



ACCELERATING AND ALIGNING
CLINICAL EPISODE PAYMENT MODELS:

CORONARY ARTERY DISEASE

Draft White Paper

Written by:

The Clinical Episode Payment (CEP) Work Group

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Executive Summary

[Placeholder: Formal abstract to be developed after incorporating feedback from the affiliate community.]

Overview

The Health Care Payment Learning & Action Network (LAN) established its Guiding Committee (GC) in May 2015 as the collaborative body charged with advancing alignment of payment approaches across and within the private and public sectors. This alignment aims to accelerate the adoption and dissemination of meaningful financial incentives to reward providers and systems of care that implement person-centered care and patient-responsive delivery systems. The Centers for Medicare & Medicaid Services (CMS) Alliance to Modernize Health Care (CAMH), the federally funded research and development center operated by the MITRE Corporation, was asked to convene this large national initiative.

In keeping with the goals of the U.S. Department of Health and Human Services (HHS), the LAN aims to have 30% of U.S. health care payments in alternative payment models (APMs) or population-based payments by 2016 and 50% by 2018. One promising area for payment innovation and alignment is in payment for “episodes of care” to improve patient outcomes, enhance health system performance, and control costs. A clinical episode payment is a bundled payment for a set of services that occur over time and across settings. This payment model can be focused on a:

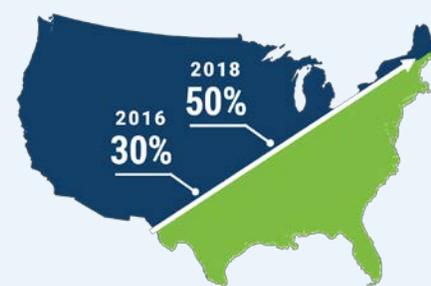
- Setting (such as a hospital or a hospital stay);
- Procedure (such as elective surgery); or
- Condition (such as diabetes).

Currently, there is much interest in episode-based payment models. Both public and private purchasers are exploring how best to promote acceleration and alignment of these models because episode payments offer a particularly promising approach to efficiently create and sustain delivery systems that advance value, quality, cost effectiveness, and patient engagement.

Health Care Payment Learning & Action Network (LAN)

To achieve the goal of better care, smarter spending, and healthier people, the U.S. health care system must substantially reform its payment structure to incentivize quality, health outcomes, and value over volume. Such alignment requires a fundamental change in how health care is organized and delivered, and requires the participation of the entire health care ecosystem. The Health Care Payment Learning & Action Network (LAN) was established as a collaborative network of public and private stakeholders, including health plans, providers, patients, employers, consumers, states, federal agencies, and other partners within the health care ecosystem. By making a commitment to changing payment models, establishing a common framework, aligning approaches to payment innovation, sharing information about successful models, and encouraging use of best practices, the LAN can help reduce barriers and accelerate the adoption of APMs.

U.S. Health Care Payments in APMs



Purpose of the White Paper

In November 2015, the GC convened the Clinical Episode Payment (CEP) Work Group. The GC charged the group members with creating a set of recommendations that can facilitate the adoption of clinical episode-based payment models. The GC noted a specific interest in models that fall within Categories 3 and 4 of its [Alternative Payment Model Framework](#).

Clinical episode payment models are different from traditional fee-for-service (FFS) health care payment models, in which providers are paid separately for each service they deliver. Instead, clinical episode payment models take into consideration the quality, costs, and outcomes for a patient-centered course of care over a set period of time and across multiple settings. This course of care is known as the clinical episode. Research suggests that when payments for health care are based on the care delivered in a clinical episode, the result is increased coordination of care, enhanced quality of care, and less fragmentation in the medical system. This leads to better experience and health for patients and lower costs for payers and providers.

This draft White Paper addresses cardiac episodes of care, which are one of three priority areas identified by the CEP Work Group. Background on the CEP Work Group's charge, priority areas, selection criteria, and guiding principles are outlined in [Appendix A](#). The roster of the Work Group members whose thinking shaped this White Paper is in [Appendix B](#). Work Group members participated in this effort as individuals and not on behalf of their organizations.

The recommendations are intended for use in clinical episode payment models for cardiac care. However, the Work Group recognizes that the process of designing and implementing episode payment requires a continuous cycle in which stakeholders learn, adapt, and improve. The goal of this paper is to support clinical episode payment adoption across a broad set of payers and providers with support from consumers, patients, and purchasers by helping them to align their efforts and define the circumstances and rationale for when and how it may be reasonable to use a different strategy.

The Work Group is aware that the Centers for Medicare & Medicaid Services (CMS) is in the process of soliciting recommendations on the implementation of the Medicare Access and CHIP Reauthorization Act of 2015 (MACRA). Formal recommendations for implementing MACRA and/or other CMS programs and policies should continue to be made directly to CMS, as this is explicitly and intentionally not part of the Work Group's charge. *At this stage in the process, the Work Group is requesting feedback on the draft White Paper and the recommendations in order to strengthen the recommendations and obtain broad agreement on the proposed definitions and approaches.*

Background: Coronary Artery Disease

According to the National Center for Chronic Disease Prevention and Health Promotion's Division for Heart Disease and Stroke Prevention, Coronary Artery Disease (CAD) is the most common type of heart disease in the United States. In the United States in 2010, about 20% of the 65-year-old and over population were living with CAD. This condition is also present in 7% of the population who are ages 45 to 64. Patients with CAD often experience comorbidities such as diabetes and obesity. The two procedures most commonly used to treat CAD patients—Percutaneous Coronary Intervention (PCI) and Coronary Artery Bypass Graft (CABG)—account for more than one million procedures done in the United States annually. This amounted to a cost of more than \$15 billion in health care spending in 2012. These figures do not take into account the additional costs of hospitalization before and after surgery; according to the U.S. Centers for Disease

Control, the average cost of hospitalization for a coronary bypass in 2013 was \$38,707 per person. The national expenditures for CAD-related hospitalization in 2013 came to \$6.4 billion (Centers for Disease Control and Prevention, 2014).

There is a wide variety of settings in which CAD patients receive care; in cases where a patient needs a CAD-related procedure, multiple providers participate in each patient’s treatment course. This can lead to fragmented and uncoordinated care. For example, the typical settings for CAD care include primary and specialty care settings; hospital inpatient and outpatient settings; post-acute care facilities, such as cardiac rehabilitation centers; and patients’ homes (via home health). Patients may receive CAD care in more than one setting as their treatment evolves over time. Currently, each of these settings receives payment separately for the services they provide. There are few incentives to support the provision of care management, preventive services, efficient and sparing use of tests and procedures, and coordination of care across these diverse settings. This lack of coordination and incentives for delivering high-value care across the continuum too often results in higher than necessary rates of adverse drug events, hospital index admissions and re-admissions, diagnostic errors, and lack of appropriate preventive services and follow-up testing for patients with CAD (Riegel, *n.d.*).

It is for precisely this reason that the CEP Work Group chose to develop a condition-level episode model for the management of CAD. While PCI and CABG procedures, and incidences of acute AMI, are significant drivers of CAD-related costs, patients with CAD need a more comprehensive approach to managing their conditions and seek positive outcomes that help prevent the need for procedures. A number of goals associated with improving outcomes for CAD patients are beyond the realm of a PCI or CABG procedure; for each goal, there are levers that can be moved using the types of financial incentives inherent in episode payment (Table 1).

Table 1: Available Levers for Achieving Outcome Goals

	Goals	Levers
System-Level	<ul style="list-style-type: none"> • Increasing the rate of provision of the right care at the right time in the right setting • Reduce avoidable complications • Reducing unwarranted and unjustifiable variation in care 	<ul style="list-style-type: none"> • Delivery of imaging diagnostics and low-acuity procedures in the most appropriate and efficient setting • Providing optimal medication management • Coordinated and innovative care transition processes
Patient-Level	<ul style="list-style-type: none"> • Improve quality of life for patients <ul style="list-style-type: none"> ○ Increasing symptom-free days ○ Reducing acute myocardial infarctions ○ Rapid return to normal activities • Increasing preventive care and preventing acute events that result in hospitalization • Increasing positive outcomes for acute care patients 	<ul style="list-style-type: none"> • Innovative delivery of coordinated preventive care • Disease management • Lifestyle changes • Patient-centered discharge processes • Coordination of post-acute care • Coordinated and innovative care transition processes

The Value of Episode Payment for CAD

Traditional FFS creates incentives for providing a high quantity of services and treatments, potentially rewarding the use of expensive treatments and tests regardless of value to the patient, as well as avoidable invasive procedures and hospitalizations. Episode payment for CAD establishes a budget that incentivizes the providers managing the patient to more appropriately balance the needs of the patient with the number and type of services provided. Placing accountability for the entire condition with a designated provider also encourages the active management of the patient to prevent acute events that lead to worsening health, further procedures, and an increased risk of overall poor outcomes. The goal of person-centered episode payment is to make the patient the focus of care management, ensuring that any efficiencies achieved through improved care coordination and management benefit the patient first and foremost.

Placing accountability for necessary cardiac procedures with a designated provider encourages that provider to ensure the care the patient receives before, during, and after the procedure is as efficient and effective as possible. For example, optimal provision of preventive and care management services has the potential to reduce the need for a PCI or prevent an AMI that might lead to a CABG. And a bundled payment program creates incentives for more appropriate use of procedures when they are necessary, versus the current volume-based incentives that can lead to overuse. There are a number of initiatives underway to address the growing cost of care for patients with CAD. While a few are exploring how to efficiently pay for CAD from the condition perspective (e.g., Blue Cross Blue Shield of Texas [Blue Cross Blue Shield of Texas, 2016] and the New York State Delivery System Reform Incentive Payment [NYS DSRIP] Program [New York State, 2016]), most are designed to efficiently deliver high-quality PCI and CABG procedures. The procedure-based models in Table 2 are described in more detail in [Appendix D](#).

Table 2: Examples of Current CAD Procedure Episode Models

PCI	CABG
<ul style="list-style-type: none"> Arkansas Payment Improvement Incentives Program Geisinger ProvenCare Medicare BPCI Ohio Health Transformation PROMETHEUS Payment Tennessee Health Care Improvement Innovations Initiative 	<ul style="list-style-type: none"> Arkansas Payment Improvement Incentives Program Geisinger ProvenCare Medicare BPCI PROMETHEUS Payment Washington State BREE Collaborative

The CAD episode described in this paper combines condition-level management with a “nested” bundle for the payment of a procedure, if one is deemed necessary and appropriate. For the purpose of the recommendations, these two components will be referred to as “condition” and “procedure” in the subsequent recommendations. The goal of this design is to provide incentives for:

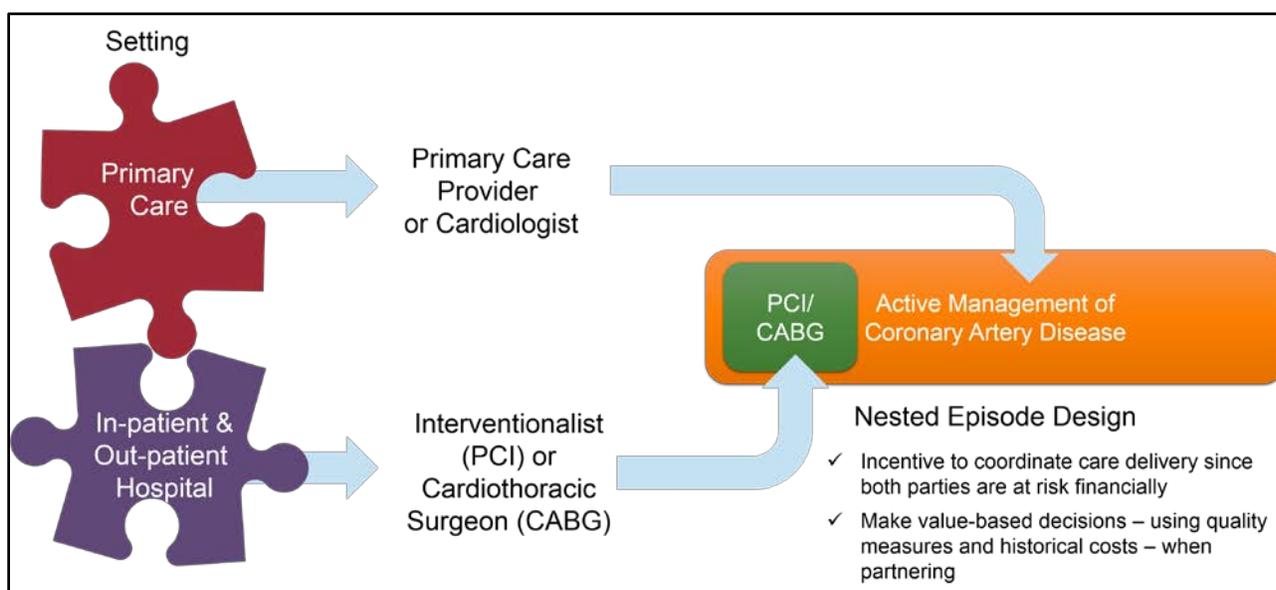
1. High-quality CAD condition care and management;
2. Appropriate use of CAD procedures; and
3. Coordination among the all providers, including those who oversee condition management and those who perform the procedure.

Given the number of procedure-level episode examples available for reference (Table 2, [Appendix D](#)) the discussion presented below focuses primarily on the condition-level design recommendations, as well as the issues that arise in the intersection between condition management and procedure provision. The Work Group advises looking to existing procedure-level episodes for specific examples of how to structure a procedure bundle.

The CEP Work Group recognizes that a condition-level bundled payment approach for CAD will not exist in a vacuum. Tightly integrated health systems, for example, may already be operating multiple bundles for other conditions, and also implementing primary care models that require management across chronic conditions. These scenarios will certainly affect how a CAD episode is designed and implemented.

Implementation in markets that are less integrated will similarly be affected by environmental factors. The CEP Work Group believes this approach, while challenging, balances what is feasible and, in some cases, already in practice today, with an aspirational vision that can be adapted to meet future innovations. Figure 1 depicts the settings, providers, and goals that comprise CAD care, all of which informed the Work Group’s decision to develop a nested episode model.

Figure 1: Nested CAD Episode



The CAD episode model is designed to drive the following:

- Achieve improvements in patient outcomes and each patient’s experience of care.
- Incentivize the cardiologist/primary care provider (PCP) to employ low-resource tools such as medication and lifestyle change to manage the patient’s condition with the goal of avoiding the need for procedures.
- Incentivize appropriate use of high-resource procedures such as PCI and CABG to ensure that other non-invasive options are considered where feasible.
- Provide appropriate care to all patients and limit the potential for withholding appropriate CAD management services in order to reduce the risk of complications that could count against the episode price for the accountable provider.

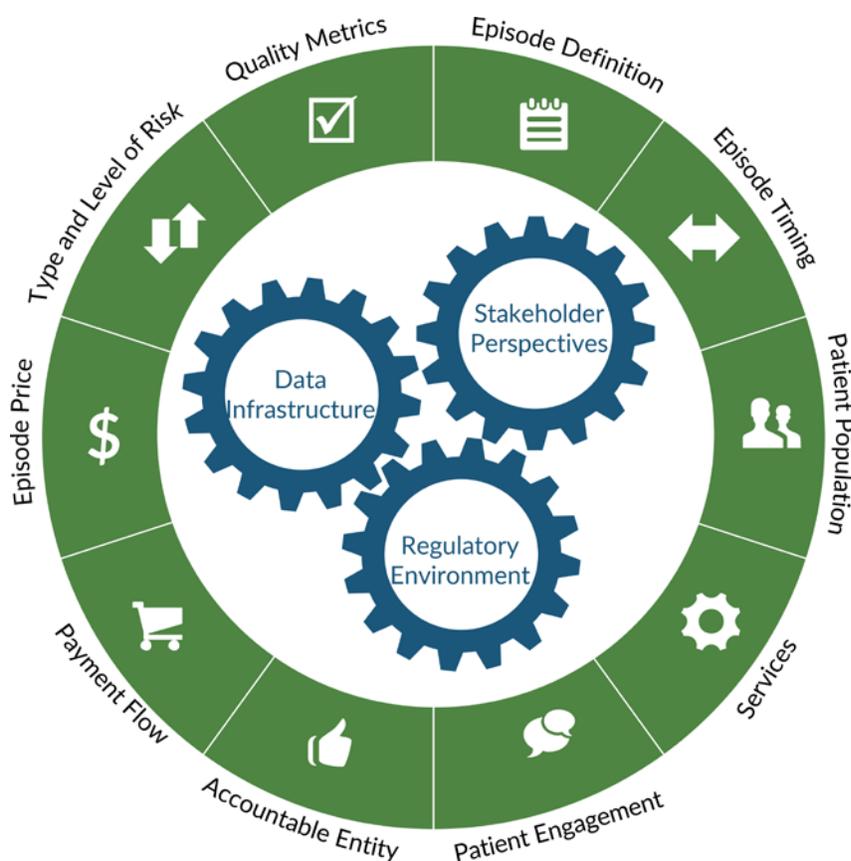
- Incentivize the PCP and/or cardiologist to coordinate with surgeons to drive improved patient outcomes in situations where procedures are required.
- Optimize the delivery of procedures within the context of condition management to align incentives across PCPs/cardiologists and intensivists/surgeons.

Recommendations: Coronary Artery Disease Care

The Work Group’s recommendations fall into two categories:

- **Design Elements:** The design elements address questions stakeholders must consider when designing an episode payment model, including the definition, the duration of the episode, and what services are to be included (Figure 2 and Table 3).
- **Operational Considerations:** Operational considerations relate to implementing an episode payment model, including the roles and perspectives of stakeholders, data infrastructure issues, and the regulatory environment in which APMs must operate. Operational considerations should not be assessed in a vacuum since they are interrelated with the design element decisions.

Figure 2: CAD Episode Payment Design Elements and Operational Considerations



Design Elements

The CEP Work Group reviewed a range of existing episode payment initiatives (see [Appendix D](#)). Based on their experience and the analysis of current initiatives, the Work Group identified a set of episode payment model design elements (Figure 2 and Table 3). These elements reflect the decisions that payers and providers need to make prior to implementation. Figure 4 summarizes the 10 recommendations that are discussed in this draft White Paper.

Table 3: Summary of Coronary Artery Disease Episode Recommendations

1. Episode Definition	12 months of active care management for patients diagnosed with CAD. PCI and/or CABG procedures deemed necessary during the 12-month period will also be delivered within an episode payment model.
2. Episode Timing	The condition episode commences at the beginning of the first benefit year post-CAD diagnosis, and lasts for 12 months. The procedure episode begins 30-days pre-procedure and lasts 30-90 days post-discharge.
3. Patient Population	Condition: Patients diagnosed with CAD and in same health plan for full 12 months. Procedure: Patients deemed to need PCI or CABG based on appropriate use guidelines.
4. Services	For both the condition and procedure episodes, the services should include core services for CAD management and for the quality delivery of a procedure.
5. Patient Engagement	Models should utilize a variety of tools designed to support patient engagement in all phases of cardiac care. This includes self-management tools, support for continuous care planning and care transitions; and use of shared decision-making tools when appropriate.
6. Accountable Entity	The accountable entity should be chosen based on its ability to engineer change in the way care is delivered to the patient and its ability to accept risk for an episode of care. The cardiologist or primary care provider may be best positioned to play this role and should be accountable for overall outcomes, including sharing accountability for the procedure with the intensivist or cardiothoracic surgeon.
7. Payment Flow	The unique circumstances of the episode initiative will determine the payment flow. The two primary options are: 1) a prospectively established price that is paid as one payment to the accountable entity or 2) upfront FFS payment to individual providers within the episode with retrospective reconciliation and a potential for shared savings/losses.
8. Episode Price	The episode price should strike a balance between provider-specific and multi-provider/regional utilization history. The episode price should be set at a level that acknowledges achievable efficiencies already gained by previous programs and reflects a level that potential provider participants see as feasible to attain.

<p>9. Type and Level of Risk</p>	<p>The goal should be to utilize both upside and downside risk. If the accountable entity is different for the condition and the procedure, some risk must be shared to align efforts across the episode and around the patient.</p>
<p>10. Quality Metrics</p>	<p>Prioritize use of outcome measures (both clinical and patient-reported), as well as measures of functional status, and some process measures related to the procedures. Use quality scorecards to track performance on quality and inform decisions related to the ability to share in, and the level of, shared savings or losses. Use quality information and other supports to communicate with and engage patients and other stakeholders.</p>

For coronary artery disease, it is important for CEP initiatives to include incentives for ongoing condition management to prevent expensive and complex treatments such as PCI and CABG whenever possible. Episode payment also ensures a more fulsome analysis of the appropriateness of these procedures. Further, many efficiencies and improvements in care can also be achieved through episode payment incentives for the provision of follow-up care associated with those procedures if they are needed. The recommendations below reflect these goals.

1. Episode Definition

The episode is defined by 12 months of active care management for patients diagnosed with CAD. PCI and/or CABG procedures deemed necessary during the 12-month period will also be delivered within an episode payment model.

As outlined above, the CAD episode proposed by the CEP Work Group combines condition-level management with a nested procedure bundle. This is an important distinction from the majority of existing CAD-related episode payment models, which focus solely on PCI or CABG. The CAD condition episode includes payment for 12 months of preventive care and disease management and any procedures and follow-up care for those procedures that may be necessary.

There are two components within the nested episode: The condition episode, which is defined as a 12-month period of active management of, and care for, a patient who is diagnosed with chronic CAD and the procedure episode. The nested procedure episode is a sub-bundled payment for the delivery of a CAD-related procedure (PCI or CABG) within the course of the condition episode. For CAD, the procedure episode is defined as an elective or emergent procedure—PCI and/or CABG—for the acute treatment of CAD. The CEP Work Group recommends reviewing existing procedure episode models, such as those summarized above in Table 2, and determining which ones work best within their market.

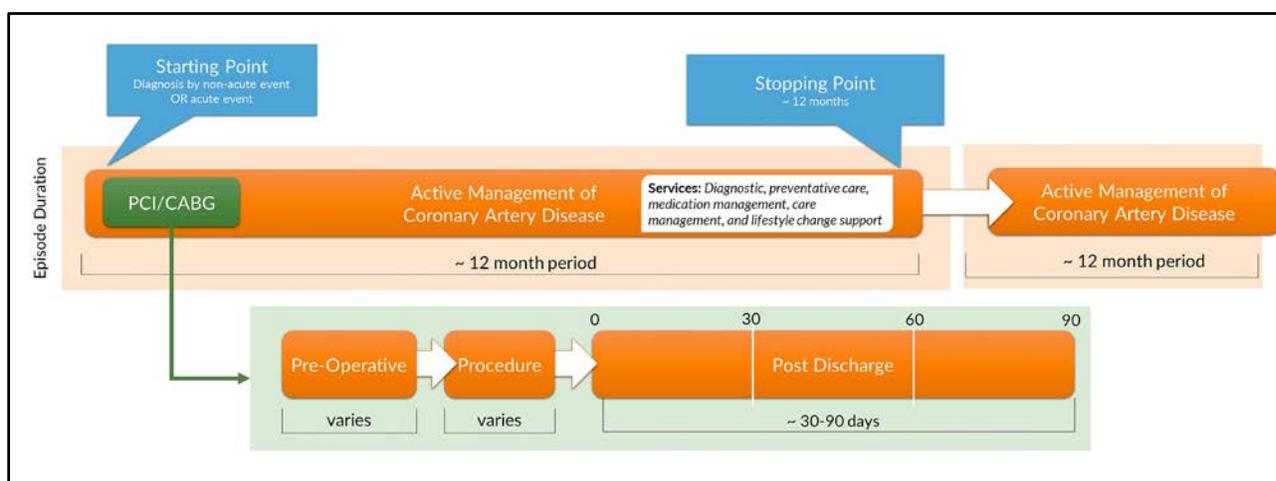
While the goal of this episode is to be as inclusive as possible, it will only apply to patients who receive a CAD diagnosis. This diagnosis may emerge from either a non-emergent presentation (e.g., shortness of breath that leads to diagnostic testing and a diagnosis of CAD) or an emergent presentation (e.g., an AMI or acute PCI). Identifying patients for this episode is discussed in detail below.

2. Episode Timing

*The **condition** episode commences at the beginning of the first benefit year post-CAD diagnosis, and lasts for 12 months. The **procedure** episode begins 30-days pre-procedure and lasts 30-90 days post-discharge.*

The overarching episode includes 12 months of care, which run concurrent to an individual's coverage benefit year. Given that patients are diagnosed with CAD throughout a benefit year, the Work Group recommends flagging these patients and including them in the episode at the beginning of the next benefit year. This serves multiple purposes: 1) it simplifies operationalization of the episode, including the collection of quality measurement data, and reconciliation of payments; and 2) it provides purchasers with important information that can be used when negotiating benefit contracts with payers. Within the 12-month period, any procedure that is deemed necessary, using established appropriate use guidelines, should be paid for using an episode payment model (Figure 3).

Figure 3: CAD Episode Timeline



In the event of PCI or CABG, the start of the episode depends on whether it is acute or elective. If it is an elective PCI, the episode begins with a 30-day pre-operative period. Including a pre-operative period will support coordination across the multiple providers in a patient's care team and serve to reduce unnecessary resource utilization leading up to the procedure. Of course, CAD procedures are not always elective; in the case of an emergency procedure of either PCI or CABG, the episode begins when it is determined that a procedure is necessary and appropriate. That may occur as little as 24 hours prior to the procedure.

The Work Group did not develop recommendations for the length of the procedure episode. There are a number of existing PCI and CABG models (Table 2) to which readers can refer to weigh the benefits of extending the procedure episode 30, 60, or 90 days post-discharge. The longer the procedure episode, the

more post-acute services will be included. The condition episode will run concurrently with the procedure episode. In other words, the 12-month condition time period will not pause while a patient is experiencing a procedure. This is deliberate, so as to incentivize seamless transitions between each step in the care cycle: condition management, surgical procedure, hospitalization, discharge, post-acute care, and finally, back to condition management. However, if a procedure is necessary and the patient has not yet been diagnosed with CAD (so it is not part of the condition-based CAD episode), the procedure-based definitions will apply, and the condition-level episode will commence in the next benefit year.

Share your perspective on Recommendation 2, Episode Timing

The LAN welcomes [comments and input](#) on the following questions regarding CAD episode timing:

1. Are there operationally feasible strategies for making the start of the episode concurrent with the point of diagnosis?
2. What are the unintended consequences for patients, providers, payers and purchasers of delaying the episode start until the next benefit year?

3. Population

Condition: *Patients diagnosed with CAD and in same health plan for full 12 months.*

Procedure: *Patients deemed to need a PCI or CABG based on appropriate use guidelines.*

The population of patients who could participate in the condition episode is broad and it includes all patients flagged by a provider as diagnosed and under active management for CAD. Health plans should analyze claims for at least the previous 12 months—and as far back as 24 months—to identify all patients who fit this population definition. The goal of this episode model is to improve the value of care delivered to high-need patients. The Work Group recognizes that for individuals who have been living with CAD for many years, active management tends to evolve into an annual visit to the provider for ongoing medication management. While these patients can be included in the episode, it may not add additional value to do so. One way to address patients with limited ongoing needed CAD management might be to establish a minimum number of visits or claims to be eligible for inclusion in an episode payment.

The population for the procedure episode comprises patients who are deemed in need of a PCI or CABG procedure in order to manage their CAD and prevent an AMI, heart failure, or death. In determining whether a patient should undergo a non-acute procedure, providers should use such tools as the Appropriate Use Criteria for Coronary Revascularization Guidelines¹ and/or the appropriateness guidelines developed by the Society of Thoracic Surgeons (STS) (Patel, 2012; American Association for Thoracic Surgery, 2016).

¹ The Appropriate Use Criteria Guidelines were developed by a consortium that includes the American College of Cardiology Foundation, the Society for Cardiovascular Angiography and Interventions, the Society of Thoracic Surgeons, the American Association for Thoracic Surgery, the American Heart Association, the American Society of Nuclear Cardiology, and the Society of Cardiovascular Computed Tomography.

Individuals who dis-enroll from their health plan prior to the end of the 12-month episode period will be removed from the episode population.

4. Services

For both the condition and procedure episodes, the services should include core services for CAD management (e.g., lifestyle changes, medication management, and secondary prevention); and core services for the quality delivery of a procedure (e.g., pre-operative diagnostics, drugs and devices, care transition support, and post-acute care including cardiac rehab).

The goal of the episode payment for CAD is to ensure that patients receive all appropriate services needed to improve their quality of life, manage their CAD, and prevent the need for procedures and/or prevent significant acute events such as AMI or heart failure. To achieve this, the episode services should strive for inclusivity and comprise the following core services, many of which fall into the category of “secondary prevention” for patients who are diagnosed with CAD following an acute or emergency event:

- **Overall Management:** Services should include appropriate diagnostics, shared care planning, and coordination of services across various settings and providers.
- **Medication Management:** CAD patients are often put on a long-term medication regimen to control CAD symptoms. These medications may include aspirin, beta blockers, angina control medication, ACE inhibitors post AMI, and lipid management medications. Ensuring that medication is taken appropriately, managing medication side-effects and poor outcomes due to contraindications from other medications, is a key part of CAD condition management care.
- **Lifestyle Support Related to Modifiable Risk Factors:** There are a number of risk factors correlated with CAD, including high blood pressure, smoking and tobacco use, diabetes, stress, and weight. Clinical CAD management should include services designed to support lifestyle changes that address these risk factors. Services to support weight loss, stress reduction, smoking and tobacco cessation, and diabetes control are critical to CAD management.
- **Services Specific to PCI and CABG:** The condition episode and the procedure episode should include all pre-operative diagnostics and care planning, drugs and devices related to the procedure, discharge planning, care transition support, and post-acute care, including cardiac rehab.

As noted above, for more information on specific services included in PCI and CABG episode payment models, refer to resources in [Appendix F](#). For both condition and procedure episodes, the payment model will rely on strategically selected quality measures to hold providers accountable for delivering appropriate care. The types of services described above are also services that are provided by primary care providers. It will be critical for those that manage these episodes to coordinate with, and build upon, care already being provided in a primary care context. This will be particularly important if other payment reforms, such as Patient-Centered Medical Homes (PCMH), are in place as those practices will also have accountability for the costs and quality of care for that patient living with CAD. One upcoming prominent primary care-related initiative, Comprehensive Primary Care Plus (CPC+) is described in the text box above.

A challenge in defining the core services for CAD is the fact that patients with CAD often have comorbidities such as diabetes, hypertension, kidney disease, obesity, and peripheral vascular disease, which can make defining the core services related to CAD difficult. As a practical matter, a cardiologist is not going to manage a patient’s chronic kidney disease care. However, he or she may have an interest in working with the patient to manage their diabetes or weight since both will have an impact on the efficacy of their CAD care. The question of what services to include, and whether they are coded for CAD care or diabetes care (or other comorbidities associated with CAD) is a challenge that will need to be addressed for multiple reasons. Establishing the list of included services will have a direct bearing on setting the episode price. Establishing how to code services that are relevant to care for CAD and its comorbidities will have a direct bearing on whether—at the completion of the episode—a provider is determined to have come under, over, or hit the episode price target. For example, if a provider is participating in the CAD episode but does not participate in a similar episode for diabetes, there is the potential for coding lifestyle change support services to the diabetes condition, and thus not attributing that spending to the CAD episode.

One strategy for determining core services, is to include those with a CAD-related diagnosis code. Services that will address needs relevant to CAD and other comorbidities should be included, as they are needed by the patient. It is also possible that for primary care providers who are working within a system that operates multiple episode payment models, that this will not be an issue. Ultimately, the determination of how broad the service inclusions will be in this episode will be based on whether the implementing organization seeks to develop a discrete CAD episode model (i.e. more narrowly defined service inclusions) or if it is an organization that has already established other episode payment models and wants to build upon those (i.e. broader set of service inclusions).

5. Patient Engagement

Models should utilize a variety of tools designed to support patient engagement in all phases of cardiac care. This includes self-management tools; support for continuous care planning and care transitions; and use of shared decision-making tools, when appropriate.

Person-centered episode payment models have a strong investment in engaging patients in multiple ways. Examples of existing decision aids are in [Appendix F](#). Patients diagnosed with CAD need the opportunity to engage in their care through the following tools and strategies:

- Chronic Disease Self-Management Tools:** The goal of condition management care is two-fold. First, it is to support patients in making the kind of lifestyle changes that will prevent the need for a procedure or aggravation of their disease. Second, it is to manage a patient’s medication protocol. In both areas, patient engagement is critical and requires well-designed educational materials and tools such as in-person coaching, smart phone apps for tracking adherence to lifestyle change activities, and patient support groups to provide patients diagnosed with CAD both emotional support as well as tips and tricks from others who have experienced similar concerns. A study conducted by the Mayo Clinic followed 44 patients participating in cardiac rehab following a heart attack and PCI to track the effects of smartphone app usage. Patients were divided into two groups: one that used an app to record their weight and blood pressure daily in their smartphone, and one that did not use the app. The app group experienced greater improvements in those cardiovascular risk factors and was less likely to be

readmitted to the hospital within 90 days of discharge, compared to the non-app group. The app group also received educational activities that supported lifestyle behavior changes. The goal of the app and the study was to both demonstrate the efficacy of cardiac rehab on post-AMI and PCI recovery, as well as the importance of engaging patients in “owning” their lifestyle change behaviors (Klein, 2014).

- **Shared Decision-Making:** In the course of condition management, a patient—together with a family caregiver ideally—must have the opportunity to engage in shared decision-making during 1) the process of developing a care plan that supports the patients’ goals, values, and preferences; and 2) determining whether to undergo a PCI or CABG procedure. The shared decision-making process cannot be a check-the-box activity, however. There needs to be evidence that the patient and family caregiver were supported by a decision coach or a nurse educator as they worked with a decision aid that meets minimal certification from the International Patient Decision Aids Standards (IPDAS).
- **Patient-Centered Transitional Care Services:** The CAD model described herein is designed to set up tight care transition linkages between the providers overseeing a patient’s procedure and the providers overseeing a patient’s overall CAD care management. Within this care coordination, however, is the often challenging aspect of care known as care transition. Following discharge from a hospital, 49 percent of patient experience at least one error in medication continuity, diagnostic workup, and/or test follow-up. Nineteen to 23% of patients suffer an adverse drug event. And in 75% of cases, discharge summaries for a patient do not arrive at the physician’s office in time for the follow-up appointment (Tsilimingras & Bates, 2008).

For the CAD episode model to be successful, it needs to engage patients in transitional care services, during which time providers communicate with each other; family caregivers are engaged and involved in post-acute care planning; and patients are given clear information on how to manage their condition. The following programs reflect a number of different tools and models for transitional care:

- **The Acute Care for Elders (ACE)** program starts discharge planning at the time of admission to the hospital
- The **Care Transitions Coaching** program at the University of Colorado uses a transition coach to teach patients and caregivers (both in the hospital and for 30 days post-discharge) skills that promote and support continuity of care
- The **H2H Hospital to Home Quality Initiative** by the American College of Cardiology and the Institute for Healthcare Improvement focuses on post-discharge medication management. This ensures the patient has a rapid follow-up appointment with their cardiologist or primary care provider along with symptom management to ensure that the patient fully understands the signs and symptoms that require medical attention is needed and who to in such a situation.
- **SMARTCare Pilot:** This pilot project, developed by the Florida and Wisconsin chapters of the American College of Cardiology, aims to improve quality of care, enhance access to care, and reduce health care costs by providing tools to help physicians and cardiovascular team members apply guidelines and appropriate use criteria at the point of care. The pilot involves embedding SMARTCare tools—including patient education and shared decision-making—within every step along the CAD care pathway. SMARTCare is also designed to provide patients and physicians with access to data on clinical quality measures, outcomes, and resource utilization. Among the tools included in the SMARTcare program are the PROMs (TONIC, SAQ7, Heart Quality of Life and Decision Quality Assessment Instrument); non-invasive clinical decision support tools (FOCUS); invasive clinical decision support (ePRISM, eLUMEN, NCDR, CATH/PCI); outpatient quality metrics (NCDR PINNACLE Registry); risk factor modification

(CardioSmart, INDIGO); and patient education (CardioSmart, HealthDialogs, Dartmouth PCI Decision Grid) (ACC, 2015).

- **Comparative Quality Information:** Patients and family caregivers must be provided with information about the procedure complication rates of possible surgeons and possible acute care facilities, as well as the quality of possible post-acute care facilities. Patients should receive help in identifying eligible providers and in finding and interpreting relevant information about them. Such help should be available through clearly designated personnel without conflicts of interest.
- **Reimbursement Details (Payment Flow):** Patients and family caregivers need transparent information on how providers are being reimbursed in an episode payment model; the impact that episode payment may have on the patient’s cost-sharing or co-pay responsibilities; and the manner in which care will be delivered.
- **Coordination Across Provider Settings:** In the private sector, this may mean a conversation with patients and family caregivers about in- or out-of-network post-acute or follow-up care. In the Medicare FFS program, this may involve discussions at the time of discharge as it relates to choice of post-acute providers, confirming that the patients still have freedom of choice. This is a critical patient conversation as it may be the case that a patient will not wish to see a provider that is within a specified payment arrangement.

In short, patients should be involved with all aspects of identifying and achieving care goals and should actively participate in their care planning. In addition, patients, especially those with chronic disease, should be encouraged to engage their primary care provider in their decision making process.

Deploying Shared Decision-Making Tools in a Way that is Meaningful for Patients and Caregivers

Requiring providers to use shared decision-making tools does not necessarily translate into meaningful shared decision-making between a patient with his or her family caregivers and providers. In order to make the process one that truly supports patient engagement and drives the appropriate use of procedures requires providers and patients to:

- Acknowledge that there is a decision to be made;
- Explain that there are care options, and each option has a different set of issues to consider;
- Present the best evidence about the pros and cons of the care options; and
- Acknowledge how personal values and preferences might align with the care options.

This conversation should be followed by a subsequent opportunity for the patient and family caregiver to meet with a decision coach or a nurse educator to get answers to any questions and decide about the optimal path forward.

6. Accountable Entity

The accountable entity should be chosen based on its ability to engineer change in the way care is delivered to the patient and its ability to accept risk for an episode of care. The cardiologist or primary care provider may be best positioned to play this role and should be accountable for overall outcomes, including sharing accountability for the procedure with the intensivist or cardiothoracic surgeon.

Ability to Engineer Change: The management of a condition such as CAD is a clinician-driven process. Thus, the cardiologist and/or PCP is in the best position—from a clinical standpoint—to affect the health and outcomes of a patient over the course of a 12-month period. In this model, however, there must also be some level of accountability placed on the provider and care team that oversees PCI or CABG, should one be needed. While the recommendation is that the PCP or cardiologist be the primary accountable party, ideally care will be provided using a team-based approach. Payers can use their negotiations with providers and use gain-and-loss sharing to enable a system in which all providers who touch the patient share some level of accountability. Payers will need to assess which provider in a given market can act most effectively in achieving a CAD episode payment initiative’s goals and establish that provider as the accountable entity, or “quarterback.”

In some instances, the accountable entity for the condition will be the same as the accountable entity for the procedure. This may be the case if the cardiology practice also includes cardiac surgeons or if the patient is seen within a health system that integrates both hospital and outpatient services. A more common scenario is when a primary care provider or cardiologist is managing the CAD before the need for a procedure is deemed necessary and a separate practice is identified to manage the patient’s procedure.

Current examples of CAD episode payment vary in the accountable entity. Since current models are typically procedure-based, it is often the hospital that serves as the accountable entity, but sometimes it is the physician practice (often the cardiology practice). In many cases, the clinician can have the greatest impact on care re-design because establishing a physician-level quarterback can ease the episode’s management process. The clinician can lead the design and implementation of new patient care protocols, and communicate with the patient’s post-discharge provider more easily than can the hospital. Further, the discussions with patients regarding appropriateness and expectations on functional improvements are most effective if the physicians are fully engaged.

In the Acute Care Episode (ACE) demonstration, CMS determined that hospitals, because of their resources and greater ability to tolerate risk, should be the episode quarterback. One of the reasons for identifying the hospital as the accountable entity was that the ACE demonstration limited the episode to hospital and physician care delivered in the hospital for certain cardiothoracic procedures (Centers for Medicare & Medicaid Services, 2016). The rules allowed the hospital to opt to share a portion of gains or losses with other providers that are part of the delivery of care for patients, including physicians or other post-acute providers. While the hospital was the accountable entity, it was considered critical to get the physicians involved. The hospitals in that initiative utilized gain-sharing to engage the physicians. In the more recent Bundled Payment for Care Improvement demonstration, which included cardiac care such as CABG, PCI, or

AMI, the accountable entity could be a physician practice, hospital, health system, or a so-called convener that would organize the effort across multiple sites. Two examples include Premier, which is primarily an organization that works with hospitals, and Cogent, which manages hospitalist practices. As this bundled payment program was also centered upon procedures delivered in the hospital (albeit somewhat broader in several models) it is not surprising that the accountable entities were often hospitals (Centers for Medicare & Medicaid Services, 2016a).

Ability to Accept Risk: Some physician practices may have less ability to assume downside risk than larger practices or other better capitalized providers, such as hospitals or health systems that integrate hospital and physician care. This limited ability for physician practices to take on risk can be mitigated by limiting the level of risk associated with the episode. Strategies for doing so are discussed in Recommendation 7, Payment Flow.

Shared Risk and Care Coordination: Regardless of which entity is the focus for accountability, there are a number of key requirements needed for success. Payers should work with the accountable entity to assess their readiness and promote collaboration to allow for multiple providers within a CAD care team to share the risk and reward in such a manner that all are engaged in creating a seamless, efficient, patient-centered care process. In the private sector, as the payer often has contracts directly with providers, it can require active participation across the continuum by aligning incentives across those contracts. In the public sector, with a payer such as Medicare that allows for full freedom of choice of provider in FFS, the risk spreading may take the form of a gain-sharing relationship among providers. This is particularly important in a relationship whereby the providers are still paid FFS with a retrospective reconciliation, because the accountable entity has limited ability to obtain buy-in from other providers in the episode without direct incentives for them to collaborate.

Ideally, one multi-specialty group can be accountable for both the condition and the procedure, using internal mechanisms for operationalizing joint accountability. However, if that is not feasible, the work group recommends that a patient's cardiology practice be accountable for the entire condition episode, and as part of this accountability, coordinates with a surgical practice if a procedure is deemed necessary. In this scenario, both groups have incentives for ensuring the care in the procedure is as efficient as possible and that the hand-offs pre- and post-procedure are as smooth as possible for the patient. Finally, by establishing shared accountability, the recommendation incentivizes cardiologists to seek out the highest performing proceduralists with whom to contract.

7. Payment Flow

The unique circumstances of the episode initiative will determine the payment flow. The two primary options are: 1) a prospectively established price that is paid as one payment to the accountable entity; or 2) upfront FFS payment to individual providers within the episode with retrospective reconciliation and a potential for shared savings/losses.

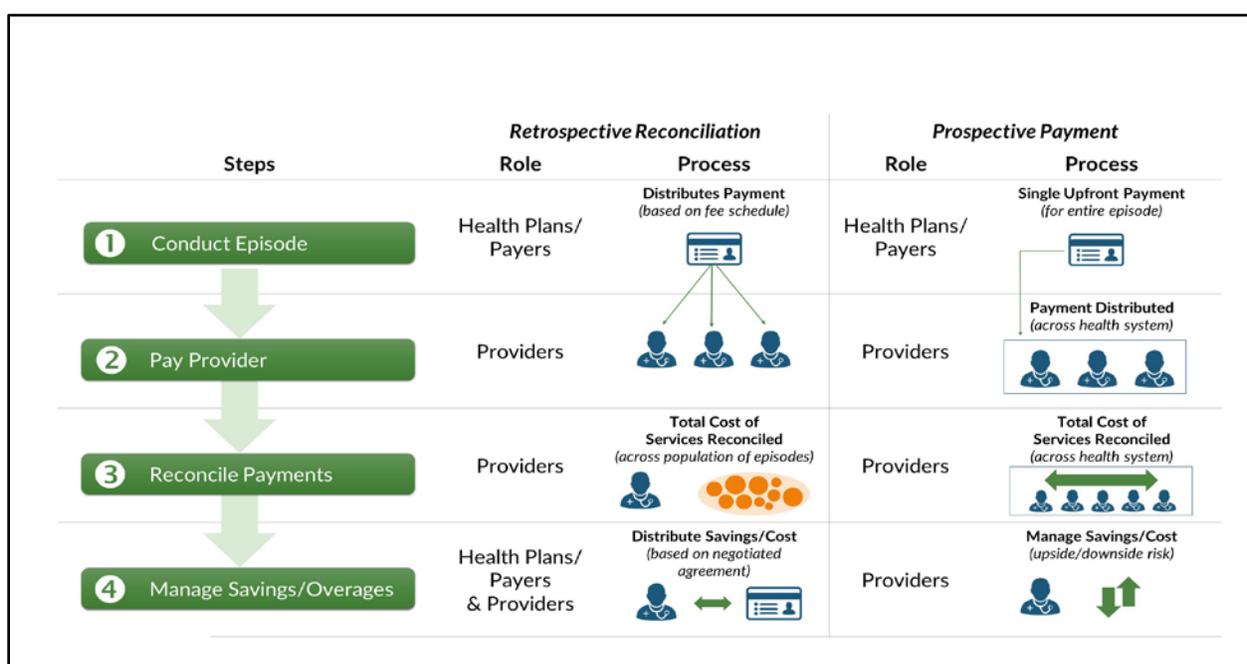
Episode payments are typically dispersed in one of two ways (Figure 4):

- In **Prospective Payment**, payment is provided for the whole episode, including all services and providers, and paid to the accountable entity to subsequently pay each provider in turn. This payment

typically occurs after the episode has occurred but is termed “prospective,” as the price of the episode is set in a prospective budget ahead of time, and the savings or losses are not shared with the payer—they are simply a function of how well the accountable entity (and the providers with whom it coordinates) manage to the pre-determined price.

- In **Retrospective Reconciliation**, individual providers are each paid on a typical FFS basis and then there is a reconciliation between the target episode price and the actual average episode price after a period of time across all the episodes attributed to a provider. An initial reconciliation is typically conducted by the end of the first quarter following an episode’s end; a final reconciliation is typically conducted within six months of the episode’s completion. For this CAD episode, this translates to April and June. Based on a specific formula, either negotiated or established by the payer, the accountable entity can share in gains and/or losses with the payer. In some instances, gains or losses are also shared among providers in the episode to encourage collaboration and coordination across settings. These types of gain-sharing arrangements need to be considered within the constraints of federal laws that may impact their design (as discussed in more detail in the regulatory section below).

Figure 4: Retrospective Reconciliation vs. Prospective Payment



Prospective payment is an option in some circumstances, such as when the accountable entity is a health system that already integrates the clinician and facility payment. However, retrospective reconciliation is simpler to administer, as it requires fewer changes from current practice where the prevailing model is an open, non-integrated system. In addition, retrospective reconciliation is more prevalent in current episode initiatives, as it does not require providers to develop the capacity to pay claims; allows for better tracking of the resources used in the episode; and can be built on an existing payment system. As a practical matter, it may be more difficult to implement a single prospective payment when multiple providers involved in delivering the care do not already have mechanisms for administering payment among themselves, such as

is the case in integrated systems. Increased use of prospective payment can accelerate development of various supporting mechanisms to aid in this process.

Nevertheless, prospective payment has advantages in that it is a clear break from legacy FFS payment and may encourage greater coordination and innovation in episode payment. For example, in a prospective payment initiative, it may be more feasible to be flexible in delivering otherwise uncovered services, or to deliver services that—while covered under traditional FFS—are underutilized, such as cardiac rehabilitation, and nutrition counseling.

In this CAD episode payment approach, an additional consideration is whether the accountable entity is the same for both the condition and the procedure. If the payment flow is retrospective reconciliation of FFS payments and the accountable entities are both expecting to share in gains or losses, one critical issue will be the manner in which those gains or losses are split within the time period of the procedure episodes. If payment is prospective for the condition, it will also be an issue for the accountable entity to determine the manner in which it will pay for or carve out payment for the procedure. For this episode model, however, prospective payment may be more challenging given that it is unknown whether a patient will need a procedure during the course of the twelve months. This challenge is discussed in more detail in Recommendation 8, Episode Price.

8. Episode Price

The episode price should strike a balance between provider-specific and multi-provider/regional utilization history. The episode price should be set at a level that 1) acknowledges achievable efficiencies already gained by previous programs; and 2) reflects a level that potential provider participants see as feasible to attain.

Pricing episodes involves significant complexity both to assure the accuracy of estimates and to develop a pricing structure that is fair to providers but encourages innovation. The goal should be to establish a price that encourages competition among providers to achieve the best outcomes for the lowest cost. However, issues such as accounting for variation in the risk of the population; having a large enough patient population to allow for sufficient variation; the impact of differing fee schedules and negotiating power; shifts in insurers mid-stream; regional variation in availability of types of providers; and ensuring that payments are sufficient to adequately reimburse for high-value services will all need to be taken into consideration.

It will also be necessary to identify a price that does not simply reflect current utilization practices, but creates an achievable “stretch” goal. Therefore, factors such as decreased rates of use of certain testing, procedures, or lower complication and readmission rates may be used to affect the episode price. The episode price should not be set so low, however, to as to discourage providers from delivering all necessary care.

The monetary rewards or penalties that an accountable entity may experience are determined in large part by the manner in which the episode price is established. In addition, there are several key aspects that interact in the establishment of the episode price. All payers will expect some return on their investments in this payment design and can choose a variety of mechanisms to generate some level of savings. It is also important to consider including in the target episode price costs for the services described in

Recommendation 5, Patient Engagement, in order to provide sufficient resources for care coordination, care transitions, shared decision-making, and other strategies.

Typically the target episode price is set using some combination of regional and provider-specific claims data for a period of time that includes a sufficient number of cases used in estimates for the coming year. In some cases, the payer can also include an estimate of a decrease in costs based on improvements, such as lower rate of PCI or CABG, or reduced rate of hospital readmissions post AMI. The Work Group recommends balancing regional-/multi-provider² and provider-specific cost data:

- **Regional Costs:** Using region-level claims data allows the payer to take into account the costs of multiple providers within a region, reflecting the fact that one provider's costs may not be representative of the entire region. It also addresses the variability that may exist for a provider with a low volume of cases, as long as the region is large enough to reflect sufficient variability. However, the concern with using regional claims is that, if as a whole, providers in that region have already achieved a certain level of efficiency, they may be less able to achieve further savings. In essence, these regions (or the providers in them) will argue that an efficient region will be "punished" for its previous work to achieve these efficiencies. On the other hand, if the region, on average, has a higher per bundle cost than other regions (or specific providers within the region), the payer may not achieve as great a level of savings than if the episode price was to be set at a national or provider-specific level.
- **Provider Costs:** Provider-specific costs are the actual costs for the provider's previous patients. For example, if the cardiology practice is the accountable entity, the payer would conduct the analysis using the current episode definition and apply it to its CAD patients over the past two years. The challenge is that although these costs may be accurate for a given clinical practice with a given payer, they may build in already gained efficiencies that make it more difficult to achieve savings or have built-in inefficiencies that limit the savings for the payer.

The data used should be a combination of provider and regional claims experience. This mix will ensure that the established episode price takes into consideration the unique historical experience of the specific provider and that goals are set based on what is feasible in the region. Risk adjustment will also be needed during this process to adjust for the unique characteristics of the population the provider serves, which is discussed further in Recommendation 9, Type and Level of Risk.

Establishing an appropriate episode price for a condition episode with a nested procedure is far more complex than establishing a price for an episode that includes **only a condition or a procedure**. For example, a condition bundle is intrinsically complex because it is difficult to estimate the number of beneficiaries in the bundle who will need procedures. Moreover, the costs of any single procedure can be significant. Adding a procedure into such a bundle requires creating a budget and accountability for the procedure, as well as an overarching budget for the condition, including an estimate of the number and type of procedures that may be needed. As difficult as this sounds, when done thoughtfully, this episode price structure can set up meaningful incentives that prevent the overuse of expensive procedures, particularly when there are more appropriate alternatives.

In order to develop the CAD episode price, the Work Group recommends that health plans default to an average base price for applying the episode to patients who are new to the plan and for which no historical data exists. Doing this would likely lead to an upfront FFS payment and retrospective reconciliation

² For purposes of this paper, region is not defined. The region will be defined as a combination of the experience of multiple providers. We use the term "regional" to reflect this assumption.

payment flow, since a plan may want to conduct retrospective adjustments after a certain number of quarters based on patient resource use.

The price for the procedure episode can be calculated as a percentage allocation carved out from the underlying condition episode price. One can assume that an accountable entity will automatically be over budget in any one case where a patient requires a procedure or experiences a complication. However, across the population as a whole (which implies a minimum population size may be necessary), the episode price will account for a certain number of procedures that may occur. Only those accountable providers with higher than average rates of procedures, adjusted for patient severity, will have total average actuals that exceed the budgets. Recommendation 9, Type and Level of Risk, describes strategies such as stop-loss, which will address situations in which a provider conducts a greater-than-expected number of procedures. While this overage may be due to lack of historical data in the initial years of the episode model, assessing whether a provider is conducting procedures that may not be appropriate or necessary will also be important to consider.

The procedure episode could be priced with the same basic foundation as the condition, with historical data applied to the episode definition for the procedure. It would be necessary to calculate PCI and the CABG procedures separately. Determining whether to do one or the other would be in the hands of the entity accountable for the overall condition.

Historical data, where available, is very important to establishing the episode price. Health plans should use 12 to 24 months of patient historical data whenever possible. The depth of historical data will differ depending on whether the model is being designed for Medicare, Medicaid, or a commercial payer. One concern is that in the context of cardiac care, there is a wider range in cost and utilization within and across markets than there is in a common procedure episode.

9. Type and Level of Risk

The goal should be to utilize both upside and downside risk. Transition periods and risk mitigation strategies should be used to encourage broad provider participation.

When setting an episode price, the goal should be to incorporate both upside and downside risk. Absent downside risk (meaning if the actual costs exceed the target episode price), the accountable entity and other involved providers have less incentive to make the necessary care re-design changes to create efficiencies and improve patient care. Further, increases in the cost of care delivery from year to year often negate the benefits of upside sharing of savings because of the reliance on historical data. Prospective payment by definition includes both. Retrospective reconciliation with upfront FFS payment can be designed to only share in savings (upside risk) or to share in savings and to share in losses (downside risk). In some cases, payers will begin with upside risk to allow for the provider to establish the infrastructure and reengineer care practices to become capable to manage downside risk in the future.

To address concerns related to the level of risk, payers can utilize strategies to limit that risk or to transition (phase in) to downside risk arrangements over time. This is particularly important if the initiative is voluntary and participation would be limited absent the option for upside risk only. Decisions about type, level, and timing of upside and downside risk illustrate the tensions between payers and providers: more attractive risk arrangements for payers may be less attractive for providers, and vice versa. Consequently,

in the private market, these factors become part of the ongoing negotiations among network participants and payers.

Mechanisms for Limiting Risk: The level at which those risk limits are set is a critical design element. There are a number of questions to consider including: 1) will the accountable entity will be required to pay the full difference between the total dollars over the established episode price and the actual episode costs back to the payer, or will limits will be established?; and 2) what is the optimal patient panel size for enabling the adequate spread of risk in the event that the number of procedures provided over the course of the episode is greater than expected? Limits are especially important considering that an accountable entity is accountable for care provided by other providers. In the case of cardiac care, who accounts for the largest percentage of overall costs? What the accountable entity (the clinician practice) is paid through FFS payment is limited compared to the liability associated with the entire cost of the episode over the estimates for the entire population.

One risk mitigation strategy already addressed is limiting high-risk cases through exclusions. Following are two additional strategies used to limit risk in an episode payment:

- **Risk Adjustment:** Risk adjusting the episode price, based on the patient severity within the CAD population, is one risk-mitigation strategy. Most initiatives will include a list of included and excluded patients and then *also* have a list of factors that would be used to adjust the episode price. There are a variety of approaches to capturing patient characteristics, risk factors, and other parameters that predict CAD resource use and expenditures. For example, the Health Care Incentives Improvement Institute’s evidence-based case rates create a variety of patient-specific episodes that re-calibrate based on various patient-specific severity factors (Health Care Incentives Improvement Institute, 2016). While, risk adjustment methods are limited in their predictive accuracy based on claims alone, over time, these factors and their weights can be updated to become more accurate based on empirical experience. At the same time, we recognize that risk adjustment can potentially lead to gaming. This will need to be monitored to ensure that codes are not being overused to obtain higher payments rather than to accurately reflect the condition or risk of the patient.
- **Risk Corridors, Stop-Loss Caps, and Capital Requirements:** Stop-loss caps are already discussed in the context of the included population as one way to limit the risk of very high-cost patients at an individual patient level. Stop-loss caps can also be used on an aggregate level across the population. Risk corridors limit the exposure of the accountable entity by establishing an upper limit over which the accountable entity will not have to pay back any amount of dollars the overall costs of the episodes may go over the established episode price. These corridors can also be placed on the upside risk, such that the incentives to limit care are not as great as they would otherwise be. Another risk mitigation strategy is to require the accountable entity to maintain a certain level of capital such that it can cover losses. While these types of arrangements are often used to limit insurance risk, the same concepts can also be used in this context to limit service risk.

10. Quality Metrics

Prioritize use of metrics that capture the goals of the episode at both the condition and the procedure levels. These include outcome metrics, patient-reported outcome and functional status measures, and some process measures related to the procedures.

There are two tiers of measurement necessary in this model: 1) measures that provide information on the quality of condition management; and 2) measures that hold providers accountable for the quality and outcomes specific to a CAD procedure. Both CMS and commercial health plans use existing cardiac care measures in the realm of clinical outcomes and clinical processes that address both conditional management care as well as procedure-related care. There should be less focus, however, on process of care measures and, instead, a movement toward the use of results-oriented “big dot” measures, as outlined in the [draft Performance Measurement White Paper](#), that allow for system-level measurement based on patient outcomes.

Given the importance of moving to the use of big dot measures, coupled with the lack of system-level outcome measures for CAD care, the Work Group recommends using Patient-Reported Outcome Measures (PROMs) to collect information on patients’ experience of care from both their cardiologist/PCP—as well as from their surgeon in the case of procedures—and measures of functional status pre- and post-procedure.

In selecting the metrics for an episode payment model, it is important to recognize the preference for alignment of measures across programs, use of nationally endorsed measures, and a limited, tight set of measures with a low burden of collection. The Work Group supports these principles whenever they can be met with measures that incent priority opportunities for improving CAD care. A measure that meets these criteria without the potential for clear benefits among CAD patients would not be fit for this purpose and is not recommended. The Work Group is not including recommendations for specific metrics at this time.

Use quality scorecards to track performance on quality and inform decisions related to the ability to share in, and the level of, shared savings or losses; Use quality information and other supports to communicate with and engage patients and other stakeholders.

Selecting Measures: Table 4 describes examples of potential measures, most of which are included in the Core Quality Measures Collaborative (CQMC) Consensus Core Set of Cardiovascular Measures Version 1.0 (Centers for Medicare & Medicaid Services, 2016b). The CQMC divided the set into chronic care and acute care accountability, with the measures themselves specified at either the hospital or the physician level. The Work Group recommends considering the measures in Table 4 as a menu of potential options for developing a core measure set for CAD episode payment.

Table 4: Potential CAD-Related Quality Measures for Use for Accountability and/or Payment

Measure	Examples
Clinical Outcomes	<ul style="list-style-type: none"> ○ Hospital 30-day Risk-standardized readmission rate following CABG (NQF# 2558) ○ Hospital 30-day UNPLANNED Risk-standardized readmission rate following CABG (NQF# 2515) ○ Hospital 30-day Risk-standardized readmission rate following AMI (NQF #0505) ○ 30-day risk standardized mortality rate following PCI for patients with STEMI (NAF#0536) or without STEMI (NQF# 0535) ○ Risk adjusted operative mortality for CABG (NQF #0119) ○ Primary PCI received within 90 of hospital arrival (NQF #0163) ○ In-hospital Risk Adjusted Rate of Bleeding Events for Patients Undergoing PCI (NQF# 2459) ○ Potentially Avoidable Complications Measures
Clinical Processes	<ul style="list-style-type: none"> ○ Chronic Stable CAD: ACE inhibitor or ARB therapy (NQF# 0066) ○ Chronic Stable CAD: antiplatelet therapy (NQF# 0067) or beta blocker therapy (NQF# 0070) ○ Tobacco Use: Screening and Cessation Intervention (NQF# 0028) ○ Therapy with aspirin, P2Y12 inhibitor and statin at discharge following PCI (NQF# 0964)
Care Transition Coordination	<ul style="list-style-type: none"> ○ Post-discharge appointment for heart failure patients (NQF #2439)
Patient-Reported Outcomes	<ul style="list-style-type: none"> ○ CAHPS Clinician and Group Survey ○ CAHPS Surgical Care Survey ○ Gains in patient activation scores from 6-12 months (Patient Activation Measure) (NQF# 2483)
Appropriate Use	<ul style="list-style-type: none"> ○ Cardiac Stress Imaging Not Meeting Appropriate Use Criteria: Routine Testing after PCI (NQF# 0671)
Functional Status	<ul style="list-style-type: none"> ○ Seattle Angina Questionnaire ○ The Continuity Assessment Record and Evaluation (CARE) tool (measures health and functional status upon hospital discharge, changes in severity, and other outcomes)
Measure Concepts for Development	<ul style="list-style-type: none"> ○ Mental health status following cardiovascular events ○ Symptom management measures ○ Measures of use of cardiac rehabilitation ○ Follow-up visit after hospitalization by PCP

The goal of episode payment is to achieve improved outcomes for patient; thus, including clinical outcome measures is imperative for the CAD episode model for the purpose of accountability and to track whether the care delivered is or is not achieving the goal. However, unlike the LAN recommendations on episode payment for maternity care and elective joint replacement, the Work Group does recommend the inclusion of some clinical process measures for CAD, given the link that certain process measures have to patient outcomes, and/or their correlation to meaningful care transition efforts.

Quality Scorecard: Incorporating performance on metrics into scorecards for ensuring high-quality care delivery, informing the decisions of the patient, family caregivers, and providers, and using the scorecard to determine payment levels is a core feature of any episode payment initiative. Further, this information will be critical for engaging patients in decisions related to choice of provider and setting and types of care delivery. Below, we describe in more detail the potential measures that could be used and the manner they would be used in a scorecard and for information purposes for patients and other stakeholders.

Most episode payment initiatives use a quality scorecard with defined thresholds that a provider must meet or exceed to receive either the full reimbursement for an episode or the full shared savings. However, the decision on where those thresholds are set or how they are used should be left to the payer and provider to negotiate. Some initiatives vary the level of shared savings based on performance metrics, while others also use minimum performance levels as a threshold for receiving any portion of the savings. In a prospectively paid initiative, it may be useful to withhold some portion of the prospective payment and base its payment or level of payment on the reporting of and performance on the quality scorecard.

A rich source of measure data for developing a quality scorecard exists within cardiac care-related registries, such as the Society of Thoracic Surgeons' (STS) National Database. The STS registry was established in 1989 as an initiative of cardiothoracic surgeons seeking to improve the safety and outcomes of care. The registry affords cardiothoracic surgeons nationwide a standardized format for collecting a set of data elements required to systematically measure and compare surgical outcomes. The system employs robust risk adjustment and benchmarks that enable comparison across providers and over time and that form the basis for sharing best practices and motivating continuous quality improvement. Moreover, since 2010, the STS has facilitated the public reporting of results of surgical quality and outcomes, including for procedures such as CABG and aortic valve replacement (AVR). The work of the STS and others within the National Quality Registry Network (NQRN) could contribute importantly to the potential for incorporating clinically rich outcome measures for priority conditions and procedures into CEP models

Quality Information to Communicate and Engage with Patients: In addition to using information on quality to determine payment, it is important to other stakeholders to have access to data on quality. As discussed under Recommendation 5, Patient Engagement, patients need quality data on the performance of different providers (primary care, cardiology, surgeons, and intensivists) to inform their choices. They also need information about the different facilities in which their procedures may take place.

One example of public reporting of cardiac surgery performance at both the hospital and the surgeon level are the STS Public Reporting Initiatives. The STS' initial efforts focused on CABG performance, and since then, it has added quality data on Aortic Valve Replacement (AVR) surgery as well. The STS uses a composite CABG score that includes 11 different components of clinical care, including mortality and morbidity rates, and adherence to NQF-endorsed quality measures. Its star rating system is designed to allow patients to view a provider's performance against the average performance of all STS database participants.

Employers, purchasers, and payers also need these data to develop provider networks and to help employees make these important choices. Specifically, employees need to understand the bundle and what their role is in receiving high-quality care.

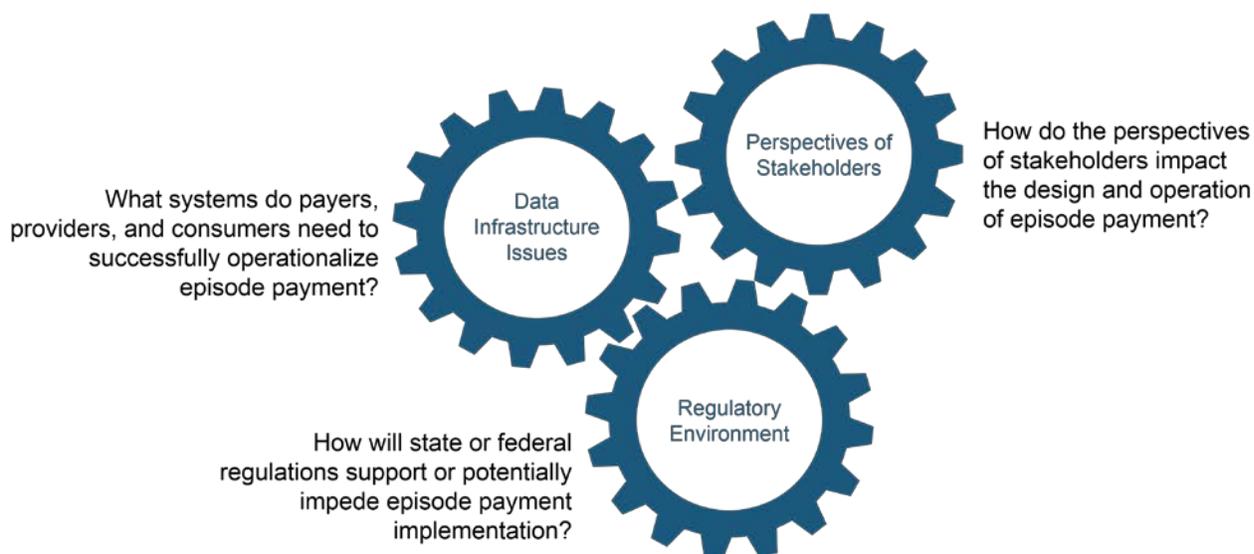
Finally, episode payment design must build in the capacity to collect, analyze, and provide data and to support CAD patients and consumers in general in identifying and interpreting this information. The use of patient navigators (some existing initiatives have used community health workers for this) can be helpful in providing this support, but the information itself must first be available.

Operational Considerations

In this section, we do not include specific recommendations. Instead, the CEP Work Group has developed three key questions that all adopters of clinical episode payment should consider and discuss when they begin planning and designing episode payment models.

While the design of an episode of care is critical to its success, some aspects of the way episode payments are conducted affect the likelihood that payers and providers will be able to adopt a given model. These operational considerations include: remaining mindful of the perspectives of stakeholders; building and maintaining an appropriate infrastructure for data collection, analysis, and payment; and finally, staying abreast of regulatory changes that could impact the design and operation of episode payments (Figure 5).

Figure 5: Operational Considerations



1. Role and Perspectives of Stakeholders

How do the perspectives of stakeholders impact the design and operation of episode payments?

It is important to understand the varied perspectives of those who will be impacted by the clinical episode payment. Each stakeholder, whether payer, provider, consumer, or purchaser, has unique expectations, goals, and limitations during the design of an episode payment. Because of the multiplicity of these diverse perspectives, it is important to consider all stakeholder voices in the design and operation of episode payments.

Many stakeholders have multiple and sometimes conflicting viewpoints. For example, commercial health plans and large payers, such as the states and the federal government, may be primarily focused on creating incentives for providers to achieve economies of scale and thus be willing to invest in data infrastructure to support that goal. Meanwhile, providers may be equally interested in the potential of episode payments but have reservations about leadership and accountability when it comes to care coordination across multiple medical settings. Patients bring a wide range of resources and abilities to the conversation; some have access to shared decision-making tools that can positively impact the delivery of value-based care; others may need additional supports to benefit from the potential for quality that episode payments offer.

Finally, because of their purchasing power, employers and other entities that purchase health care can align incentives between themselves and providers through episode payment. Purchasers' interests coincide with those of consumers and patients, because

Stakeholder Perspectives

Patients and Consumers: Patients and their families, caregivers, and consumers contribute to, and benefit from, episode payment models, including participating in design and use of high-quality decision tools to help determine appropriate interventions. When patients and caregivers have access to meaningful quality and cost information, they are able to make thoughtful care arrangements that favor the highest value care and providers. Finally, consumers and patients can provide important feedback on care experiences and outcomes, which helps measure success and drive improvement

Payers: Payers (commercial health plans, Medicare, and Medicaid) seek to create incentives for providers to coordinate care across provider types and thus, create efficiencies that decrease costs for a bundle of services. They are often willing to invest in strong data infrastructure for episode payment implementation, as well as develop new contracting procedures with participating providers.

Providers: Providers look for indicators of sufficient leadership and accountability for episode payment to be established to ensure that the goals of care re-design and care coordination across settings and providers are prioritized over cost savings. They are interested in aligning financial incentives, data requirements, and quality measurement requirements across all payers with which they contract.

Employers and Purchasers: Large purchasers hold significant leverage with payers and can push for episode payment within their contracting negotiations. Purchasers can advance the goal of aligning incentives between themselves and providers through episode payment. Purchasers may also be interested in integrating tiered networks within a bundled payment model to provide incentives to employees to seek care from high-performing providers and in improving value through enhanced benefits. In this particular episode model, purchasers may need to develop different tools for negotiating multi-year contracts with payers, given the fluctuation in care needs for patients with CAD from the point of diagnosis to active management and beyond.

both groups share a vested interest in ensuring that episode payment models tie reimbursement to performance.

Well-designed payment models consider all of the perspectives above, as well as support reliable delivery of care that is provided at the right time in the right setting.

2. Data Infrastructure Issues

What systems do payers and providers need to successfully operationalize episode payment?

One of the biggest challenges to implementing a CAD episode payment model is the process of managing and sharing the vast amounts of data necessary to assess and mitigate risk. Effective data infrastructure systems must be able to achieve two things:

- Group claims into episodes for analysis and payment; and
- Meet providers' need for critical patient information to be accessible across providers and to patients.

At present, the field lacks scalable infrastructure for widespread, effective, efficient adoption of episode-based payment. Payer systems are set up for FFS payment, or, in some cases, full capitation. The intermediate steps of bundled payment requires pulling claims from multiple data files, applying exclusionary rules, calculating and updating benchmarks, and doing so within the context of multiple provider contracts and enrollee benefit designs. Simply put, some payers are struggling to develop the business case and justify the return on investment for building these systems.

However, in order for episode payment to achieve its potential, a data infrastructure that supports and facilitates analysis for the following purposes is required:

- Establishing the episode price;
- Bundling claims to determine actual expenditures; and
- Communicating clinical, patient-generated, and care coordination data across providers, including primary and specialty physicians, hospitals, post-acute care settings, and others who are part of the patients' care teams.

This data infrastructure must also support the ability of providers to understand patient preferences and expectations, and for patients and family caregivers to communicate preferences and goals.

In addition, whether clinical episode payment is prospective or utilizes retrospective reconciliation with upfront FFS payment, it is critical to build and implement software and systems to group these claims to estimate and establish the episode price, to calculate actual costs, and to make the correct payment adjustments. Currently, the data analysis and systems being used are too manual, and the expense of either replacing or building this type of process on top of legacy systems will limit broader implementation of episode payment. Depending on the volume of payment that is done in this manner and the monetary impact, revising legacy systems to be able to handle this level of complexity may not be a high priority for a payer. Payers are faced with a "buy or build scenario" whereby they can either buy the complex

infrastructure, albeit with little knowledge about the quality of the product, or try to build it themselves, with the understanding that it will be a long-term investment in this type of payment reform.

Moreover, these systems must be able to support data sharing with providers and payers in a transparent manner to ensure that all involved understand where the opportunities for efficiencies and improvements in care occur across the episode, including potentially individual patient management. However, it is often very difficult to obtain useful data in a sufficiently timely manner to allow for the most effective care management of the patient. Another issue is the capacity for provider entities, and in some cases, payers, to analyze the data. Even if the underlying claims are available and the logic for running the data was shared, provider entities often find it challenging to run the necessary reports.

Finally, for the care to be as effective as possible, providing information to patients that allows for them to be engaged with each provider and understand their role in their recovery is also key and must be tied to the provider data analytics.

The Work Group recommends the following two models for operationalizing the data infrastructure needed to implement episode payment:

- **A Service or Utility Model:** In this model, a group of payers pay a third party to develop a core set of logic that could be used to group claims; provide feedback and benchmarking to providers; and support data sharing for patient management, instead of each payer having to develop the capacity individually. Several examples were provided by Work Group members including vendors that are performing this capacity; large payers, such as Medicaid in one state; and regional initiatives whereby purchasers or payers support a third party to perform these tasks in a uniform manner. This ensures that providers involved in this form of payment are not subject to multiple definitions of episodes and benchmarking formulas. Another concept that was important to the Work Group to ensure high-quality products was to potentially create a “certification” process for this type of function.
- **Defining a Core Set of Logic:** This will assist the industry in developing the capacity for grouping claims into bundles by standardizing some of the logic and allowing each payer to customize some of the more specific rules. This could be applied individually by payers or within the context of a third party described above.

3. Regulatory Environment

How can the current and evolving federal and state legal landscape in the health care industry affect episode payment implementation?

Any organization pursuing an episode payment initiative needs to remain cognizant of the statutory and regulatory framework that may impact the manner in which it creates relationships with providers and the manner in which the incentive and risk structures are established.

The manner in which clinical episode payment is designed and implemented will be affected by existing and emerging laws and regulations at both the federal and state levels. Certain arrangements and relationships between providers and suppliers, as well as between patients and providers and suppliers, may implicate federal laws and regulations designed to prevent inappropriate incentives and to protect beneficiaries. Further, many states have created, or are considering creating, regulations designed to ensure that

providers do not take on a level of risk that they might not be able to support without harming the patient or other consumers (regardless of whether it is characterized as insurance or service risk).

Three federal laws of significant importance to health care systems are the physician self-referral law, the anti-kickback statute, and the civil monetary penalty (CMP) laws. It will be important for provider organizations to discuss with legal counsel the potential implications of these and other laws on proposed arrangements for clinical episode payment. HHS issued limited waivers of these laws for specific types of models, including the Bundled Payment for Care Improvement (BPCI) initiative and the CJR. More discussion can be found on the [CMS Fraud and Abuse Waivers web page](#). (Centers for Medicare & Medicaid Services, 2016c).

Moving Forward: Priorities for Supporting Episode Payment

The Work Group's recommendations include actions that are feasible for stakeholders to implement in the current environment; in fact, many are based on existing initiatives. At the same time, there are a number of other areas in which evolution is still necessary in order to fully optimize the impact that APMs, in general, and episode payment, in particular, may have on patients and the health care system. While the following list is not exhaustive, three issues stand out as being necessary in the short-term for moving the field of episode payment forward:

- **Transparency of Cost Data:** All stakeholders need transparent, detailed data on the negotiated prices for CAD care that payers establish with providers. Having this data available via a trusted source will allow purchasers, payers, patients, and consumers to make informed decisions in the episode payment process. In addition, information on regional cost variation and on how variation relates to different circumstances is particularly valuable.
- **Provider and System Readiness:** Individual providers may have interest in participating in an episode payment initiative; however, in order for episode payment to be effective, it requires coordination among a collaborative care team that includes both clinical providers and payers. Most markets lack the systems and infrastructure to support this type of collaboration, and are still hallmarked by siloed care environments that do not share common data or payment systems. Addressing the readiness of both providers and the systems in which they deliver care will be critical to easing the path toward greater episode payment implementation.
- **Quality Measurement:** While there are measures of CAD process standards, patient outcomes, and functional status assessment tools available today, there are concerns about how well these tools support providers' and payers' abilities to assess whether a procedure truly improved the outcome for an individual patient. Continuing the conversation on the development of key measures will be critical in determining the effectiveness of episode payment models.

Conclusion

Overall, the recommendations developed by the CEP Work Group include design elements and operational considerations that together are designed to support alignment. The Work Group recognized that implementation must be tailored to market conduciveness, organizational readiness, and the characteristics of particular initiatives. For that reason, compromises will sometimes be necessary to achieve the goal of alignment. When compromises are made, there should be justifiable reasons for divergence from the Work Group's recommendations.

The Work Group also recognizes that there are many additional elements that can be helpful in deploying episode-based payment programs. These include technical assistance, detailed specification of care delivery models, and aligned benefit designs. While important, these elements are out-of-scope for the Work Group due to the charge from the GC and the designated focus of the LAN.

Finally, the recommendations and implementation options described in the body of the draft White Paper are directed toward all stakeholders. Certain recommendations will resonate more with those who are directly involved in implementation, such as large payers and providers. However, it is the intention of the CEP Work Group that consumers, patients and their family caregivers, purchasers, and states will also consider these recommendations and options as starting points for critical conversations about how to promote aligned adoption of episode payment models.

Appendix A: About the CEP Work Group

History and Rationale

In November 2015, the Guiding Committee (GC) launched the Clinical Episode Payment (CEP) Work Group ([Appendix B: Roster](#)) in order to create “practical, actionable, operationally meaningful” recommendations that can facilitate the adoption of clinical episode-based payment models. The GC noted a specific interest in models that fall within Categories 3 and 4 of its [Alternative Payment Model Framework](#). In addition, the GC encouraged the CEP Work Group to create recommendations that build on existing successes, to identify and address critical barriers to adoption to accelerate progress, and to address key technical components of selected payment models. These technical components include risk adjustment, attribution, performance measures, and how to efficiently share data without compromising patient privacy. The GC also emphasized the importance of staying mindful of the perspectives of patients and consumers while seeking out these best practices.

Work Group Charge

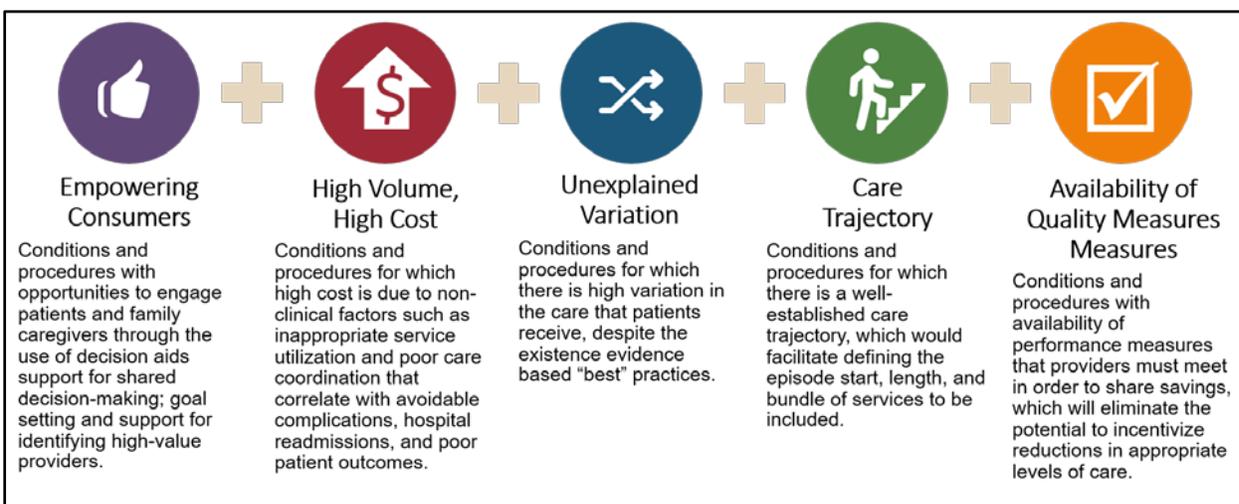
Since the first episode payments were introduced over 30 years ago, public and private purchasers (and a range of delivery systems) have explored a variety of episode payment models with varying degrees of success. This is because, while episode payments offer great potential as an alternative to FFS care, designing and implementing such models come with financial, technological, logistical, and informational obstacles. These challenges, along with the sheer diversity of designs and approaches currently in use, have made it difficult to promote alignment and acceleration of payment models across the U.S. health care system. Thus, the CEP Work Group’s charge was as follows:

- Provide a directional roadmap for providers, health plans, patients and consumers, purchasers, and states, based on existing efforts and innovative thinking.
- Promote alignment (within the commercial sector, as well as across the public and commercial sectors) in both design and operational approach.
- Find a balance between alignment/consistency and flexibility/innovation.
- Strike a balance between short-term realism and long-term aspiration.

Priority Areas

In convening the CEP Work Group, the GC stipulated that the Group should take certain considerations into account as they explored opportunities to advance the alignment and adoption of episode-based APMs. In developing its recommendations, the GC noted that the CEP Work Group should develop a list of priority areas that together reflect: a broad spectrum of potential episode types; represent a diverse range of patients; and have the potential to be widely adoptable and useful across the entire U.S. health system. The CEP Work Group used the criteria in Figure A1 to prioritize the diseases and conditions on which their work would focus.

Figure A1: Criteria for Prioritization



Based on these considerations, the CEP Work Group agreed to focus on the following three priority areas:

- Elective joint replacement
- Cardiac care
- Maternity care

The CEP Work Group believes that these priority areas have the greatest potential to create greater consensus and alignment of payment methods across payers and, thus, over time, to accelerate the adoption of clinical episode-based payments.

Key Principles

Before the CEP Work Group set out to develop its recommendations, the members developed a set of key principles to guide their assessment of models currently in use. These principles align with the broader set of principles described in the LAN APM Framework White Paper.³ They are focused, however, specifically on the design of episode payments. In addition, in their research and discussion, the CEP Work Group chose to emphasize clinical episode payments that also achieved one or more of the following:

- Incentivize **person-centered care**. One goal of alternative payment models (and a principle of the LAN APM Framework⁴) is to define⁵ person-centered care as high-quality care that is both evidence based and delivered in an efficient manner, and where patients' and caregivers' individual preferences, needs, and values are paramount.
- Improve patient outcomes through **effective care coordination**. Episode payment encourages providers to better coordinate care across and within care settings and focus more strongly on care quality to achieve better care, smarter spending, and healthier people. Effective care coordination is particularly important for those with chronic conditions and for other high-risk/high-need patients.

³ Reference to APM Whitepaper

⁴ Principle 1 of the APM Framework

⁵ Definition of Patient-Centered Care (APM Framework page 4)

- **Reward high value care** by incentivizing providers and patients, together with their family caregivers, to discuss the appropriateness of procedures. Therefore, episodes and procedures that do not align with patient preferences can be avoided.
- **Reduce unnecessary costs** to the patient and to the health care system. Episode payment offers incentives to examine all the cost drivers across the episode, including fragmentation, duplication, site of service, volume of services, and input costs/prices. Episode payment can create (for payers and consumers) an “apples-to-apples” comparison for assessing quality and cost. This well-defined “product” allows buyers to compare price and quality.

APM Framework Alignment

In January 2016, the Alternative Payment Model Framework Progress and Tracking Work Group released the [Alternative Payment Model \(APM\) Framework White Paper](#), which defines payment model categories and establishes a common framework and a set of conventions for measuring progress in the adoption of APMs.

Figure 7 illustrates the four categories within the APM Framework. Categories 3 and 4 represent population-based accountable APMs. Clinical episode-based payments fall into either Categories 3 or 4, depending on whether they are designed around procedures, such as a hip replacement, or health conditions, such as pregnancy. This White Paper discusses Coronary Artery Disease (CAD) episode payment, which combines a condition-based episode with a procedure-based episode, and thus straddles the line between Categories 3 and 4.

Figure 7: APM Framework (At-a-Glance)



Appendix B: Roster

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CAMH, sponsored by CMS, is an FFRDC operated by the MITRE Corporation. MITRE is chartered to work in the public interest.

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Appendix C: Acknowledgements

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Appendix D: Summary Review of Selected CABG and PCI Initiatives

CABG Bundled Payment Models

CABG Bundled Payment Models	Episode Definition/Population	Episode Timing	Service Inclusion/Exclusion	Accountable Entity	Payment Flow	Episode Price	Level and Type of Risk	Quality Metrics	Patient Engagement	Results
CMS – Bundled Payments for Care Improvement (BPCI): Model 2⁶	Elective and Emergent CABG	Inpatient stay through 30, 60, or 90 days post-discharge Awardees select episode length	All related inpatient stay costs in acute care and post-acute care and all related services for 90-days post-discharge All non-hospice Part A and Part B services	Acute care hospital, physician group practice, or Awardee Convenor Voluntary gain-sharing with providers	FFS with retrospective reconciliation	Reconcile actual cost against a bundled payment amount for the episode of care, which is based on historical FFS payments	Upside and downside risk Increasing upside and downside risk over time to stop loss and stop gain limits	No explicit quality tie to payment methodology	NA	Results not yet available
CMS – Bundled Payments for Care Improvement (BPCI): Model 3⁶	Elective and Emergent CABG	Admission to post-acute care within 30-days of discharge through 30, 60, or 90 days after the initiation of the episode Awardees select episode length	Provider fees (physician and post-acute care services), related readmissions, and related Part B services (e.g., lab, DME) All non-hospice Part A and Part B services during the post-acute period and readmission	Post-acute care provider, provider group practice, or Awardee Convenor Voluntary gain-sharing with providers	FFS with retrospective reconciliation	Reconcile actual cost against a bundled payment amount for the episode of care, which is based on historical FFS payments	Upside and downside risk Increasing upside and downside risk over time to stop loss and stop gain limits	No explicit quality tie to payment methodology	NA	Results not yet available
CMS – Bundled Payments for Care Improvement (BPCI): Model 4⁶	Elective and Emergent CABG	Entire acute care hospital stay and related readmissions for 30 days	All related services provided by the hospital, physician, and other practitioners	Acute care hospital or Awardee Convenor Voluntary gain-sharing with providers	Prospective payment	Single bundled payment for all related services	Upside and downside risk	No explicit quality tie to payment methodology	NA	Results not yet available

⁶ Model 1 not included as it is a discount off of IPPS, not accountability across providers or settings

CABG Bundled Payment Models	Episode Definition/Population	Episode Timing	Service Inclusion/Exclusion	Accountable Entity	Payment Flow	Episode Price	Level and Type of Risk	Quality Metrics	Patient Engagement	Results
Geisinger Health System (GHS) CABG ProvenCare Initiative	Elective CABG	Procedure through 90-days post-discharge	Pre-operative evaluation, all hospital and professional fees, routine post-discharge care, and management of related complications occurring within 90 days of procedure	GHS facility or GHS provider	Prospective Payment	Set price for episode of care. Single payment to the hospital system and single payment to the provider system (payment to the provider/surgeon is allocated to multiple service lines/providers encounters) i.e., CABG – surgery, anesthesiology, cardiology	Upside risk	40+ best practice process measures	Engage patients with post-discharge services such as home health services and cardiac rehab Developed a Patient Compact	Clinical outcome improvements show a decrease in in-hospital mortality, patients with any complications (STS), atrial fibrillation, permanent stroke, prolonged ventilation, re-intubation, intra-op blood products used, re-operation for bleeding, deep sternal wound infection, and post-op mean LOS Hospital: Contribution margin increased 17.6%, and total inpatient profit per case improved \$1,946 Health Plan: Paid 4.8% less per case for CABG with ProvenCare than it would have without; paid out 28 to 36% less for CABG with GHS than with other providers
PROMETHEUS/ Health Care Improvement Initiative Institute (HCI3)	Elective and Emergent CABG	30-days pre-admission through 180-days post-discharge	Detailed lists of procedure codes for inclusion of services	Varies based on the initiative; can be either the facility, the practice, or both	Can use either prospective or FFS with retrospective reconciliation	Prospective: Patient-specific predicted budgets, which are negotiated upfront during contracting Retrospective: FFS payment allows for severity-adjustment based on risk factors to budget for per-patient costs	Contracts can be based on upside risk only, upside and downside risk, with or without stop loss, and with upside risk tied to quality scorecards	Set of measures evaluating potentially avoidable complications	NA	NA
Arkansas Health Care Payment Improvement Initiative	Acute and Non-acute CABG Procedure Emergency CABG excluded	Date of surgery through 30-days post-discharge from facility where surgery occurred	All related inpatient, outpatient, professional, and pharmacy services happening within the episode timeframe Exclusion: PCI converting to CABG within 1 day	Physician performing the CABG	FFS with retrospective reconciliation	Average cost per episode for each accountable provider is compared to commendable and acceptable levels	Upside and downside risk	Average length of pre-operative inpatient stay Percent of patients admitted on day of surgery Percent of patients for whom an internal mammary artery is used	NA	Results not yet available

PCI Bundled Payment Models

PCI Bundled Payment Models	Episode Definition	Episode Timing	Population	Service Inclusion/Exclusion	Accountable Entity	Payment Flow	Episode Price	Level and Type of Risk	Quality Metrics	Patient Engagement	Results
CMS – Bundled Payments for Care Improvement (BPCI): Model 2⁷	Elective and Emergent PCI	Inpatient stay through 30, 60, 90 days post-discharge Awardees select episode length	Limited list of population exclusions for unrelated Part B services and Part A inpatient readmissions	All related inpatient stay costs in acute care and post-acute care and all related services for 90-days post-discharge All non-hospice Part A and Part B services	Acute care hospital, physician group practice, or Awardee Convenor Voluntary gain-sharing with providers	FFS with retrospective reconciliation	Reconcile actual cost against a bundled payment amount for the episode of care, which is based on historical FFS payments	Upside and downside risk Increasing upside and downside risk over time to stop loss and stop gain limits	No explicit quality tie to payment methodology	NA	Results not yet available
CMS – Bundled Payments for Care Improvement (BPCI): Model 3⁷	Elective and Emergent PCI	Admission to post-acute care within 30 days of discharge through 30, 60, or 90 days after the initiation of the episode Awardees select episode length	Limited list of population exclusions for unrelated Part B services and Part A inpatient readmissions	Provider fees (physician and post-acute care services), related readmissions, and related Part B services (e.g., lab, DME) All non-hospice Part A and Part B services during the post-acute period and readmission	Post-acute care provider, provider group practice, or Awardee Convenor Voluntary gain-sharing with providers	FFS with retrospective reconciliation	Reconcile actual cost against a bundled payment amount for the episode of care, which is based on historical FFS payments	Upside and downside risk Increasing upside and downside risk over time to stop loss and stop gain limits	No explicit quality tie to payment methodology	NA	Results not yet available
CMS – Bundled Payments for Care Improvement (BPCI): Model 4⁷	Elective and Emergent PCI	Entire acute care hospital stay and related readmissions for 30 days	Limited list of population exclusions for unrelated Part B services and Part A inpatient readmissions	All related services provided by the hospital, physician, and other practitioners	Acute care hospital or Awardee Convenor Voluntary gain-sharing with providers	Prospective payment	Single bundled payment for all related services	Upside and downside risk	No explicit quality tie to payment methodology	NA	Results not yet available

⁷ Model 1 not included as it is a discount off of IPPS, not accountability across providers or settings

PCI Bundled Payment Models	Episode Definition	Episode Timing	Population	Service Inclusion/Exclusion	Accountable Entity	Payment Flow	Episode Price	Level and Type of Risk	Quality Metrics	Patient Engagement	Results
Geisinger Health System (GHS) PCI ProvenCare Initiative	Elective PCI	Procedure through 90-days post-discharge	Limited exclusions based on prospective provider consensus	Pre-operative evaluation, all hospital and professional fees, routine post-discharge care, and management of related complications occurring within 90-days of procedure	GHS facility or GHS provider	Prospective payment	Set price for episode of care (global package rate based on historical data from top professional departments related to episode)	Upside risk	33 elective/urgent and 28 Emergent best practice elements	Engage patients with post-discharge services such as home health services and cardiac rehab Developed a Patient Compact	Length of stay (LOS) decreased from 2.86 pre ProvenCare to 2.50 Post procedure LOS, 2.27 to 1.69 Defect free care (NCDR database) 99.5% Mean time to PCI 42 min (door to balloon), 90th%ile is 49 min. More use of LMWH/unfractionated heparin vs. thrombin inhibitors and GPIIb/IIIa inhibitors than peers (evidence-based and less expensive) Use of radial (preferred site) went from 34% to approaching 80%
PROMETHEUS/ Health Care Improvement Initiative Institute (HCI3)	Elective and Emergent PCI	60 days prior to admission through 180-days post-discharge	Detailed list of relevant, qualifying diagnosis codes for patient inclusion	Detailed lists of procedure codes for inclusion of services	Varies based on the initiative; can be either the facility, the practice, or both	Can use either prospective payment or FFS with retrospective reconciliation	Prospective: Patient-specific predicted budgets, which are negotiated upfront during contracting Retrospective: FFS payment allows for severity-adjustment based on risk factors to budget for per-patient costs	Contracts can be based on upside only, upside and downside, with or without stop loss, and with upside tied to quality scorecards	Set of measures evaluating potentially avoidable complications	NA	NA

PCI Bundled Payment Models	Episode Definition	Episode Timing	Population	Service Inclusion/Exclusion	Accountable Entity	Payment Flow	Episode Price	Level and Type of Risk	Quality Metrics	Patient Engagement	Results
Tennessee Health Care Improvement Innovation Initiative	Elective PCI Procedure	<p>Begins on the lesser of the two:</p> <ul style="list-style-type: none"> • 90 days prior to the PCI or • First visit with the accountable provider within those 90 days <p>Ends 30 days post-procedure/discharge</p>	Patients without a diagnosis of acute coronary syndrome and who do not present in the emergency department	<p>All related hospitalization, outpatient, and professional claims (e.g., anesthesia, imaging and testing, evaluation and management, and medications)</p> <p>Exclusions: Multiple business, clinical, and patient exclusions</p>	Physician group of cardiologists who performs the procedures	FFS with retrospective reconciliation	<p>Reimbursement for episode is risk adjusted using historical claims data</p> <p>Payers adjust over time based on new data</p> <p>Acceptable, commendable, and gain-sharing limit thresholds are set</p>	Upside and downside risk	<p>Gainsharing: Hospital admission in post-trigger window (excludes hospitalizations for repeat PCI)</p> <p>Reporting: % of episodes where the trigger involves multiple vessels or branches; % of episodes with a repeat PCI</p>	NA	Results not yet available
	Emergent PCI	Procedure through 30-days post-discharge	Patients with a diagnosis of acute coronary syndrome or who present in the emergency department		Facility where the PCI was performed						
Ohio Health Transformation Episode Based Payment Model <i>Case study still under review by the Ohio Transformation Episode Based Payment Model</i>	Elective PCI	Date of most recent angiogram within 30 days prior to PCI procedure through 30 days post-discharge	Patient experiences non-acute symptoms	<p>All inpatient, outpatient; long-term care; professional; pharmacy; relevant diagnoses and complications; relevant imaging and testing procedures; and inpatient admissions less BPCI exclusions</p> <p>Exclusions: Multiple business, clinical, and cost exclusions</p>	Physician or physician group that performs the PCI	FFS with retrospective reconciliation	Historical claims data is used to pay providers upfront, with gain-sharing for providers who have lower costs and meet quality thresholds and risk-sharing for providers with high average episode costs	Upside and downside risk	<p>Gainsharing: AV fistula; dissection of coronary artery; post-op hemorrhage and infection; myocardial infarction; pulmonary embolism or vein thrombosis; stent complication; or stroke</p> <p>Reporting: % of episodes where the trigger involves multiple vessels or branches; % of episodes with a repeat PCI</p>	NA	Results not yet available
	Emergent PCI	Day of admission through 30 days post-discharge	Patient experiences myocardial infarction or acute symptoms		Facility where the PCI is performed						

PCI Bundled Payment Models	Episode Definition	Episode Timing	Population	Service Inclusion/Exclusion	Accountable Entity	Payment Flow	Episode Price	Level and Type of Risk	Quality Metrics	Patient Engagement	Results
Arkansas Health Care Payment Improvement Initiative	Elective PCI and Emergent PCI	Diagnostic angiogram and procedure through 30 days post-procedure admission	Patients with acute coronary syndrome, myocardial infarction, unstable angina, stable angina, or another diagnostic event	All facility services; inpatient professional services; emergency department visits; observation; post-acute care; any related outpatient labs and diagnostics; medications; and relevant post-acute care Exclusion: PCI converting to CABG within 1 day	Primary interventionalist performing the PCI	FFS with retrospective reconciliation	Average cost per episode for each accountable provider is compared to commendable and acceptable levels	Upside and downside risk	Adverse Outcomes are determined by trigger claims that have one of the following diagnosis codes in diagnostic, facility, and professional services within 30 days of trigger claim; an Adverse Outcome is not included if there is a present on admission flag on the trigger claim when it is filed Percent of patients receiving simultaneous interventions on multiple vessels—calculated based on claims with procedure codes on the same date as the trigger Percent of patients receiving staged interventions on multiple vessels—calculated based on claims with procedure codes within 30 days of trigger Percent of stents placed that are drug-eluting—calculated based on claims with this procedure code reported	NA	Results not yet available

Appendix E: Implementation Resources

Existing Initiatives

<p>Centers for Medicare & Medicaid Services (CMS) Bundled Payment for Care Improvement (BPCI) Home Page</p>	<p>The webpage for the Bundled Payment for Care Improvement (BPCI) models includes details on episode definitions, eligible MS-DRGs, and lists of participants in the model.</p>
<p>Geisinger’s ProvenCare Initiative</p>	<p>Geisinger uses the ProvenCare model to provide a global payment for PCI and CABG procedures and allows providers to share in savings.</p>
<p>Health Care Incentives Improvement Institute’s Evidence-Based Case Rates and Definitions</p>	<p>The Health Care Incentives Improvement Institute website provides open source definitions of various evidence-based case rates. This includes specific codes that can be used for defining the trigger event and what services are included.</p>
<p>State of Tennessee Health Care Initiative Episode of Care Description and Examples</p>	<p>The State of Tennessee Health Care Initiative website offers descriptions of episode of care and examples of quality and cost provider reports.</p>
<p>Ohio Health Transformation Episode-Based Payment Model</p>	<p>The Ohio Governor’s Office of Health Transformation website offers information on their implementation of episode based payment models.</p>
<p>Arkansas Health Care Improvement Initiative Payment Reform Report</p>	<p>The Arkansas Health Care Improvement Initiative report describes the state’s payment reforms, including their episode payment work. Description of the design and findings from their initiative are included. The roles of Medicaid and several insurers, including Blue Cross Blue Shield of Arkansas, are described in detail.</p>

General Resources

<p>Blue Cross Blue Shield of Texas</p>	<p>Blue Cross Blue Shield of Texas created a Blue Care Connection program for its members which helps better control chronic conditions.</p>
<p>New York State Delivery System Reform Incentive Payment (NYE DSRIP Program)</p>	<p>The New York State Delivery System Reform Incentive Payment Program is one example of a framework that pays from the condition perspective instead of by procedure.</p>

Convener Organizations	<p>Examples of convener organizations include Premier, Inc., which primarily works with hospitals, and Cogent Healthcare, which manages hospitalist practices</p>
Health Care System Federal Laws	<p>This resource guide provides further information on the Anti-Kickback Statute and The Civil Monetary Penalties Law. Further information on the Self-Referral Law can be found here.</p>
CMS Acute Care Episode (ACE) Demonstration	<p>This bundled payment approach includes 28 cardiac and 9 orthopedic inpatient surgical services and procedures.</p>

Physician Engagement

The Informed Medical Decisions Foundation’s Patient Visit Guide	<p>The Informed Medical Decisions Foundation provides a Patient Visit Guide to help patients ask questions and work with their doctors to make fully informed decisions regarding their health care.</p>
Agency for Healthcare Research and Quality (AHRQ) Effective Health Care Program	<p>AHRQ’s Effective Health Care Program provides additional resources for patients to understand their condition and start the conversation with their provider regarding treatment options.</p>
Decision Aid Library Inventory (DALI)	<p>The DALI website contains an inventory of decision aid tools that meet the criteria of the International Patient Decision Aid Standards (IPDAS) Collaboration. The inventory is an Excel spreadsheet that provides the treatment area and links to the sponsoring organization.</p>
Cardiovascular Disease Risk Calculator	<p>This risk assessment tool predicts a patient’s risk of having a heart attack in the next ten years.</p>
Newcastle Hospital Patient and Visitor Guides	<p>Newcastle Hospital’s section on shared decision making provides a short video, from the MAGIC Programme, on the three most important questions to ask your health care provider when making a decision. This section also provides more information on the need for patient’s to be involved in decisions about their health care.</p>
Health Consumer Alliance	<p>The Health Consumer Alliance has developed a website that links to various consumer brochures which answer frequent health care questions, including the “Know Your Rights Fact Sheet.”</p>

<p><u>Joint Commission’s Speak Up™ Program</u></p>	<p>Brochures and videos are available on The Joint Commission’s website as a part of their national patient safety campaign called Speak Up™.</p>
<p><u>Mayo Clinic Study Cardiac Rehabilitation mobile app</u></p>	<p>The Mayo Clinic studied the effect of using a mobile app to help encourage cardiac rehabilitation for patients who recently suffered an episode of acute coronary syndrome.</p>
<p><u>SMARTCare Pilot</u></p>	<p>This pilot project, developed by the Florida and Wisconsin chapters of the American College of Cardiology aims to improve quality of care, enhance access to care, and reduce health care costs by providing tools to help physicians and cardiovascular team members apply guidelines and appropriate use criteria (AUC) at the point of care.</p>
<p><u>Patient Reported Outcome Measurement Information System (PROMIS)</u></p>	<p>PROMIS® instruments use modern measurement theory to assess patient-reported health status for physical, mental, and social wellbeing to reliably and validly measure patient-reported outcomes (PROs) for clinical research and practice. PROMIS instruments measure concepts such as pain, fatigue, physical function, depression, anxiety, and social function.</p>

Care Transitions

<p><u>Acute Care for Elders (ACE) Program</u></p>	<p>The University Hospitals Case Medical Center developed the Acute Care for Elders model of care to assist with the transition from an inpatient admission to home for elderly patients.</p>
<p><u>Care Transitions Coaching Program</u></p>	<p>A program at the University of Colorado which uses “Transition Coaches” to teach skills to patients and caregivers to promote and support continuity of care.</p>
<p><u>H2H Hospital to Home Quality Initiative</u></p>	<p>The American College of Cardiology (ACC) and the Institute for Healthcare Improvement (IHI) created this initiative to provide resources for the transition of the patient from the hospital to the patient’s home</p>

Quality Measurement

<p>American College of Cardiology (ACC) Appropriate Use Criteria and Treatment Guidelines</p>	<p>This website provides additional information about The American College of Cardiology’s Appropriate Use Criteria and Treatment Guidelines.</p>
<p>Society of Thoracic Surgeons Quality Performance Measures</p>	<p>This website lists the cardiac-related quality measures that are developed and maintained by the Society of Thoracic Surgeons.</p>
<p>Core Quality Measures Collaborative (CQMC)</p>	<p>The Core Quality Measures Collaborative created a Consensus Core Set for Cardiovascular Measures.</p>
<p>National Quality Forum</p>	<p>The National Quality Forum (NQF) leads national collaboration to improve health and healthcare quality through measurement, primarily through measure endorsement. NQF oversees the <i>Quality Positioning System</i>, a searchable database of quality measures.</p>
<p>CMS Measures Inventory</p>	<p>The CMS Measures Inventory is a compilation of measures used by CMS in various quality, reporting, and payment programs. The inventory lists each measure by program, reporting measure specifications including, but not limited to, numerator, denominator, exclusion criteria, National Quality Strategy (NQS) domain, measure type, and National Quality Forum (NQF) endorsement status.</p>
<p>Hospital Compare</p>	<p>Hospital Compare offers information about the quality of care at over 4,000 Medicare-certified hospitals across the country.</p>

Appendix F: References

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