post-Discharge	✓	
35	All-Cause Readmissions	✓	
36	Relative Resource Use for People with Diabetes		✓
39	Relative Resource Use for People with Hypertension	✓	
TOTALS		10	8

Financial Incentives Impact on Treatment Goals

Adverse Outcome	At-Risk Service/Issue	Cost Risk
Poor blood glucose/glycemic control	Diabetes-specific indicator monitoring	1
	Referral for weight-loss surgical interventions (e.g., bariatric surgery)	3
	Antidiabetic medication prescribing (oral/subcutaneous hypoglycemics)	1
	Insulin pump utilization	3
Development of complications/ disease progression	Screening/preventive services (e.g., psychosocial, immunizations, etc.)	1
	Complication screening (e.g., eye, foot, nephropathic, neurologic, etc.)	1
	Utilization of screening tools and services (e.g., fundus photographs)	1
	Disease progression monitoring	1
	Referrals for specialist care (e.g., endocrinology, cardiology, etc.)	2
	Cardiovascular medication prescribing	1
Inadequate self-management and education	Lifestyle change education	1
	Lifestyle change monitoring	1
	Inpatient discharge planning	3
Lowered patient functionality and quality of life	Emotional needs management (e.g., depression screening)	1

Other Available Quality Measures

NQF	Measure Steward	Measure Title	Measure Type
0055	National Committee for Quality Assurance (NCQA)	Comprehensive diabetes care: Eye exam	Process
0056	NCQA	Diabetes: Foot exam	Process
0062	NCQA	Comprehensive diabetes care: Medical attention for nephropathy	Process
0088	American Medical Association Physician Consortium for Performance Improvement (AMA-PCPI)	Diabetic retinopathy: Documentation of presence or absence of macular edema and level of severity of retinopathy	Process
0089	AMA-PCPI	Diabetic retinopathy: Communication with the physician managing ongoing diabetes care	Process
0272	Agency for Healthcare Research and Quality (AHRQ)	Diabetes mellitus: hospital admission rate for short-term complications	Outcome
0274	AHRQ	Diabetes long-term complications admission rate (PQI 3)	Outcome
0285	AHRQ	Diabetes mellitus: lower-extremity amputation rate	Outcome
0416	American Podiatric Medical Association	Diabetic foot and ankle care, ulcer prevention—Evaluation of footwear	Process
0417	American Podiatric Medical Association	Diabetic foot and ankle care, peripheral neuropathy—Neurological evaluation	Process
0451	Lifescan	Call for a measure of glycemic control with intravenous insulin implementation	Process
0519	Centers for Medicare and Medicaid Services (CMS)	Diabetic foot care and patient education implemented	Process
0541	Pharmacy Quality Alliance	Proportion of days covered (PDC): 5 rates by therapeutic category	Process
0545	CMS	Adherence to chronic medications for individuals with diabetes mellitus	Process
0547	CMS	Diabetes and medication possession ratio for statin therapy	Process
0569	Health Benchmarks – IMS Health	Adherence to statins	Process

0603	Optum	Adult(s) taking insulin with evidence of self-monitoring blood glucose testing	Process
0604	Optum	Adult(s) with diabetes mellitus that had a serum creatinine in last 12 reported months	Process
0618	ActiveHealth Management	Diabetes with low density lipoprotein control (LDL-C) greater than 100—Use of a lipid lowering agent	Process
0630	ActiveHealth Management	Diabetes and elevated HbA1c—Use of diabetes medications	Process
0638	AHRQ	Diabetes mellitus: hospital admission rate for uncontrolled diabetes	Outcome
0709	Bridges to Excellence	Proportion of patients with a chronic condition that have a potentially avoidable complication during a calendar year	Outcome
1557	NCQA	Relative resource use for people with diabetes (RDI)	Resource Use
N/A	Health Resources and Services Administration (HRSA)	Diabetes mellitus: percent of patients whose last documented exercise rate (within the last 12 months) was three times per week for at least 20 minutes (HRSA)	Process
N/A	Institute for Clinical Systems Improvement (ICSI)	Major depression in adults in primary care: percentage of patients with diabetes with documentation of screening for depression	Process
N/A	HRSA	Diabetes mellitus: percent of patients with documented self-management goals in the last 12 months	Process
N/A	HRSA	Diabetes mellitus: percent of patients with a BMI greater than 25 who have lost 10 pounds at any time in the last 12 months	Process
N/A	ICSI	Diagnosis and management of type 2 diabetes mellitus in adults: percentage of patients with type 2 diabetes mellitus with one or more HbA1c tests in the last 15 months	Process
N/A	CMS/Florida Medical Quality Assurance, Inc. (FMQAI)	Adverse drug events—Hyperglycemia	Outcome
N/A	CMS/FMQAI	Adverse drug events—Hypoglycemia	Outcome
N/A	Pharmacy Quality Alliance	GAP—Diabetes (disease and class-level: sulfonylurea, biguanide, thiazolidinediones)	Process
N/A	Pharmacy Quality Alliance	Diabetes—Medication dosing	Process
N/A	CMS	All-cause unplanned admissions for patients with diabetes	Outcome
N/A	CMS	Draft: diabetes condition episode for CMS episode grouper	Resource Use

Remaining Quality Measure Gaps

Gap	Cross-Cutting Measurement Domain
Surgical referral and selection	Effectiveness
Referrals and treatment related to complications	Care Coordination
Assessing and improving patient self-management skills	Care Coordination
Monitoring progression of diabetes from prediabetes or Type 1 to 2 diabetes	Prevention
Assessing functional outcomes	Patient Experience
Hypoglycemic management	N/A
Monitoring and addressing lifestyle changes	Prevention

Glaucoma

Guidelines Assessed

Year	Organization	Title
2010	American Academy of Ophthalmology	Comprehensive adult medical eye evaluation
2010	American Academy of Ophthalmology	Primary open-angle glaucoma

Guideline Conclusions

Treatment Outcome
Reduction of intraocular pressure (IOP)
Prevention of blindness
Reduction of complications from medication, treatment options

Priority Issues

Priority Issues
Early detection
Completeness of eye exam
Reduction of IOP (medication)
Reduction of IOP (non-invasive surgery)
Reduction of IOP (invasive surgery)
Continuous post-treatment assessment

ACO MSSP Measures

#	Measure Title	Indirect	Direct
4	CAHPS: Access to Specialists	✓	
6	CAHPS: Shared Decision Making	✓	
12	Medication Reconciliation	✓	
18	Clinical Depression Screening	✓	
TOTALS		4	0

NCQA ACO Measures

#	Measure Title	Indirect	Direct
9	Medication Review for Older Adults	✓	
30	Annual Monitoring for Persistent Medications	✓	
TOTALS		2	0

Financial Incentives Impact on Treatment Goals

Adverse Outcome	At-Risk Service/Issue	Cost Risk
IOP/Blindness	Regular examinations for high-risk individuals	1
	Use or extent of eye exam	1
	Use of appropriate medications where indicated	2
	Recommendation for surgery when indicated	3
	Monitoring of medication use/results	1

Other Available Quality Measures

NQF	Measure Steward	Measure Title	Measure Type
0086	American Medical Association Physician Consortium for Performance Improvement (AMA-PCPI)	Primary open-angle glaucoma (POAG): optic nerve evaluation	Process
0563	AMA-PCPI	Primary open-angle glaucoma: reduction of intraocular pressure by 15 percent or documentation of a plan of care	Outcome
N/A	NCQA	Glaucoma screening	Process
N/A	American Academy of Ophthalmology	Eye care: education	Process

Remaining Quality Measure Gaps

Gap	Cross-Cutting Measurement Domain
Treatment adjustment/progression monitoring	Patient safety/effectiveness

Hepatitis C (HCV)

Guidelines Assessed

Year	Organization	Title
2014	American Association for the Study of Liver Diseases	Recommendations for Testing, Managing, and Treating Hepatitis C
2013	U.S. Preventive Services Task Force	Hepatitis C Virus Infection Screening Recommendations
2013	American Gastroenterological Association	Hepatitis C Screening and Evaluation: Clinical Decision Tool

Guideline Conclusions

Treatment Outcome
Accurately diagnose Hepatitis C Virus (HCV)
Educate the patient on interventions to reduce progression of liver disease and prevent transmission of HCV
Reduce infection, morbidity, and mortality associated with chronic HCV

Priority Issues

Priority Issues
Selection and utilization of antiviral medication
HCV diagnosis
Assessment of comorbidities
Referral to liver specialist
Patient education

ACO MSSP Measures

#	Measure Title	Indirect	Direct
2	CAHPS: Provider Communication	✓	
4	CAHPS: Specialist Access	✓	
5	CAHPS: Health Promotion and Education	✓	
6	CAHPS: Shared Decision Making	✓	
12	Medication Reconciliation	✓	
15	Pneumococcal Vaccination	✓	
16	Body Mass Index (BMI) Screening	✓	
18	Clinical Depression Screening	✓	
TOTALS		8	0

NCQA ACO Measures

#	Measure Title	Indirect	Direct
1	Adult BMI Assessment	✓	
3	Childhood Immunization Status	✓	
4	Immunizations for Adolescents	✓	
9	Medication Review for Older Adults	✓	
31	Medication Reconciliation Post-Discharge	✓	
33	Use of High-Risk Medications in the Elderly	✓	
34	Initiation and Engagement of Alcohol/Drug Treatment	✓	
TOTALS		7	0

Financial Incentives Impact on Treatment Goals

Adverse Outcome	At-Risk Service/Issue	Cost Risk
Inaccurate or delayed diagnosis of HCV	Patient testing for HCV	1
	Confirmatory Ribonucleic Acid (RNA) testing	2
	Genotype testing to guide treatment	2
Potential further progression of liver disease and transmission of HCV	Risk behavior education	1
	Hepatitis B Virus (HBV)/Human Immunodeficiency Virus (HIV) screening	1
	Hepatitis A/B vaccination	1
	HCV transmission education	1
Ongoing infection, increased morbidity and mortality	Referrals for guided treatment	2
	Antiviral therapy	3
	Selection of antiviral therapy	3
	Antiviral therapy monitoring	3
	Antiviral adherence monitoring	3
	Fibrosis evaluation	1
	Referrals for liver transplantation	3

Other Available Quality Measures

NQF	Measure Steward	Measure Title	Measure Type
0038	National Committee for Quality Assurance (NCQA)	Childhood immunization status (CIS)	Process
0393	American Medical Association Physician Consortium for Performance Improvement (AMA-PCPI)	Hepatitis C: Testing for chronic hepatitis C—Confirmation of hepatitis C viremia	Process
0394	AMA-PCPI	Hepatitis C: Counseling regarding use of contraception prior to antiviral treatment	Process
0395	AMA-PCPI	Paired measure: Hepatitis C ribonucleic acid (RNA) testing before initiating treatment (paired with 0396)	Process
0396	AMA-PCPI	Paired Measure: HCV genotype testing prior to treatment (paired with 0395)	Process
0397	AMA-PCPI	Hepatitis C: Prescribed antiviral therapy	Process
0398	AMA-PCPI	Hepatitis C: HCV RNA testing at no greater than week 12 of treatment	Process
0399	AMA-PCPI	Paired measure: Hepatitis C: Hepatitis A vaccination (paired with 0400)	Process
0400	AMA-PCPI	Paired measure: Hepatitis C: Hepatitis B vaccination (paired with 0399)	Process
0401	AMA-PCPI	Hepatitis C: Counseling regarding risk of alcohol consumption	Process
0402	Asian Liver Center at Stanford University	Screening foreign-born adults for chronic hepatitis B	Process
0414	NCQA	HIV/AIDS: Other infectious diseases—Hepatitis C	Process
0573	Health Benchmarks – IMS Health	HIV screening: Members at high risk of HIV	Process
0584	Resolution Health, Inc.	Hepatitis C: Viral load test	Process
0608	Ingenix	Pregnant women that had HBsAg (Hepatitis B surface antigen) testing	Process
0635	ActiveHealth Management	Chronic Liver Disease—Hepatitis A vaccination	Process
N/A	American Gastroenterological Association (AGA)/American Association for the Study of Liver Diseases (AASLD)/PCPI	Screening for hepatitis C virus for patients at high risk	Process

N/A	AGA/AASLD/PCPI	Annual hepatitis C virus screening for patients who are active injection drug users	Process
N/A	AGA/AASLD/PCPI	Referral to treatment for patients identified with hepatitis C virus infection	Process
N/A	AGA/AASLD/PCPI	Discontinuation of antiviral therapy for inadequate viral response	Process
N/A	AGA/AASLD/PCPI	Discussion and shared decision making surrounding treatment options	Process
N/A	AGA/AASLD/PCPI	Screening for hepatocellular carcinoma in patients with hepatitis C cirrhosis	Process
N/A	AGA/AASLD/PCPI	Sustained virological response	Outcome

Remaining Quality Measure Gaps

Gap	Cross-Cutting Measurement Domain
Utilization of clinically sub-optimal antiviral therapy	Effectiveness
Liver transplant delay	Effectiveness
Antiviral therapy adherence	Effectiveness
Transmission education	Patient Safety
Fibrosis monitoring	N/A

Human Immunodeficiency Virus (HIV)

Guidelines Assessed

Year	Organization	Title
2013	U.S. Department of Health and Human Services	Guidelines for the Use of Antiretroviral Agents in HIV-1-Infected Adults and Adolescents
2013	Infectious Disease Society of America	Management of HIV-Infected Persons
2013	U.S. Preventive Services Task Force	Human Immunodeficiency Virus Screening Recommendations

Guideline Conclusions

Treatment Outcome
Reduce HIV-related morbidity and prolong quality and duration of survival
Restore and preserve immunologic function
Suppress HIV Ribonucleic Acid (RNA) viral load
Prevent and treat comorbid conditions
Prevent transmission of HIV

Priority Issues

Priority Issues
Appropriate antiretroviral (ARV) drug selection
Antiretroviral therapy (ART) adherence
Initial laboratory baseline testing
Ongoing laboratory monitoring

ACO MSSP Measures

#	Measure Title	Indirect	Direct
1	CAHPS: Timely Care	✓	
2	CAHPS: Provider Communication	✓	
4	CAHPS: Specialist Access	✓	
5	CAHPS: Health Promotion and Education	✓	
6	CAHPS: Shared Decision Making	✓	
12	Medication Reconciliation	✓	
14	Influenza Immunization	✓	
15	Pneumococcal Vaccination	✓	
18	Clinical Depression Screening	✓	
19	Colorectal Cancer Screening	✓	
20	Breast Cancer Screening	✓	
TOTALS		11	0

NCQA ACO Measures

#	Measure Title	Indirect	Direct
3	Childhood Immunization Status	✓	
4	Immunizations for Adolescents	✓	
5	Breast Cancer Screening	✓	
6	Cervical Cancer Screening	✓	
9	Medication Review for Older Adults	✓	
31	Medication Reconciliation Post-Discharge	✓	
33	Use of High-Risk Medications in the Elderly	✓	
34	Initiation and Engagement of Alcohol/Drug Treatment	✓	
TOTALS		8	0

Financial Incentives Impact on Treatment Goals

Adverse Outcome	At-Risk Service/Issue	Cost Risk
HIV-related morbidities and reduced quality and length of survival	Pre-treatment physical/history assessment	1
	Pre-treatment labwork/assays	2
	Opportunistic infection testing	1
	Initiation of ART	3
	Selection of ART regimen	3
	ART regimen simplification assessment	1
	Laboratory monitoring associated with regimen simplification	1
	Interruption of ART	3
	Opioid treatment for illicit drug users	2
	Illicit drug use education	1
	Diagnosis of HIV	1
Reduced immunologic function	CD4 testing for ongoing monitoring	2
	ART resulting in T-cell activation	3
Increased HIV RNA viral load	Ongoing HIV RNA viral load testing	2
	Sub-optimal response monitoring	1
	HIV resistance testing	2
	Co-receptor tropism assay in CCR5	2
	HLA-B*5701 screening for abacavir	2
	Selection of ART regimen	3
	Initiation of ART	3
	Selection of ART with inferior virologic efficacy	3
	Selection of ART resulting in rapid resistance development	3
	Use of ART adjustment	3
	ART adherence monitoring	3
Untreated comorbidities	Delayed ART initiation based on HIV nephropathy	3
	Hepatitis A/B/C screening and vaccination	1
	Delayed ART initiation resulting in adverse cardiovascular disease outcomes	3
	Sexually transmitted disease screening	1
	Cancer screening	1
Possible HIV transmission	Delayed initiation of ART resulting in disease transmission	3

Other Available Quality Measures

NQF	Measure Steward	Measure Title	Measure Type
0012	American Medical Association Physician Consortium for Performance Improvement (AMA-PCPI)	Prenatal screening for human immunodeficiency virus (HIV)	Process
0403	National Committee for Quality Assurance (NCQA)	HIV/AIDS: Medical visit	Process
0404	NCQA	HIV/AIDS: CD4 cell count or percentage performed	Process
0405	NCQA	HIV/AIDS: Pneumocystis jiroveci pneumonia (PCP) prophylaxis	Process
0406	NCQA	HIV/AIDS: Adolescent and adult patients who are prescribed potent antiretroviral therapy	Process
0407	NCQA	HIV/AIDS: HIV RNA control after six months of potent antiretroviral therapy	Outcome
0408	NCQA	HIV/AIDS: Tuberculosis (TB) screening	Process
0409	NCQA	HIV/AIDS: Sexually transmitted diseases—Screening for chlamydia, gonorrhea, and syphilis	Process
0410	NCQA	HIV/AIDS: Sexually transmitted diseases—Syphilis screening	Process
0411	NCQA	HIV/AIDS: Other infectious diseases—Hepatitis B screening	Process
0412	NCQA	HIV/AIDS: Hepatitis B vaccination	Process
0413	NCQA	HIV/AIDS: Screening for high-risk sexual behaviors	Process
0414	NCQA	HIV/AIDS: Other infectious diseases—Hepatitis C	Process
0415	NCQA	HIV/AIDS: Screening for injection drug use	Process
0568	Health Benchmarks – IMS Health	Appropriate follow-up for patients with HIV	Process
0579	Resolution Health, Inc.	Annual cervical cancer screening or follow-up in high-risk women	Process
0606	Ingenix	Pregnant women who had HIV testing	Process
0617	ActiveHealth Management	High risk for pneumococcal disease—Pneumococcal vaccination	Process
1999	Centers for Disease Control and Prevention (CDC)	Late HIV diagnosis	Outcome
2080	Health Resources and Services Administration (HRSA)	Gap in HIV medical visits	Process
2082	HRSA	HIV viral load suppression	Outcome
N/A	Pharmacy Quality Alliance	Proportion of days covered (PDC)—Antiretroviral agents	Process

Remaining Quality Measure Gaps

Gap	Cross-Cutting Measurement Domain
Clinically appropriate ART selection	Effectiveness
Medication specific assays	N/A
Assessing adverse drug events and side effects of ART	Effectiveness
Other monitoring for sub-optimal ART response	N/A
ARV regimen simplification and monitoring	N/A
Avoiding interruption to ART	N/A
Resistance testing	N/A

Hypertension

Guidelines Assessed

Year	Organization	Title
2014	American Heart Association	JNC-7 Recommendations
2013	Canadian Hypertension Education Program	...recommendations for blood pressure measurement, diagnosis, assessment of risk, prevention, and treatment of hypertension
2012	Institute for Clinical Systems Improvement (ICSI)	Hypertension diagnosis and treatment
2011	National Collaborating Centre for Chronic Conditions (UK)	Hypertension. Clinical management of primary hypertension in adults
2010	(peer-reviewed article)	End Organ Damage in Hypertension

Guideline Conclusions

Treatment Outcome
Lower blood pressure
Prevention of organ damage/heart attack
Minimization of side effects/complications

Priority Issues

Priority Issues
Rapid imaging/evaluation
Intravenous intervention
Post-treatment evaluation
Post treatment rehabilitation

ACO MSSP Measures

#	Measure Title	Indirect	Direct
5	CAHPS: Health Promotion and Education	✓	
6	CAHPS: Shared Decision Making	✓	
17	Tobacco Use: Screening and Cessation Intervention	✓	
21	High Blood Pressure Screening		✓
28	Hypertension: Controlling High Blood Pressure		✓
TOTALS		3	2

NCQA ACO Measures

#	Measure Title	Indirect	Direct
1	Adult Body Mass Index (BMI) Assessment	✓	
2	Weight Assessment for Children	✓	
9	Medication Review for Older Adults	✓	
15	Cholesterol Management for Cardiovascular	✓	
16	Controlling High Blood Pressure		✓
30	Annual Monitoring for Persistent Medications	✓	
38	Relative Resource Use for People with Cardiovascular (CV) Conditions	✓	
39	Relative Resource Use for People with Hypertension		✓
TOTALS		6	2

Financial Incentives Impact on Treatment Goals

Adverse Outcome	At-Risk Service/Issue	Cost Risk
High blood pressure	Balance of medication use and lifestyle recommendations	2
	Clinical check-ins and lab work	2
Increased risk of side effects/complications	Medication modification when initial drug is insufficient to reduce blood pressure	1
Organ damage/heart attack	Follow-up to look for signs of potential organ damage	1

Other Available Quality Measures

NQF	Measure Steward	Measure Title	Measure Type
0546	Pharmacy Quality Alliance	Diabetes: appropriate treatment of hypertension	Process
0709	Bridges to Excellence	Proportion of patients with a chronic condition that have a potentially avoidable complication during a calendar year	Outcome
N/A	American College of Cardiology Foundation	Hypertension: [percent hypertensive with at least two medications prescribed]	Outcome
N/A	ICSI	Hypertension diagnosis and treatment: [patient blood pressure monitoring education]	Process
N/A	ICSI	Hypertension diagnosis and treatment: [education on the usage of non-pharma treatments]	Process
N/A	ICSI	Hypertension diagnosis and treatment: [plan of care]	Process
N/A	ICSI	Hypertension diagnosis and treatment: [isolated systolic]	Outcome

Remaining Quality Measure Gaps

Gap	Cross-Cutting Measurement Domain
Check for signs of organ damage	Patient Safety
Medication management	Effectiveness

Influenza

Guidelines Assessed

Year	Organization	Title
2013	Centers for Disease Control and Prevention (CDC)	Prevention and control of seasonal influenza with vaccines
2011	CDC	Antiviral agents for the treatment and chemoprophylaxis of influenza
2009	Infectious Diseases Society of America	Seasonal influenza in adults and children—diagnosis, treatment, chemoprophylaxis, and institutional outbreak management

Guideline Conclusions

Treatment Outcome
Recovery from infection
Prevention of complications from illness

Priority Issues

Priority Issues
Timely, regular influenza vaccination
Diagnostic lab screening
Medication management (antivirals)
Appropriate prophylaxis

ACO MSSP Measures

#	Measure Title	Indirect	Direct
1	CAHPS: Timely Care	✓	
5	CAHPS: Health Promotion and Education	✓	
6	CAHPS: Shared Decision Making	✓	
14	Influenza Immunization		✓
TOTALS		3	1

NCQA ACO Measures

#	Measure Title	Indirect	Direct
3	Childhood Immunization Status		✓
4	Immunization for Adolescents	✓	
11	Appropriate Treatment for Children With Upper Respiratory Infection	✓	
TOTALS		2	1

Financial Incentives Impact on Treatment Goals

Adverse Outcome	At-Risk Service/Issue	Cost Risk
Ongoing illness	Use of prescriptions for antivirals after diagnosis	2
	Use of antivirals beyond time period of maximal effectiveness (>48 hrs.)	2
Complications from illness	Prophylaxis with antivirals considered for high-risk population (with immunization)	2

Other Available Quality Measures

NQF	Measure Steward	Measure Title	Measure Type
0039	National Committee for Quality Assurance (NCQA)	Flu vaccinations for adults aged 18 years and older	Process
1659	Centers for Medicare and Medicaid Services (CMS)	Influenza immunization	Process

Remaining Quality Measure Gaps

Gap	Cross-Cutting Measurement Domain
Access to antivirals	Patient Safety
Administration of appropriate prophylaxis with antivirals after acquiring influenza	Prevention

Ischemic Heart Disease (IHD)

Guidelines Assessed

Year	Organization	Title
2013	Institute for Clinical Systems Improvement	Coronary Artery Disease, Stable
2012	American College of Cardiology Foundation (ACCF)/ American Heart Association (AHA)/American College of Physicians (ACP)/American Association for Thoracic Surgery (AATS)/Preventive Cardiovascular Nurses Association (PCNA)/Society for Cardiac Angiography and Interventions (SCAI)/Society of Thoracic Surgeons (STS)	Guideline for the Diagnosis and Management of Patients With Stable Ischemic Heart Disease
2012	U.S. Preventive Services Task Force	Coronary Heart Disease Screening Recommendations

Guideline Conclusions

Treatment Outcome
Reduce premature cardiovascular death
Prevent IHD complications that impair functional well-being [such as nonfatal acute myocardial infarction (AMI) and heart failure]
Maintain or restore a level of activity, functional capacity, and quality of life that is satisfactory to the patient
Eliminate ischemic symptoms
Provide patients with self-management and lifestyle modification education

Priority Issues

Priority Issues
Coronary artery disease (CAD) revascularization
Pharmacologic therapy to relieve symptoms and prevent myocardial infarction (MI)/death
Lipid lowering and antihypertensive medication
Lifestyle modifications

ACO MSSP Measures

#	Measure Title	Indirect	Direct
1	CAHPS: Timely Care	✓	
2	CAHPS: Provider Communication	✓	
4	CAHPS: Specialist Access	✓	
5	CAHPS: Health Promotion and Education	✓	
6	CAHPS: Shared Decision Making	✓	
7	CAHPS: Health/Functional Status	✓	
8	All-Cause Readmission	✓	
12	Medication Reconciliation	✓	
14	Influenza Immunization	✓	
15	Pneumococcal Vaccination	✓	
16	Body Mass Index (BMI) Screening	✓	
17	Tobacco Screening and Cessation	✓	
18	Clinical Depression Screening	✓	
21	High Blood Pressure Screening	✓	
26	Diabetes: Aspirin or Antiplatelet Use		✓
28	Hypertension: Controlling High Blood Pressure		✓
29	Ischemic vascular disease (IVD): Complete Lipid Panel and Low Density Lipoprotein Control		✓
30	IVD: Use of Aspirin or Other Antithrombotic		✓
32	CAD Composite: Lipid Control		✓
33	Angiotensin-converting enzyme (ACE) Inhibitor/Angiotensin receptor blockers (ARB) Therapy for Diabetes/LVEF		✓
TOTALS		14	6

NCQA ACO Measures

#	Measure Title	Indirect	Direct
1	Adult BMI Assessment	✓	
3	Childhood Immunization Status	✓	
4	Immunizations for Adolescents	✓	
9	Medication Review for Older Adults	✓	
15	Cholesterol Management for Cardiovascular		✓
16	Controlling High Blood Pressure		✓
30	Annual Monitoring for Persistent Medications	✓	
31	Medication Reconciliation Post-Discharge	✓	
33	Use of High-Risk Medications in the Elderly	✓	
35	All-Cause Readmissions	✓	
38	Relative Resource Use for People with Cardiovascular (CV) Conditions		✓
39	Relative Resource Use for People with Hypertension	✓	
TOTALS		9	3

Financial Incentives Impact on Treatment Goals

Adverse Outcome	At-Risk Service/Issue	Cost Risk
Premature CV death	Revascularization	3
	Beta-blocker therapy	2
	Risk assessment testing (e.g., imaging/angiography)	2
	Immunizations	1
	Team-based decision making/engagement for surgery	1
Functionality impairing IHD complications	Imaging associated with Left Ventricular Ejection Fraction (LVEF)	2
	Comorbid conditions and complication referrals	2
	Imaging/testing associated with follow-up monitoring	2
	Cardiac rehabilitation referrals	2
Deficient activity, functionality, and quality of life	Symptom assessment	1
	Complication monitoring	1
	Lifestyle change monitoring	1
Ischemic symptoms	Revascularization	3
	Anti-ischemic therapy	2
	Team-based decision making/engagement for surgery	1
Lack of self-management and lifestyle modification education	Lifestyle modification education	1
	Lifestyle change monitoring	1

Other Available Quality Measures

NQF	Measure Steward	Measure Title	Measure Type
0065	American Medical Association Physician Consortium for Performance Improvement (AMA-PCPI)	Chronic stable coronary artery disease: symptom and activity assessment	Process
0541	Pharmacy Quality Alliance	Proportion of days covered (PDC): 5 rates by therapeutic category	Process
0543	Centers for Medicare and Medicaid Services (CMS)	Adherence to statin therapy for individuals with coronary artery disease	Process
0051	Health Benchmarks–IMS Health	ACE inhibitor/Angiotensin receptor blocker use and persistence among members with coronary artery disease at high risk for coronary events	Process
0611	ActiveHealth Management	Hyperlipidemia (primary prevention)—Lifestyle changes and/or lipid lowering therapy	Process
0616	ActiveHealth Management	Atherosclerotic disease—Lipid panel monitoring	Process
0636	ActiveHealth Management	Atherosclerotic disease and low density lipoprotein (LDL) greater than 100—Use of lipid lowering agent	Process
0642	American College of Cardiology	Cardiac rehabilitation patient referral from an inpatient setting	Process
0643	American College of Cardiology	Cardiac rehabilitation patient referral from an outpatient setting	Process
0709	Bridges to Excellence	Proportion of patients with a chronic condition that have a potentially avoidable complication during a calendar year	Outcome
1558	National Committee for Quality Assurance (NCQA)	Relative resource use for people with cardiovascular conditions	Resource Use
N/A	CMS	Draft: Ischemic heart disease condition episode for CMS episode grouper	Resource Use
N/A	CMS/Florida Medical Quality Assurance, Inc. (FMQAI)	Adherence to antiplatelet treatment after stent implantation	Process

Remaining Quality Measure Gaps

Gap	Cross-Cutting Measurement Domain
Appropriate surgical interventions	Patient Safety
Providing clinically appropriate diagnostic testing	N/A
Referrals and treatment related to comorbid conditions	Care Coordination
Team-based care prior to surgery	Patient Experience

Major Depression

Guidelines Assessed

Year	Organization	Title
2013	Institute for Clinical Improvement (ICSI)	Adult depression in primary care
2010	U.S. Preventive Services Task Force	Screening for depression in adults
2010	American Psychiatric Association	Practice guideline for the treatment of patients with major depressive disorder (3rd ed.)—Evaluation

Guideline Conclusions

Treatment Outcome
Accurate diagnosis
Remission/management of symptoms
Minimized side effects/complications of medication

Priority Issues

Priority Issues
Thorough screening
Behavioral management and counseling
Medication management [Selective serotonin reuptake inhibitor (SSRIs)]
Medication management (Anti-psychotics, enhancers)
Balance between medication and counseling
Direct brain-targeting therapies
Hospitalization and suicide risk

ACO MSSP Measures

#	Measure Title	Indirect	Direct
1	CAHPS: Timely Care	✓	
2	CAHPS: How Well Your Providers Communicate	✓	
4	CAHPS: Access to Specialists	✓	
5	CAHPS: Health Promotion and Education	✓	
12	Medication Reconciliation	✓	
18	Clinical Depression Screening		✓
TOTALS		5	1

NCQA ACO Measures

#	Measure Title	Indirect	Direct
9	Medication Review for Older Adults	✓	
27	Antidepressant Medication Management		✓
29	Follow-up After Hospitalization for Mental Illness	✓	
33	Use of High-Risk Medications in the Elderly	✓	
34	Initiation and Engagement of Alcohol/Drug Treatment	✓	
35	All-Cause Readmissions	✓	
TOTALS		5	1

Financial Incentives Impact on Treatment Goals

Adverse Outcome	At-Risk Service/Issue	Cost Risk
Inaccurate diagnosis	Diagnosis of depression for a condition that is depression and not a direct result of another condition	1
	Use of an updated evaluation tool for diagnosis	1
Failure to achieve remission/management of symptoms	Access or recommendations for psychotherapy or other behavioral health resources	2
	Monitoring of progression from mild to major depression	2
	Coordination between primary care physician and behavioral health specialists	2
	Balance between behavioral therapy and medication (overuse of one or the other)	2
	Monitoring of patient status, particularly of high-risk patients	2
	Access for patients to clinicians, behavioral health to address severe depression episodes	2
Increased risk of side effects/complications of medications	Medication management in first three-six months of diagnosis	2
	Medication management after first three-six months	2

Other Available Quality Measures

NQF	Measure Steward	Measure Title	Measure Type
0105	Centers for Medicare and Medicaid Services (CMS)	Antidepressant medication management	Process
0109	Center for Quality Assessment and Improvement in Mental Health	Bipolar disorder and major depression: Assessment for manic or hypomanic behaviors	Process
0710	Minnesota (MN) Community Measurement	Depression remission at 12 months	Outcome
0711	MN Community Measurement	Depression remission at six months	Outcome
0712	MN Community Measurement	Depression utilization of the PHQ-9 tool	Process
1364	American Medical Association Physician Consortium for Performance Improvement (AMA-PCPI)	Child and adolescent major depressive disorder: diagnostic evaluation	Process
1365	AMA-PCPI	Child and adolescent major depressive disorder: suicide risk assessment	Process
N/A	Health Resources and Services Administration (HRSA)	Depression—non-use	Process
N/A	Institute for Clinical Systems Improvement (ICSI)	Major depression in adults in primary care: mental health	Process
N/A	ICSI	Major depression in adults in primary care: substance abuse assessment	Process
N/A	ICSI	Major depression in adults in primary care: suicide	Outcome

Remaining Quality Measure Gaps

Gap	Cross-Cutting Measurement Domain
Overuse of behavioral therapy at expense of medications	Patient Safety
Medication and treatment efficacy adjustments	Patient Safety/Effectiveness
Monitored rate of worsening depression	Patient Safety/Effectiveness

Multiple Sclerosis (MS)

Guidelines Assessed

Year	Organization	Title
2013	American Academy of Neurology	The utility of magnetic resonance imaging (MRI) in suspected MS
2011	Journal— <i>Therapeutic Advances in Neurological Disorders</i>	Symptomatic therapy in multiple sclerosis
2008	American Academy of Neurology	Disease-modifying therapies in multiple sclerosis
2004	National Institute for Health and Care Excellence (UK)	Multiple sclerosis: national clinical guidelines for diagnosis and management in primary and secondary care

Guideline Conclusions

Treatment Outcome
Control of symptoms
Prevention of new plaques/attacks
Minimal treatment side effects
Optimized mobility

Priority Issues

Priority Issues
Monitoring for changes in condition
Assessments following attacks and spasms
Medication management (post-attack-glucocorticoids)
Medication management (Interferon-beta, others)
Medication management (symptom management)
Access to physiotherapy

ACO MSSP Measures

#	Measure Title	Indirect	Direct
4	CAHPS: Access to Specialists	✓	
6	CAHPS: Shared Decision Making	✓	
7	CAHPS: Health Status/Functional Status	✓	
18	Clinical Depression Screening	✓	
TOTALS		4	0

NCQA ACO Measures

#	Measure Title	Indirect	Direct
30	Annual Monitoring for Patients on Persistent Medications	✓	
TOTALS		1	0

Financial Incentives Impact on Treatment Goals

Adverse Outcome	At-Risk Service/Issue	Cost Risk
Uncontrolled symptoms	Check-ins to detect potential symptom changes	1
New plaques/attacks	Recommended use of medication when risk for recurrent attacks is high	2
	Recommended medication for present symptoms	3
	Use imaging to confirm plaques	3
	Assessment or treatment of behavioral health issues (e.g., depression)	3
Increased risk of treatment side effects	Medication management	2
Non-optimal mobility	Use of physical or speech therapies to help patients manage motor symptoms	2

Other Available Quality Measures

NQF	Measure Steward	Measure Title	Measure Type
*(No true available measures found—the following are measures used for other purposes that may be modified for use in accountable care measure sets)			
N/A	National Multiple Sclerosis Society	Multiple Sclerosis Functional Composite	Process
N/A	Food and Drug Administration (FDA)	IFN-1b (Betaseron) versus placebo	Outcome
N/A	FDA	IFNB-1a (Avonex) versus placebo	Outcome
N/A	FDA	IFNB-1a (Rebif)/Glutaramer acetate	Outcome
N/A	FDA	Natalizumab	Outcome

Remaining Quality Measure Gaps

Gap	Cross-Cutting Measurement Domain
Use of imaging	Prevention/Patient Safety
Check-in regimen	Prevention
Medication prescription	Effectiveness/Patient Safety
Medication management	Effectiveness/Patient Safety
Medication adherence	Effectiveness
Monitoring and adjustments based on disease progression	Patient Safety
Access to physiotherapist	Care Coordination

Osteoarthritis

Guidelines Assessed

Year	Organization	Title
2013	American Academy of Orthopaedic Surgeons	Treatment of Osteoarthritis of the Knee
2012	American College of Rheumatology	Recommendations for the Use of Nonpharmacologic and Pharmacologic Therapies in Osteoarthritis of the Hand, Hip, and Knee

Guideline Conclusions

Treatment Outcome
Reduction of pain
Increase in functionality

Priority Issues

Priority Issues
Appropriate referrals for total knee arthroplasty (TKA)/total hip arthroplasty (THA)
Appropriate prescribing for pain/anti-inflammatory medications
Referrals and monitoring for lifestyle management changes

ACO MSSP Measures

#	Measure Title	Indirect	Direct
2	CAHPS: Provider Communication	✓	
6	CAHPS: Shared Decision Making	✓	
7	CAHPS: Health/Functional Status	✓	
8	All-Cause Readmission	✓	
12	Medication Reconciliation	✓	
16	Body Mass Index (BMI) Screening	✓	
TOTALS		6	0

NCQA ACO Measures

#	Measure Title	Indirect	Direct
1	Adult BMI Assessment	✓	
35	All-Cause Readmissions	✓	
TOTALS		2	0

Financial Incentives Impact on Treatment Goals

Adverse Outcome	At-Risk Service/Issue	Cost Risk
Ongoing or increased pain	Pain assessment	1
	Analgesic prescribing	1
	Non-steroidal anti-inflammatory drugs (NSAIDs) prescribing	2
	Health monitoring	1
Reduced functionality	Functionality assessment	1
	Diagnostic imaging	2
	Cardiovascular disease (CVD)/resistance exercise program non-referral	2
	Diet /nutrition education	1
	Corticosteroid injection prescribing	2
	Surgical interventions	3

Other Available Quality Measures

NQF	Measure Steward	Measure Title	Measure Type
0050	American Medical Association Physician Consortium for Performance Improvement (AMA-PCPI) AMA-PCPI	Osteoarthritis: Function and pain assessment	Process
0051	AMA-PCPI	Osteoarthritis: Assessment for use of anti-inflammatory or analgesic over-the-counter (OTC) medications	Process
0422	Focus on Therapeutic Outcomes	Functional status change for patients with knee impairments	Outcome
0423	Focus on Therapeutic Outcomes	Functional status change for patients with hip impairments	Outcome
0424	Focus on Therapeutic Outcomes	Functional status change for patients with foot/ankle impairments	Outcome
0425	Focus on Therapeutic Outcomes	Functional status change for patients with lumbar spine impairments	Outcome
0426	Focus on Therapeutic Outcomes	Functional status change for patients with shoulder impairments	Outcome
0427	Focus on Therapeutic Outcomes	Functional status change for patients with elbow, wrist or hand impairments	Outcome
0428	Focus on Therapeutic Outcomes	Functional status change for patients with general orthopedic impairments	Outcome
N/A	American Academy of Orthopaedic Surgeons	Osteoarthritis: percentage of patients aged 21 years and older with a diagnosis of osteoarthritis for whom a physical examination of the involved joint was performed during the initial visit	Process
N/A	American Academy of Orthopaedic Surgeons	Osteoarthritis: percentage of patient visits for patients aged 21 years and older with a diagnosis of osteoarthritis during which an anti-inflammatory agent or analgesic was considered	Process
N/A	American Academy of Orthopaedic Surgeons	Osteoarthritis: percentage of patient visits for patients aged 21 years and older with a diagnosis of osteoarthritis with an assessment for use of anti-inflammatory or analgesic OTC medications	Process
N/A	American Academy of Orthopaedic Surgeons	Osteoarthritis: percentage of patient visits for patients aged 21 years and older with a diagnosis of osteoarthritis of the hip or knee during which therapeutic exercise for the hip or knee (therapeutic exercise instructed or physical therapy prescribed) was considered	Process
N/A	American Academy of Orthopaedic Surgeons	Osteoarthritis: percentage of patients aged 21 years and older with a diagnosis of osteoarthritis on prescribed or OTC NSAIDs who were assessed for gastrointestinal (GI) and renal risk factors	Process
N/A	American Academy of Orthopaedic Surgeons	Osteoarthritis: percentage of patient visits for patients aged 21 and older with a diagnosis of osteoarthritis with assessment for function and pain	Process

N/A	American Academy of Orthopaedic Surgeons	Osteoarthritis: percentage of patient visits for patients aged 21 years and older with a diagnosis of osteoarthritis during which GI prophylaxis was considered	Process
N/A	Centers for Medicare and Medicaid Services(CMS)	Draft: Knee osteoarthritis condition episode for CMS episode grouper	Resource Use
N/A	CMS	Draft: Shoulder osteoarthritis condition episode for CMS episode grouper	Resource Use

Remaining Quality Measure Gaps

Gap	Cross-Cutting Measurement Domain
Appropriate referrals to surgery	Effectiveness
Imaging assessments	N/A
Referrals to therapists	Care Coordination
Lifestyle modifications	Prevention

Osteoporosis

Guidelines Assessed

Year	Organization	Title
2013	National Osteoporosis Foundation	Clinician's Guide to Prevention and Treatment of Osteoporosis
2013	Institute for Clinical Systems Improvement	Diagnosis and Treatment of Osteoporosis
2012	The Endocrine Society	Osteoporosis in Men
2012	U.S. Preventive Services Task Force	Falls Prevention in Older Adults
2010	American Association of Clinical Endocrinologists	Medical Guidelines for Clinical Practice for the Diagnosis and Treatment of Postmenopausal Osteoporosis
2008	American College of Physicians	Pharmacologic Treatment of Low Bone Density in Osteoporosis to Prevent Fractures
2008	American College of Physicians	Screening for Osteoporosis in Men

Guideline Conclusions

Treatment Outcome
Identification of patients at risk for fracture
Reducing risk of future fractures
Improving outcomes through medication

Priority Issues

Priority Issues
Selection and prescribing pharmacologic treatment
Assessing risk for fracture
Counseling patients on lifestyle and risk reducing modifications
Ongoing monitoring

ACO MSSP Measures

#	Measure Title	Indirect	Direct
2	CAHPS: Provider Communication	✓	
7	CAHPS: Health/Functional Status	✓	
8	All-Cause Readmission	✓	
13	Falls Risk Screening	✓	
17	Tobacco Screening and Cessation	✓	
TOTALS		5	0

NCQA ACO Measures

#	Measure Title	Indirect	Direct
9	Medication Review for Older Adults	✓	
25	Osteoporosis Management in Women With Fractures		✓
31	Medication Reconciliation Post-Discharge	✓	
35	All-Cause Readmissions	✓	
TOTALS		3	1

Financial Incentives Impact on Treatment Goals

Adverse Outcome	At-Risk Service/Issue	Cost Risk
Unidentified risk for fracture	Fracture risk education	1
	Osteoporosis assessment	1
	Bone mass density testing	2
	Imaging selection	2
	Vertebral imaging	2
	Secondary cause testing	1
Ongoing or increased risk for future fractures	Dietary education	1
	Lifestyle change monitoring	1
	Referral to non-physician therapy	2
Insufficient treatment outcomes associated with medication	Pharmacologic prescribing	2
	Pharmacologic therapy selection	2
	Medication contraindication testing	1
	Bone mass density testing	2
	Pharmacologic therapy adherence monitoring	1

Other Available Quality Measures

NQF	Measure Steward	Measure Title	Measure Type
0037	National Committee for Quality Assurance (NCQA)	Osteoporosis testing in older women	Process
0045	NCQA	Osteoporosis: Communication with the physician managing on-going care post fracture of hip, spine or distal radius for men and women aged 50 years and older	Process
0046	NCQA	Osteoporosis: Screening or therapy for women aged 65 years and older	Process
0048	NCQA	Osteoporosis: Management following fracture of hip, spine or distal radius for men and women aged 50 years and older	Process
0049	NCQA	Osteoporosis: Pharmacologic therapy for men and women aged 50 years and older	Process
0053	NCQA	Osteoporosis management in women who had a fracture	Process
0614	ActiveHealth Management	Steroid Use—Osteoporosis screening	Process
N/A	NCQA	Osteoporosis: percentage of patients aged 18 years and older with one of the following conditions or therapies: receiving oral glucocorticosteroid therapy for greater than three months OR hypogonadism OR fracture history OR transplant history OR obesity surgery OR malabsorption disease OR receiving aromatase therapy for breast cancer who had a central dual-energy X-ray absorptiometry (DXA) ordered or performed or pharmacologic therapy prescribed within 12 months	Process
N/A	NCQA	Osteoporosis: percentage of patients, regardless of age, with a diagnosis of osteoporosis who are either receiving both calcium and vitamin D or had documented counseling regarding both calcium and vitamin D intake, and exercise at least once within 12 months	Process

Remaining Quality Measure Gaps

Gap	Cross-Cutting Measurement Domain
Sub-optimal pharmacological therapy	Effectiveness
Ongoing treatment and bone mass density (BMD) monitoring	Prevention
Utilization of vertebral imaging	N/A
Laboratory testing for secondary cause of osteoporosis	Care Coordination
Pharmacologic adherence monitoring	Effectiveness
Medication contraindication testing	N/A
General education regarding risk behavior and lifestyle modification	Prevention

Prostate Cancer

Guidelines Assessed

Year	Organization	Title
2014	American Cancer Society (ACS)	ACS recommendations for prostate cancer early detection
2014	National Comprehensive Cancer Network (NCCN)	NCCN Prostate Cancer Guidelines
2014	National Cancer Institute (at the National Institutes of Health)	Cancer Advances in Focus

Guideline Conclusions

Treatment Outcome
Remission/extension of life
Accurate diagnosis

Priority Issues

Priority Issues
Thorough but appropriate diagnostic process
Patient education
Condition-appropriate treatment
Chemotherapy intervention
Post-treatment monitoring
Radiation intervention

ACO MSSP Measures

#	Measure Title	Indirect	Direct
4	CAHPS: Access to Specialists	✓	
6	CAHPS: Shared Decision Making	✓	
TOTALS		2	0

NCQA ACO Measures

#	Measure Title	Indirect	Direct
7	Colorectal Cancer Screening	✓	
35	All-Cause Readmissions	✓	
TOTALS		2	0

Financial Incentives Impact on Treatment Goals

Adverse Outcome	At-Risk Service/Issue	Cost Risk
Inaccurate diagnostics	Screening procedures that are delayed when risk and health factors would indicate appropriate delay	1
Failure to achieve remission	Radiation when indicated	3
	Chemotherapy when indicated	3
	Surgery when indicated	3
	Hormonal therapy when indicated	3
	Post-treatment screening, imaging when risk of relapse is high and health is still good	2

Other Available Quality Measures

NQF	Measure Steward	Measure Title	Measure Type
0383	American Medical Association Physician Consortium for Performance Improvement (AMA-PCPI)	Oncology: Plan of care for pain-medical oncology and radiation oncology (paired with 0384)	Process
0384	AMA-PCPI	Oncology: pain intensity quantified-medical oncology and radiation oncology (paired with 0383)	Outcome
0389	American Medical Association (AMA)	Prostate cancer: Avoidance of overuse of bone scan for staging low-risk prostate cancer patients	Process
0390	AMA	Prostate cancer: Adjuvant therapy for high-risk prostate cancer	Process
1853	College of American Pathologists	Radical prostatectomy pathology reporting	Process
N/A	American Urological Society	Prostate cancer: Counseling	Process
N/A	American Urological Society	Prostate cancer: Screening records	Process

Remaining Quality Measure Gaps

Gap	Cross-Cutting Measurement Domain
Cancer treatment duration/completion	Patient Safety
Application of radiation	Patient Safety
Application of chemotherapy	Patient Safety
Cancer treatment combination	Patient Safety
Post-treatment surveillance	Patient Safety/Prevention

Rheumatoid Arthritis

Guidelines Assessed

Year	Organization	Title
2013	National Institutes of Health (NIH) National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS)	Handout on Health: Rheumatoid Arthritis
2002	American College of Rheumatology	Guidelines for the Management of Rheumatoid Arthritis

Guideline Conclusions

Treatment Outcome
Avoid progressing joint damage
Prevent loss of functionality/mobility
Reduce patient pain

Priority Issues

Priority Issues
Disease-modifying antirheumatic drug (DMARD) selection
Surgical treatment for joint pain, mobility, and functionality
Medication management and related health monitoring
Radiographic and lab baseline and ongoing monitoring
Rheumatologist engagement

ACO MSSP Measures

#	Measure Title	Indirect	Direct
2	CAHPS: Provider Communication	✓	
4	CAHPS: Specialist Access	✓	
6	CAHPS: Shared Decision Making	✓	
7	CAHPS: Health/Functional Status	✓	
12	Medication Reconciliation	✓	
21	High Blood Pressure Screening	✓	
TOTALS		6	0

NCQA ACO Measures

#	Measure Title	Indirect	Direct
9	Medication Review for Older Adults	✓	
24	DMARD Therapy for Rheumatoid Arthritis		✓
31	Medication Reconciliation Post-Discharge	✓	
33	Use of High-Risk Medications in the Elderly	✓	
TOTALS		3	1

Financial Incentives Impact on Treatment Goals

Adverse Outcome	At-Risk Service/Issue	Cost Risk
Progression of joint damage	Baseline disease progression testing	1
	Specialist care referrals (e.g., rheumatology)	2
	DMARD selection	3
	DMARD adherence monitoring	3
	Disease progression monitoring	2
	DMARD initiation	3
	Health monitoring during DMARD use	1
Loss of functionality and/or mobility	Functionality assessment	1
	Functional/occupational therapy referrals	2
	Surgical referrals	3
Ongoing patient pain	Symptom reducing prescribing (e.g., analgesics, non-steroidal anti-inflammatory drugs)	1

Other Available Quality Measures

NQF	Measure Steward	Measure Title	Measure Type
0054	National Committee for Quality Assurance (NCQA)	Disease modifying anti-rheumatic drug therapy for rheumatoid arthritis	Process
0422	Focus on Therapeutic Outcomes	Functional status change for patients with knee impairments	Outcome
0423	Focus on Therapeutic Outcomes	Functional status change for patients with hip impairments	Outcome
0424	Focus on Therapeutic Outcomes	Functional status change for patients with foot/ankle impairments	Outcome
0425	Focus on Therapeutic Outcomes	Functional status change for patients with lumbar spine impairments	Outcome
0426	Focus on Therapeutic Outcomes	Functional status change for patients with shoulder impairments	Outcome
0427	Focus on Therapeutic Outcomes	Functional status change for patients with elbow, wrist or hand impairments	Outcome
0428	Focus on Therapeutic Outcomes	Functional status change for patients with general orthopedic impairments	Outcome
0585	Resolution Health, Inc.	Hydroxychloroquine annual eye exam	Process
0589	Resolution Health, Inc.	Rheumatoid arthritis new DMARD baseline serum creatinine	Process
0590	Resolution Health, Inc.	Rheumatoid arthritis new DMARD baseline liver function test (LFT)	Process
0591	Resolution Health, Inc.	Rheumatoid arthritis new DMARD baseline complete blood count (CBC)	Process
0592	Resolution Health, Inc.	Rheumatoid arthritis annual erythrocyte sedimentation rate (ESR) or C-reactive protein (CRP)	Process
0597	Resolution Health, Inc.	Methotrexate: Liver function test (LFT) within 12 weeks	Process
0598	Resolution Health, Inc.	Methotrexate: CBC within 12 weeks	Process
0599	Resolution Health, Inc.	Methotrexate: Creatinine within 12 weeks	Process
0601	Resolution Health, Inc.	New rheumatoid arthritis baseline ESR or CRP within three months	Process
N/A	American Medical Association Physician Consortium for Performance Improvement (AMA-PCPI) /NCQA	Rheumatoid arthritis: Tuberculosis screening	Process
N/A	AMA-PCPI/NCQA	Rheumatoid arthritis: Periodic assessment of disease activity	Process
N/A	AMA-PCPI/NCQA	Rheumatoid arthritis: Functional status assessment	Process
N/A	AMA-PCPI/NCQA	Rheumatoid arthritis: Assessment and classification of disease prognosis	Process
N/A	AMA-PCPI/NCQA	Rheumatoid arthritis: Glucocorticoid management	Process
N/A	American College for Rheumatology	Rheumatoid arthritis: Treatment	Process
N/A	American College for Rheumatology	Rheumatoid arthritis: Treatment	Process

Remaining Quality Measure Gaps

Gap	Cross-Cutting Measurement Domain
Adherence to DMARD therapy	Effectiveness
Referrals for needed surgery	Effectiveness
Referrals to occupational or physical therapy	Care Coordination
Radiographic assessments	N/A
Non-steroidal anti-inflammatory drugs prescribing	N/A

Stroke

Guidelines Assessed

Year	Organization	Title
2013	American Stroke Association	Guidelines for Early Management of Patients with Acute Ischemic Stroke [For logic model purposes, broken down into VI parts to identify all diagnostic and treatment components]
2013	American Academy of Neurology	Periprocedural management of antithrombotic medications in patients with ischemic cerebrovascular disease

Guideline Conclusions

Treatment Outcome
Fast and accurate diagnosis
Restoration of cerebrovascular flow
Physical and mental recovery to normal status

Priority Issues

Priority Issues
Rapid imaging/pre-treatment evaluation
Intravenous intervention
Post-treatment evaluation
Post treatment rehabilitation

ACO MSSP Measures

#	Measure Title	Indirect	Direct
1	CAHPS: Timely Care	✓	
4	CAHPS: Access to Specialists	✓	
8	Risk Standardized All Condition Readmission	✓	
12	Medication Reconciliation	✓	
18	Clinical Depression Screening	✓	
21	High Blood Pressure Screening	✓	
TOTALS		6	0

NCQA ACO Measures

#	Measure Title	Indirect	Direct
9	Medication Review for Older Adults	✓	
15	Cholesterol Management for Cardiovascular	✓	
16	Controlling High Blood Pressure	✓	
30	Annual Monitoring for Patients on Persistent Medications	✓	
31	Medication Reconciliation Post-Discharge	✓	
35	All-Cause Readmissions	✓	
38	Relative Resource Use for People with Cardiovascular Conditions	✓	
TOTALS		7	0

Financial Incentives Impact on Treatment Goals

Adverse Outcome	At-Risk Service/Issue	Cost Risk
Delayed/inaccurate diagnosis	Evaluation or imaging procedures or access to needed professionals	2
Failure to restore cerebrovascular flow	Inappropriate use of secondary measures to clear clots when venous tPA doesn't work (when medically appropriate)	2
Non-recovery to physical and mental normal status	Inappropriate timing between end of acute phase and beginning of mobilization in patients without other complications	1
	Inappropriate access to physical therapy/speech therapy resources	2

Other Available Quality Measures

NQF	Measure Steward	Measure Title	Measure Type
0240	American Medical Association (AMA)	Stroke and stroke rehabilitation: venous thromboembolism (VTE) prophylaxis for ischemic stroke or intracranial hemorrhage	Process
0241	AMA	Stroke and stroke rehabilitation: anti-coagulant therapy prescribed for atrial fibrillation at discharge	Process
0243	AMA	Stroke and stroke rehabilitation: screening for dysphagia	Process
0244	AMA	Stroke and stroke rehabilitation: rehabilitation services ordered	Process
0325	AMA	Stroke and stroke rehabilitation: discharged on antithrombotic therapy	Process
0434	Joint Commission	STK-01: Venous Thromboembolism Prophylaxis	Process
0435	Joint Commission	STK 02: Discharged on antithrombotic therapy	Process
0436	Joint Commission	STK-03: Anticoagulation therapy for atrial fibrillation/flutter	Process
0437	Joint Commission	STK 04: Thrombolytic therapy	Process
0438	Joint Commission	STK 05: Antithrombotic therapy by end of hospital day two	Process
0439	Joint Commission	STK 06: Discharged on statin medication	Process
0441	Joint Commission	STK-10: Assessed for rehabilitation	Process
0467	Agency for Healthcare Research and Quality (AHRQ)	Acute stroke mortality rate	Outcome
0661	Centers for Medicare and Medicaid Services (CMS)	Head computerized tomography (CT) or magnetic resonance imaging (MRI) scan results for acute ischemic stroke or hemorrhagic stroke patients who received head CT or MRI scan interpretation within 45 minutes of emergency department arrival	Process
1952	American Heart Association (AHA)/ American Stroke Association (ASA)	Time to intravenous thrombolytic therapy	Process

Remaining Quality Measure Gaps

Gap	Cross-Cutting Measurement Domain
None identified	N/A

Appendix E1: Cross-Cutting Measurement Areas

Measurement Areas	IHD	Diab	CKD	COPD	Asth	OP	RA	OA	HIV	HCV	HTN	Dep	BC	PC	MS	ADHD	Glau	Flu	Back	Stroke
Patient Experience																				
Timely Care	✓	✓	✓	✓	✓				✓		✓	✓						✓		✓
Access to Specialists	✓	✓	✓	✓	✓		✓		✓	✓		✓	✓	✓	✓	✓	✓			✓
Health Promotion/ Education	✓	✓	✓	✓	✓				✓	✓	✓	✓								
Shared Decision Making	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Provider Communication	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓								
Health/ Functional Status			✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓			✓	✓
Prevention / Healthy Behaviors																				
Promoting/Monitoring Lifestyle Modifications																				
Body Mass Index Screening/ Follow-up	✓	✓	✓	✓	✓			✓			✓									✓
Tobacco Screening/ Cessation	✓	✓	✓	✓	✓	✓					✓									✓
Immunizations																				
Influenza Immunization	✓	✓	✓	✓	✓				✓									✓		
Pneumococcal Vaccination	✓	✓	✓	✓					✓	✓										
Clinical Depression Screening	✓	✓	✓	✓					✓			✓			✓	✓				✓
Falls Screening						✓													✓	✓
Cancer Screening																				
Colorectal Cancer									✓			✓								
Breast Cancer									✓				✓							
Care Coordination																				
Readmissions	✓	✓	✓	✓	✓								✓	✓						✓
Patient Safety																				
Medication Reconciliation	✓	✓	✓	✓	✓		✓	✓	✓	✓										✓

Appendix E2: Cross-Cutting Measurement Gap Areas

Black checkmarks indicate areas for which the gap area applies to the condition, but may be addressed by other available measures. Blue checkmarks indicate areas for which there were no applicable measures.

Measurement Areas	IHD	Diab	CKD	COPD	Asth	OP	RA	OA	HIV	HCV	HTN	Dep	BC	PC	MS	ADHD	Glau	Flu	Back	Stroke
Prevention / Healthy Behaviors																				
Promoting/Monitoring Lifestyle Modifications																				
Diet/Nutrition	✓	✓	✓	✓							✓									✓
Activity/Exercise	✓	✓				✓	✓	✓			✓	✓			✓				✓	
Genetic Testing				✓						✓			✓	✓						
Immunizations																				
Hepatitis									✓	✓										
Risk Assessment					✓	✓			✓	✓										
Monitor Disease Progression		✓	✓	✓		✓	✓	✓	✓		✓	✓			✓		✓			
Cancer Screening																				
Cervical Cancer									✓											
Care Coordination																				
Comorbid Referral/Treatment	✓	✓	✓	✓	✓		✓		✓	✓	✓	✓								
Referrals to Non-Physician Services																				
Behavioral Health Therapy												✓				✓				
Occupational Therapy				✓	✓		✓	✓												✓
Physical Therapy							✓	✓							✓				✓	✓
Hospital Admissions				✓	✓							✓	✓	✓						
Patient Safety																				
High-Risk Behavior Education						✓			✓	✓										
Alcohol/Drug Treatment									✓	✓	✓	✓								
Disease Transmission									✓	✓								✓		
Effectiveness																				
Confirm/Differential Diagnose			✓	✓	✓	✓			✓	✓		✓	✓	✓		✓		✓	✓	
Medication Selection/Management			✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	
Surgery Selection	✓	✓	✓	✓			✓	✓		✓			✓	✓			✓		✓	
Medication Adherence				✓	✓	✓	✓		✓	✓	✓	✓			✓	✓	✓			
Treatment Escalation	✓		✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓			✓			

