Maternity Multi-Stakeholder Action Collaborative (MAC)

Kickoff Meeting

December 1, 2016

HCP LAN
Health Care Payment Learning & Action Network

MAC December 1st Kick-Off Meeting

eBook Table of Contents

Session 1: Welcome, Introductions, and Meeting Overview

- **Meeting Agenda & Objectives**
- **Participant List**

Maternity Multi-Stakeholder Action Collaborative Kickoff Meeting
December 1, 2016
8:00 am – 4:00 pm ET

Meeting Purpose: Launch the LAN Maternity Multi-Stakeholder Action Collaborative (MAC)

Meeting Objectives

1. Understand participants' goals, challenges, and motivations for being part of the MAC.
2. Come to a shared agreement on the MAC's mission, and determine the MAC's topical priorities and strategic activities for 2017.
3. Provide examples of current maternity care payment models as a roadmap to action
4. Begin working on issues related to quality measures to support maternity care alternative payment
5. Articulate actionable next steps for MAC participants and for the LAN

AGENDA

Timeframe	Topic	Session Objectives
8:00– 8:30am	Security Check-In and Breakfast	
8:30 – 9:15 am	Welcome, Introductions and Meeting Overview	Attendees meet each other and the LAN team, describe why they chose to participate in the MAC, and review the agenda and materials for the day.
9:15 – 10:30 am	Maternity Care Episode Payment: Stories from the Field	Hear from – and ask questions of - invited representatives from existing maternity care episode payment models on the following: • How did they begin the journey toward implementing maternity episode payment? • What leadership structure was in place to support the design and implementation effort? • What was the process for making decisions about the episode design? • What challenges were faced and how were they overcome? • What environment and market-specific issues played into the decision-making?
10:30 – 10:45 am: Break		
10:45 am – 12:00 pm	Working Session #1: Identifying Priority Topics and Goals	• Review a summary of MAC participants' current status, goals, and challenges • Discuss and come to agreement on the MAC's scope: – Based on needs assessment, discuss and vote on 2-3 priority topics on which to focus – For each priority topic, develop a goal and actions for achieving the goal • Goal: Emerge with an overarching MAC strategy, including clearly identified and shared priorities, goals, and action steps
12:00 – 12:45 pm: LUNCH		
12:45 – 1:45 pm	Discuss and Develop a Shared Model of MAC Operations	• Review/recap the MAC priority topics, goals, and actions. • Discuss proposed MAC structure for operationalizing the support in a way that provides value to all participants. • Goal: Attendees create a shared model of the MAC's operational structure, as well as the substantive topics and goals that will drive the MAC's agenda and calendar for 2017.
1:45 – 2:00 pm: Break		

Timeframe	Topic	Session Objectives
2:00 – 3:15 pm	Working Session: Mock Exercise on Identifying Quality Measures for Implementation	A facilitated mock exercise in which attendees will work through the decision-making process involved in developing a maternity care quality measure set that supports episode and other alternative payment models. Using a reference guide of commonly used maternity care measures, attendees will be guided through questions such as (but not exclusive to) the following: • What questions do we need to consider when developing criteria for selecting measures that will be used in an episode payment or other alternative payment model? • Are the criteria different for measures that will be used to determine shared savings or risk, versus those used for accountability? • What is the process for developing a core set, and who should be at the table? • Can we be parsimonious with the number of measures selected, while still including enough to support accountability and quality improvement? • How do we deal with implementation challenges, e.g. lack of benchmark rates?
3:15-4:00pm	Wrap up and Next Steps	• Review the decisions on topics, goals, and action steps • Review decisions on MAC operational structure • Recap immediate next steps and proposed dates for next events

Maternity Multi-Stakeholder Action Collaborative Kick-Off Meeting Participation List (As of 11/29/2016)

Name	Title	Organization
Tom Betlach (co-chair)	*Director*	*Arizona Health Care Cost Containment System (AHCCCS)*
Elliott Main (co-chair	*Medical Director*	*California Maternal Quality Care Collaborative*
Jill Alliman (by phone)	Strong Start Project Director	American Association of Birth Centers
Joshua Austin (by phone)	Project Coordinator	West Virginia SIM Program
Michael Bailit	President	Bailit Health
Lili Brillstein	Director, Episodes of Care	Horizon Blue Cross Blue Shield of New Jersey
Megan Burns	Senior Consultant	Bailit Health
Lekisha Daniel-Robinson	Coordinator, Maternal and Infant Health Initiative	Center for Medicaid and CHIP Services, CMS
Linda Davis	Consultant	American Association of Birth Centers
Anne Diamond	Senior Director of Health Economics	American College of Obstetricians and Gynecologists
Tom Gilpin	Project Manager	West Virginia SIM Program
Casey Grabenstein	Maternal Child Health Program Manager	CareOregon
Linda Harmon	Executive Director/CEO	Lamaze International
Brittany Hernandez	Deputy Director, Federal Affairs	March of Dimes
Deborah Kilstein (by phone)	Vice President for Quality Management and Operational Support	Association for Community Affiliated Plans (ACAP)
Brenda Lakeman (by phone)	Director, Human Resource Management and Benefits, OMB	Delaware OMB
Christopher Levigne	Director of the Office of Reimbursement & Certificate of Need	Connecticut Medicaid
Karen Love (by phone)	Executive Vice President and Chief Operating Officer	Community Health Choice of Texas
Cara Osborne	Founder	Baby+ Company
Sally Oudenkirk (by phone)	LTSS Specialist	Iowa Medicaid
Mary Peterson (by phone)	President and CEO	Driscoll Health Plan, Texax
Janelle Reiner	Business Leader, Alternative Payments	CareOregon

Name	Title	Organization
Luis Rivera	Assistant Vice President, Value Based Contracting	Northwell Health
Seon Rockwell	Director of Innovation and Strategy	Virginia Medicaid
Aparna Saha	Senior Advisor, Learning and Diffusion Group/HCPLAN	CMS Innovation Center
Carol Sakala	Director of Childbirth Connection Programs	National Partnership for Women & Families
Fran Schwartz	Chair, AABC Industry Relations Committee	American Association of Birth Centers
Mark Smith (by phone)	Visiting Professor; Clinical Professor of Medicine, Co-Chair	University of California at Berkeley; University of California at San Francisco; LAN Guiding Committee
Jen Steele (by phone)	Medicaid Director	Louisiana Medicaid
Marty Swartz (by phone)	Medical Services Specialist	Iowa Medicaid
Rick Villarreal (by phone)	Integrity Officer/Government Representative	Driscoll Children's Hospital, Texas
Rusty Walker	Value-Based Purchasing Senior Policy Manager	Virginia Medicaid
Ellen-Marie Whelan	Chief Population Health Officer	Center for Medicaid and CHIP Services, CMS
Elizabeth (Betsy) Wieand	Program Director of Payment and Delivery System Policy	American College of Obstetricians and Gynecologists

Session 2: Maternity Care Episode Payment: Stories from the Field

- **Horizon Blue Cross Blue Shield of New Jersey**
- **Community Health Choice**
- **Arkansas Health Care Payment Improvement Initiative**
- **Tennessee Health Care Improvement Innovation Initiative**
- **Ohio Episode-Based Payment Model**
- **Summary of Additional Maternity APM Initiatives**

Episodes of Care
A Model for Maternity Care

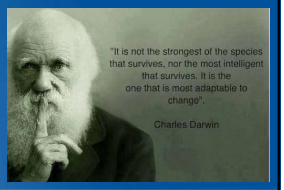
Lili Brillstein, MPH
Director, Episodes of Care
HCP LAN
Maternity Multi-Stakeholder Action Collaborative
Kick-off Meeting
December 1, 2016

Horizon

The Time for Change is Now

Current system of paying for volume, regardless of outcomes, has lead to unsustainable growth

Opportunity to:
- Reward for optimal outcomes & patient experience
- Create accountability
- Reduce overall costs



Horizon

Fee for Service vs Value Based Care

Fee for Service

Focus is on all of the care provided by a particular provider

Value-Based Care

Focus is on all of the care provided to a particular patient *across the full healthcare continuum*

Horizon

Why Maternity?

Opportunity to improve outcomes for mothers & babies, & reduce overall cost

- C-section Rates
  - WHO: Ideal rate for caesarean sections to be between 10-15%*
  - US rate of C-section is more than double that rate
  - Risks Associated with High Rates of C-section
    - Increased rates of infection for mother and baby
    - Future pregnancy complications
    - Longer hospital stay & readmissions
    - Extended recovery time
    - Maternal mortality
    - Increased cost
- Duplicative & Unnecessary Testing
  - False negatives/positives
  - Unnecessary stress
  - Additional increased cost
- Coordination of Care & Support Across the Continuum
- Full term vs Early Elective & Pre-term

Horizon

Episodes of Care

Value-based model designed to engage specialists and refocus health care delivery and reimbursement on quality and value rather than volume.

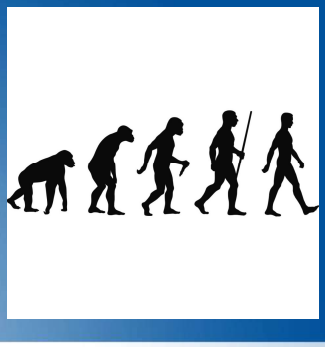
Full spectrum of health care services related to and delivered for a specific medical condition, illness, procedure or health care event during a defined time period.

Primary Goal: Standardize & Optimize Care and Cost of Care

Horizon

Migration from FFS to VBC is Evolutionary

Time is critical



Horizon

Retrospective, Upside-Only Model

- All providers of care within the continuum of the episode are ***paid at their contracted fee for service rates***
- Episode assessment is made, post episode
  - Quality
  - Patient Experience
  - Total Cost of Care
- If metrics are met, savings are shared
- No-risk environment
  - Opportunity to figure out, together, how to create success in value-based model
  - Trust & Credibility
  - Transparency

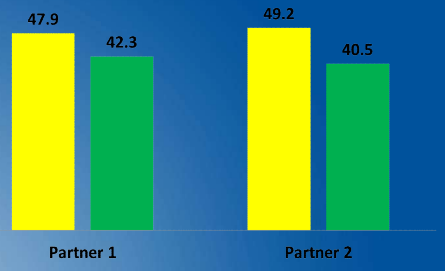
Horizon

Partnership is Key to Success

- Collaboration & Simplicity are key
  - Defining episode
  - Establishing quality metrics
  - Creating workable model
- Physicians are the clinical experts in charge of the care
  - Providers make clinical care decisions
- Patient is center stage

Horizon

Results: Average C-section Rates



Horizon BCBS NJ's EOC Success

- Retrospective Program has allowed for significant improvement in relationships between Horizon and our providers
  - Completely changed the spirit of the interactions
  - Brought us closer to what managed care was intended to be
- Has allowed for an evolution of change that has resulted in:
  - Improved quality
  - Improved patient experience
  - Reduced overall costs

Maternity and Newborn Care Bundled Payment Pilot

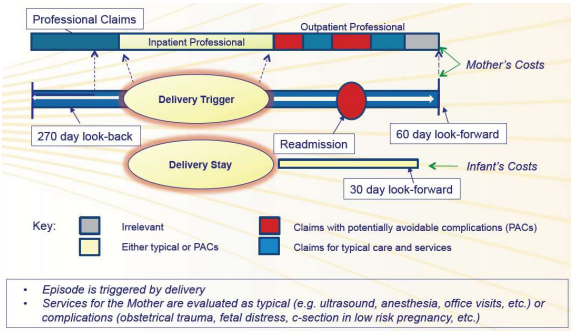
Karen Love
Executive Vice President/COO
Spring 2016 LAN Summit

COMMUNITY HEALTH CHOICE
COMMUNITY CARES

Our Maternity Pilot

- Area of highest opportunity for expense savings and quality improvements
  - 22k deliveries/year
  - $155M total annual related medical expenses
- A multi-year pilot beginning March 1, 2015
- Two separate academic provider groups
- Includes all relevant costs for mothers & babies
  - Professionals (OB, MFM, Pediatrics, Neonatology)
  - Hospitals
  - All ancillary services

Maternity and Newborn Episode



- *Episode is triggered by delivery*
- *Services for the Mother are evaluated as typical (e.g. ultrasound, anesthesia, office visits, etc.) or complications (obstetrical trauma, fetal distress, c-section in low risk pregnancy, etc.)*

Budgets

- Using patient specific budgets based on historical average costs
- Budgets are individually adjusted based on risk factors collected from claims data and clinical records
  - Patient demographics – age, gender
  - Patient comorbidities - diagnosis code-based
  - Clinical severity markers (e. g. gestational diabetes, multiple gestation, etc.)

Quality Scorecard

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Term Babies	GA>or equal to 37 completed weeks	
Pre-natal Care	Prenatal Care Visit (HEDIS)	0
	Risk-appropriate screenings during pre-natal care visits	10
	Shared-decision making on mode of delivery	10
Delivery Care	% of early elective deliveries prior to full gestation	20
	% of eligible patients who receive intrapartum antibiotic prophylaxis for GBS and/or Antenatal Steriods	5
Postpartum Care	Postnatal Care Visit (HEDIS)	0
	BP Monitoring	15
	Random fingerstick testing; patients with results that exceed a certain threshold required to have a 2 hour fasting glucose test	10
	Depression screening	10
Baby Care	% of babies who were exclusively breast fed during stay	10
	% of babies receiving Hep B vaccine prior to discharge	10
	Total Points	*100*

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Category	Data Field	Format	Member 40						
	Member ID	Alphanumeric							
	Member Last Name	Alphanumeric		Measure	Numerator	Denominato r	Ratio	Threshold	Scorecard Points	Score	Notes
Pre-natal care	Was the patient identified as at Risk for Gestational Diabetes	1=YES; 0=NO;		1		135					
Pre-natal care	Did the patient receive gestational diabetes pre-screening testing	1=YES; 0=NO;		Pre-natal Gestational diabetes Dscreening	91	135	0.6741		5	3.3704	Denominator: all patients (per providers); Numerator: sum of 1's (yes); Points: Achieve all points for ratio of 1 (all screened), receive points according to ratio (% screened times points)
Pre-natal care	Date of Gestational Diabetes Screening	MM/DD/YYYY									
Pre-natal care	Did patient participate in documented shared decision making discussion(s)	1=YES; 0=NO		Shared decision making	129	135	0.9556		5	4.7778	Denominator: all patients (per providers); Numerator: sum of 1's (yes); Points: Achieve all points for ratio of 1 (all screened), receive points according to ratio (% screened times points)
Pre-natal care	Date of shared decision making in patient record/patient refusal	MM/DD/YYYY									
Delivery care	Was the delivery an elective delivery	1=YES; 0=NO; N/A		% elective deliveries (of babies between 37 and 39 weeks)	0	55	0.0000	20%	15	15.000	Denominator: Babies >=37 and <39 weeks gestation; Numerator: sum of 1's; Points: Receive all points for 0 elective deliveries, receive points according to inverse of ratio (number not elective) on a scale within the threshold of 00% = 15 points and >20% = 0 points
Delivery care	Was the delivery a c-section	1=YES; 0=NO; N/A		1							
Delivery care	If C-Section delivery, was the delivery a primary c-section	1=YES; 0=NO; N/A		Primary c-section Drate	17	135	0.1259	20%	13	4.8148	Denominator: All patients; Numerator: sum of 1's; Points: Receive all points for 0 primary c-sections, receive points according to inverse of ratio (number not primary c-section- includes vaginal deliveries and c-sections (not primary)) on a scale of 0% = 13 points and >20% = 0 points.
Delivery care	Patient at risk for pre term delivery?	1= YES; 0=NO		0							
Delivery care	Intrapartum antibiotic prop. For GBS and/or Ante steriods	1=YES; 0=NO; N/A	N/A	% of patients receiving antibiotic prohylaxis	24	28	0.8571		5	4.2857	Denominator: patients "eligible" to receive antibiotics (not N/A); Numerator: sum of 1's; Points: receive all points for 100% compliance, receive points according to ratio (% with antibiotics times points)
Delivery care	Obstetric Trauma: with Instrument	1= YES; 0=NO	N/A	Obstetric trauma with instrument	0	2	0.0000	10%	5	5.000	Denominator: vaginal delivers with instrument; numerator: sum of 1's; Points: Achieve all points for no trauma; receive points according to inverse of ratio. On a scale of 0% = 5 points to >10% = 0 points.
Delivery care	Obstetric Trauma: without Instrument	1= YES; 0=NO		Obstetric trauma Dwithout instrument	1	88	0.0114	10%	7	6.2045	Denominator: vaginal deliveres without instrument; numerator: sum of 1's; Points: Achieve all points for no trauma; receive points according to inverse of ratio. On a scale of 0% = 7 points to >10% = 0 points.

Patient Reported Outcome Measures

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- PROMs and how they differ from Patient Satisfaction Surveys was first discussion
  - How was the food in the hospital or how long did you wait for your appointment in the physician office?
  - vs.
  - Were you given enough time to ask questions during office visits or do you feel you were involved enough in decisions about your care?
- Modified Childbirth Connection PROM Survey
  - Birth Information
  - Prenatal Care
  - Birth Experience
  - Postpartum Care

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Distribution of Costs Over/Under Budget for Q1

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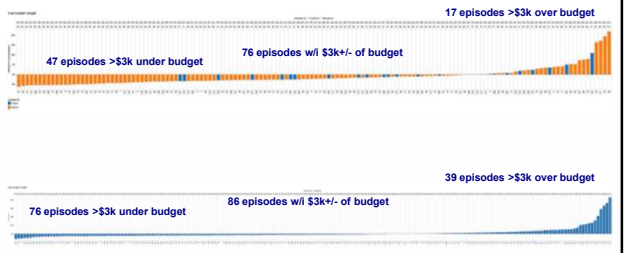

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Key Year 1 Takeaway

- Nursery level determination may be less objective than previously thought and may not be best indicator of ultimate cost
  - Significant differences in level distribution across providers and over time
  - Correlations of LBW and/or preterm with nursery level is uneven
  - Birth defects can be costly but are not necessarily dealt with in Level 4 nursery.
- Recommendation: to protect both provider (from extreme outlier episodes) and plan (from arbitrary placement), keep all babies in but use stop loss aimed at true outliers

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Devil in the Details

Year 1
- Upside only

Year 2
- Downside risk added using quality metrics set based on year 1 scorecard benchmarks

Year 3 and beyond
- Move away from current contractual payments to flat dollar payments with periodic reconciliation

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Year 2 Draft Risk Sharing

% Share in Loss (over budget)	Change in Score (PPT)	% Share in Gain (under budget)
. . . 0.50	. . . -0.20	. . . 0.0
0.45	-0.05	0.35
0.44	-0.04	0.37
0.43	-0.03	0.39
0.42	-0.02	0.41
0.41	-0.01	0.43
0.40	0	0.45
0.39	0.01	0.47
0.38	0.02	0.49
0.37	0.03	0.51
0.36	0.04	0.53
0.35	0.05	0.55
. . . 0.25	. . . 0.20	. . . 0.75

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Scalability

- No other bundle comes close to Maternity bundle for our Medicaid line of business
- 40,000 Marketplace lives in 2015 – only now getting enough data to see where opportunities lie
- What other alternative payment plans make sense for us?

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COMMUNITY CARES

Questions & Answers

Contact Information:
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Health Care Payment Improvement Initiative

Building a healthier future for all Arkansans

Arkansas Payment Improvement Initiative (APII)

Perinatal Episode
Statewide Webinar
January 14, 2013

Health Care Payment Improvement Initiative

Building a healthier future for all Arkansans

- Dawn Zekis, Medicaid Health Innovation Unit Director - **Overview of the Healthcare Payment Improvement Initiative**
- Shelley Tounzen, Medicaid Health Innovation Unit Public Information Coordinator – **Initiative Update**
- Dr. William Golden, Medicaid Medical Director – **URI Providers, Patients & Quality**
- Wanda Colclough and Paula Miller – HP Enterprises Technical Consultant and HP APII Analyst - **Episode Descriptions & Reports**
- Sheryl Hurt, Provider Relations Representative – Arkansas Foundation for Medical Care - **Provider Portal**

Today, we face major health care challenges in Arkansas

- **The health status of Arkansans is poor**, the state is ranked at or near the bottom of all states on national health indicators, such as heart disease and diabetes
- **The health care system is hard for patients to navigate**, and it does not reward providers who work as a team to coordinate care for patients
- **Health care spending is growing unsustainably:**
  - Insurance premiums doubled for employers and families in past 10 years (adding to uninsured population)
  - Large projected budget shortfalls for Medicaid

Our vision to improve care for Arkansas is a comprehensive, patient-centered delivery system…

Focus today

Objectives	**For patients**	▪ Improve the health of the population ▪ Enhance the patient experience of care ▪ Enable patients to take an active role in their care ▪ Encourage patient engagement/accountability
	For providers	▪ Reward providers for high quality, efficient care ▪ Reduce or control the cost of care
How care is delivered	**Population-based care** ▪ Medical homes ▪ Health homes	**Episode-based care** ▪ Acute, procedures or defined conditions
Four aspects of broader program	▪ **Results-based payment and reporting** ▪ **Health care workforce development** ▪ **Health information technology (HIT) adoption** ▪ **Expanded access for health care services**	

Payers recognize the value of working together to improve our system, with close involvement from other stakeholders…

Arkansas Medicaid

QualChoice HEALTH INSURANCE

Arkansas BlueCross BlueShield

CMS CENTERS for MEDICARE & MEDICAID SERVICES

Coordinated multi-payer leadership…

- Creates **consistent incentives** and standardized reporting rules and tools
- Enables **change in practice** patterns as program applies to many patients
- Generates enough scale to justify investments in **new infrastructure** and operational models
- Helps **motivate patients** to play a larger role in their health and health care

1 Center for Medicare and Medicaid Services

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We have worked closely with providers and patients across Arkansas to shape an approach and set of initiatives to achieve this goal

500+	**Providers, patients, family members**, and other stakeholders who helped shape the new model in public workgroups
21	**Public workgroup meetings** connected to 6-8 sites across the state through videoconference
16	**Months of research,** data analysis, expert interviews and infrastructure development to design and launch episode-based payments
Monthly	**Updates with many Arkansas provider associations** (e.g., AHA, AMS, Arkansas Waiver Association, Developmental Disabilities Provider Association)

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The episode-based model is designed to reward coordinated, team-based high quality care for specific conditions or procedures

The goal	**Coordinated, team based care** for all services related to a specific condition, procedure, or disability (e.g., pregnancy episode includes all care prenatal through delivery)
Accountability	A provider 'quarterback', or **Principal Accountable Provider** (PAP) is designated as accountable for all pre-specified services across the episode (PAP is provider in best position to influence quality and cost of care)
Incentives	**High-quality, cost efficient care** is rewarded beyond current reimbursement, based on the PAP's average cost and total quality of care across each episode

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Health Care Payment Improvement Initiative

Building a healthier future for all Arkansans

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Wave 2 launch

- In the first half of 2013, we will launch four new medical episodes: Cholecystectomy (gallbladder removal), Tonsillectomy, Colonoscopy, and Oppositional Defiant Disorder
- We will launch Long Term Support Services (LTSS) and Developmental Disability (DD) episodes. The assessment period for DD began in November, and for LTSS will begin in the first quarter of 2013.
- We also plan to launch Patient Centered Medical Homes and Health Homes for Behavioral Health.
- Perinatal portal entry go live January 25.

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The model rewards a Principal Accountable Provider (PAP) for leading and coordinating services and ensuring quality of care across providers

PAP role	What it means…
Core provider for episode	▪ **Physician, practice, hospital**, or **other provider** in the best position to influence overall quality, cost of care for episode
Episode **'Quarterback'**	▪ **Leads and coordinates the team** of care providers ▪ Helps **drive improvement** across system (e.g., through care coordination, early intervention, patient education, etc.)
Performance management	▪ Rewarded for **leading high-quality, cost-effective** care ▪ **Receives performance reports and data** to support decision-making

PAP selection:
- Payers review claims to see which providers patients chose for episode related care
- Payers select PAP based main responsibility for the patient's care

NOTE: Episode and health home model for adult DD population in development. Model will utilize lead provider and health home to drive coordination

Ensuring high quality care for every Arkansan is at the heart of this initiative, and is a requirement to receive performance incentives

Two types of quality metrics for providers	Description
1 **Quality metric(s) "to pass"** are linked to payment	➢ **Core measures** indicating basic standard of care was met ➢ **Quality requirements** set for these metrics, a provider must meet required level to be eligible for incentive payments ➢ In select instances, quality metrics must be entered in portal (heart failure, ADHD)
2 **Quality metric(s) "to track"** are not linked to payment	➢ Key to understand overall quality of care and quality **improvement opportunities** ➢ Shared with providers but **not linked to payment**

How episodes work for patients and providers (1/2)

Patients and providers deliver care as today (performance period)

1 **Patients** seek care and select providers as they do today

2 **Providers** submit claims as they do today

3 **Payers** reimburse for all services as they do today

How episodes work for patients and providers (2/2)

Calculate incentive payments based on outcomes after close of 12 month performance period

4 Review claims from the performance period to identify a **'Principal Accountable Provider'** (PAP) for each episode

5 Payers calculate **average cost per episode** for each PAP[1]

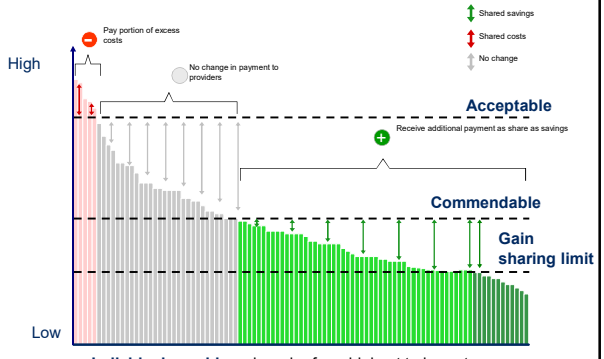
Compare average costs to predetermined "commendable' and 'acceptable' levels[2]

6 **Based on results, providers will:**

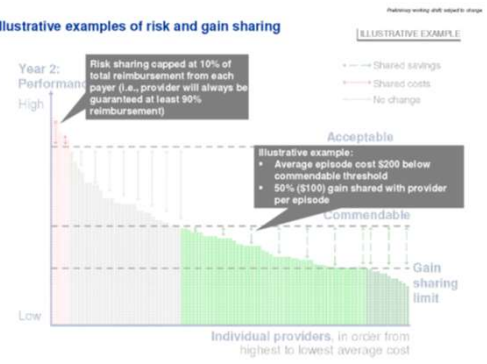
- **Share savings:** if average costs below commendable levels and quality targets are met
- **Pay part of excess cost:** if average costs are above acceptable level
- **See no change in pay:** if average costs are between commendable and acceptable levels

1 Outliers removed and adjusted for risk and hospital per diems
2 Appropriate cost and quality metrics based on latest and best clinical evidence, nationally recognized clinical guidelines and local considerations

PAPs that meet quality standards and have average costs below the commendable threshold will share in savings up to a limit



Illustrative examples of risk and gain sharing



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2 Perinatal Care algorithm summary (1/3)

Triggers	A live birth on a facility claim
PAP assignment	For each episode, the Principal Accountable Provider (PAP) is the provider or provider group that performs the delivery.
Exclusions	Episodes meeting one or more of the following criteria will be excluded: A. Limited prenatal care (i.e., pregnancy-related claims) provided between start of episode and 60 days prior to delivery B. Delivering provider did not provide any prenatal services C. Episode has no professional claim for delivery D. Pregnancy-related conditions: amniotic fluid embolism, obstetric blood clot embolism, placenta previa, severe preeclampsia, multiple gestation ≥3, late effect complications of pregnancy/childbirth, puerperal sepsis, suspected damage to fetus from viral disease in mother E. Comorbidities: cancer, cystic fibrosis, congenital cardiovascular disorders, DVT/pulmonary embolism, other phlebitis and thrombosis, end-stage renal disease, sickle cell, Type I diabetes
Episode time window	Episode begins 40 weeks prior to delivery and ends 60 days after delivery; for the initial performance period, only deliveries on or after Jan 1, 2013 will be eligible for episodes
Claims included	All medical assistance with a pregnancy-related ICD-9 diagnosis code is included. Medical assistance related to neonatal care is not included.
Quality measures	*Quality measures "to pass":* 1. HIV screening – must meet minimum threshold of 80% of episodes 2. Group B streptococcus screening (GBS) must meet minimum threshold of 80% of episodes 3. Chlamydia screening – must meet minimum threshold of 80% of episodes *Quality measures "to track":* 1. Ultrasound screening 2. Screening for Gestational Diabetes 3. Screening for Asymptomatic Bacteriuria 4. Hepatitis B specific antigen screening 5. C-Section Rate
Adjustments	For the purposes of determining a PAP's performance, the total reimbursement attributable to the PAP is adjusted to reflect risk and/or severity factors captured in the claims data for each episode in order to be fair to providers with high-risk patients, to avoid any incentive for adverse selection of patients and to encourage high-quality, efficient care. Episode reimbursement attributable to a PAP for calculating average adjusted episode reimbursement are adjusted based on these selected risk factors. Over time, Medicaid may add or subtract risk factors in line with new research and/or empirical evidence.

2 Perinatal Care algorithm summary (2/3)

Trigger codes	Each episode is anchored around a live birth. The live birth is identified by a claim with either of the following procedure codes and a ICD 9 V code for live birth **CPT procedure codes:** 59618, 59620, 59622, 59514, 59515, 59510, 59610, 59612, 59614, 59409, 59410, 59400 **ICD-9 procedure code:** 74, 74.1, 74.2, 74.4, 74.99, 72, 72.1, 72.21, 72.29, 72.31, 72.39, 72.4, 72.51-72.54, 72.6, 72.71, 72.79, 72.8, 72.9, 73.5, 73.59 **ICD-9 V-code for live birth:** v270, v272, v273, v275, v276
Exclusion codes	List of prior diagnoses and meds that would disqualify a patient from the episode **ICD-9:** 250.01, 250.03, 250.11, 250.13, 250.21, 250.23, 250.31, 250.33, 250.41, 250.43, 250.51, 250.53, 250.61, 250.63, 250.71, 250.73, 250.81, 250.83, 250.91, 250.93, 282.6x, 277.0x, 641.0x, 641.1x, 642.5x, 648.5x, 651.1x, 651.2x, 651.4x-651.9x, 652.6x, 655.3x, 670.2x, 670.3x, 671.3x-671.5x, 673.1x, 673.8x, 674.0x, 677.7x, 585.6, 228.x, 209.7x, 209.0x-209.3x, 209.7x, 140.x-208.x, 230.x-239.x These codes represent the set of business and clinical exclusions described previously
Codes to assign PAP	**CPT codes for delivery :** 59409, 59410, 59514, 59515, 59612, 59614, 59620, 59622 **ICD9 procedure codes for delivery:** 74, 74.1, 74.2, 74.4, 74.99, 72, 72.1, 72.21, 72.29, 72.31, 72.39, 72.4, 72.51, 72.52, 72.53, 72.54, 72.6, 72.71, 72.79, 72.8, 72.9, 73.5, 73.59 **CPT codes for global bundle:** 59400, 59510, 59610, 59618, 59425-59426
Reporting codes	CPT codes associated with each reporting metric **CPT codes for HIV test:** 80055, 84181, 84182, 86701, 86702, 86703, 87300, 87390, 87391, 87534, 87535, 87536, 87537, 87538, 87539 **CPT codes for GBS test:** 86403, 87070, 87071, 87075, 87077, 87081, 87147, 87149, 87449, 87653, 87797, 87798, 87800, 87801, 87802 **CPT codes for Chlamydia test:** 87110, 87270, 87320, 87451, 87490, 87491, 87492, 87797, 87798, 87799, 87800, 87801, 87810 **CPT codes for bacteriuria test:** 81002, 87086 **CPT codes for gestational diabetes test:** 82950 **CPT codes for Hep B test:** 80055, 80074, 86704, 86705, 86706, 86707, 87340, 87341, 87350, 87515, 87516, 87517 **CPT codes for ultrasound:** 76801, 76802, 76810, 76811, 76812, 76813, 76814, 76815, 76817, 76805, 76816, 76818, 76819, 76825, 76826, 76827, 76828 **CPT codes for C-section:** 59510, 59514, 59515, 59618, 59620, 59622

2 Perinatal Care algorithm summary (3/3)

Included claim codes	List of ICD-9 and AHFS codes that should be included in episode **ICD-9:** 640-648, 650, 652, 655, 656, 659, 661, 670, 677, 6410-6413, 6418-6427, 6429-6432, 6436-6442, 6450-6453, 6460-6469, 6522, 6555, 6557, 6563, 6568, 6585, 6597, 6598, 6612, 64000, 64001, 64003, 64080, 64081, 64083, 64090, 64091, 64093, 64100, 64101, 64103, 64110, 64111, 64113, 64120, 64121, 64123, 64130, 64131, 64133, 64180, 64181, 64183, 64190, 64191, 64193, 64200-64204, 64210-64214, 64220-64224, 64230-64234, 64240-64244, 64250-64254, 64260-64264, 64270-64274, 64290-64294, 64300, 64301, 64303, 64310, 64311, 64313, 64320, 64321, 64323, 64380, 64381, 64383, 64390, 64391, 64393, 64400, 64403, 64410, 64413, 64420, 64421, 64500, 64501, 64503, 64510, 64511, 64513, 64520, 64521, 64523, 64600, 64601, 64603, 64610-64614, 64620-64624, 64630, 64631, 64633, 64640-64644, 64650-64654, 64660-64664, 64670, 64671, 64673, 64680-64684, 64690-64694, 64700-64704, 64710-64714, 64720-64724, 64730-64734, 64740-64744, 64750-64754, 64760-64764, 64780-64784, 64790-64794, 64800-64804, 64810-64814, 64820-64824, 64830-64834, 64840-64844, 64850-64854, 64860-64864, 64870-64874, 64880-64884, 64890-64894, 64900-64904, 64910-64914, 64920-64924, 64930-64934, 64940-64944, 64950, 64951, 64953, 64960-64964, 64970, 64971, 64973, 64981, 64982, 65100, 65101, 65103, 65110, 65111, 65113, 65120, 65121, 65123, 65130, 65131, 65133, 65140, 65141, 65143, 65150, 65151, 65153, 65160, 65161, 65163, 65170, 65171, 65173, 65180, 65181, 65183, 65190, 65191, 65193, 65200, 65201, 65203, 65210, 65211, 65213, 65220, 65221, 65223, 65230, 65231, 65233, 65240, 65241, 65243, 65250, 65251, 65253, 65260, 65261, 65263, 65270, 65271, 65273, 65280, 65281, 65283, 65290, 65291, 65293, 65300, 65301, 65303, 65310, 65311, 65313, 65320, 65321, 65323, 65330, 65331, 65333, 65340, 65341, 65343, 65350, 65351, 65353, 65360, 65361, 65363, 65370, 65371, 65373, 65380, 65381, 65383, 65390, 65391, 65393, 65400-65404, 65410-65414, 65420, 65421, 65423, 65430-65434, 65440-65444, 65450-65454, 65460-65464, 65470-65474, 65480-65484, 65490-65494, 65500, 65501, 65503, 65510, 65511, 65513, 65520, 65521, 65523, 65530, 65531, 65533, 65540, 65541, 65543, 65550, 65551, 65553, 65560, 65561, 65563, 65570, 65571, 65573, 65580, 65581, 65583, 65590, 65591, 65593, 65600, 65601, 65603, 65610, 65611, 65613, 65620, 65621, 65623, 65630, 65631, 65633, 65640, 65641, 65643, 65650, 65651, 65653, 65660, 65661, 65663, 65670, 65671, 65673, 65680, 65681, 65683, 65690, 65691, 65693, 65700, 65701, 65703, 65800, 65801, 65803, 65810, 65811, 65813, 65820, 65821, 65823, 65830, 65831, 65833, 65840, 65841, 65843, 65880, 65881, 65883, 65890, 65891, 65893, 65900, 65901, 65903, 65910, 65911, 65913, 65920, 65921, 65923, 65930, 65931, 65933, 65940, 65941, 65943, 65950, 65951, 65953, 65960-65964, 65970, 65971, 65973, 65980, 65981, 65983, 65990, 65991, 65993, 66000, 66001, 66003, 66010, 66011, 66013, 66020, 66021, 66023, 66030, 66031, 66033, 66040, 66041, 66043, 66050, 66051, 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66910-66914, 66920-66924, 66930, 66932, 66934, 66940-66942, 66944, 66950, 66951, 66960, 66961, 66970, 66971, 66980-66984, 66990-66994, 67000, 67002, 67004, 67010, 67012, 67014, 67020, 67022, 67024, 67030, 67032, 67034, 67060, 67062, 67064, 67100-67104, 67110-67114, 67120-67124, 67130, 67131, 67133, 67140, 67142, 67144, 67150-67154, 67180-67184, 67190-67194, 67200, 67202, 67204, 67300-67304, 67310, 67311, 67312, 67313, 67314, 67320-67324, 67330-67334, 67380-67384, 67400-67404, 67410, 67412, 67414, 67420, 67422, 67424, 67430, 67432, 67434, 67440, 67442, 67444, 67450-67454, 67480, 67482, 67484, 67490, 67492, 67494, 67500-67504, 67510-67514, 67520-67524, 67590-67594, 67580-67584, 67600-67604, 67610-67614, 67620-67624, 67630-67634, 67640-67644, 67650-67654, 67660-67664, 67680-67684, 67690-67694, 67800, 67801, 67803, 67810, 67811, 67813, 67900-67904, 67910-67914, ex. 464, V1321, V1329, V1521, V1522, V220-V222, V230-V234, V2341, V2342, V2349, V235, V237, V238, V2381-V2389, V239-V242, V260-V262, V2621, V2622, V2629, V263, V2631-V2635, V2639, V2641, V2642, V2649, V265, V2651, V2652, V2681, V2682, V2689, V269-V277, V279, V28, V280-V286, V2881, V2882, V2888, V288, V617, V6511, V7240-V7242, V824, V8901-V8905, V8909 **AHFS:** 040000, 040404, 040408, 040412, 040416, 040420, 040492, 040800, 049200, 080800, 081202, 081206, 081207, 081208, 081212, 081216, 081218, 081220, 081224, 081228, 081404, 081408, 081416, 081428, 081432, 081482, 081600, 081604, 081692, 081804, 081808, 081820, 081824, 081828, 081832, 081840, 081892, 082000, 082400, 083004, 083008, 083092, 083600, 084020, 086200, 100000, 120400, 120804, 120808, 121200, 121204, 121208, 121212, 121600, 121604, 121608, 122000, 122004, 122008, 122012, 122020, 122092, 129200, 160000, 200404, 200408, 201204, 201214, 201218, 201220, 201600, 202400, 202808, 202816, 240400, 240404, 240408, 240492, 240600, 240604, 240606, 240608, 240692, 240800, 240816, 240820, 240832, 240892, 241200, 241208, 241212, 241282, 241600, 242000, 242400, 242800, 242808, 242892, 243204, 243208, 243220, 243240, 280000, 280400, 280404, 280416, 280492, 280804, 280808, 280812, 280892, 281000, 281204, 281208, 281212, 281216, 281220, 281292, 281604, 281608, 282000, 282004, 282092, 282404, 282408, 282492, 282600, 283228, 283604, 283608, 283612, 283616, 283620, 283632, 284000, 289200, 320000, 340000, 360000, 360400, 361800, 362800, 363000, 363200, 363400, 363600, 363800, 364000, 364400, 365200, 365600, 365800, 366020, 366100, 366802, 366805, 367000, 368400, 368800, 368812, 368820, 368824, 368828, 368840, 380000, 400400, 400800, 401000, 401200, 401800, 401817, 401818, 401819, 401892, 402000, 402400, 402800, 402808, 402810, 402812, 402816, 402820, 402824, 402828, 402892, 403600, 404000, 440000, 480000, 480404, 480800, 481008, 481024, 481032, 481600, 482400, 483200, 483600, 489200, 520200, 520404, 520416, 520420, 520492, 520808, 520820, 520892, 521200, 521600, 522400, 522800, 523200, 523600, 524004, 524008, 524012, 524020, 524028, 529200, 560400, 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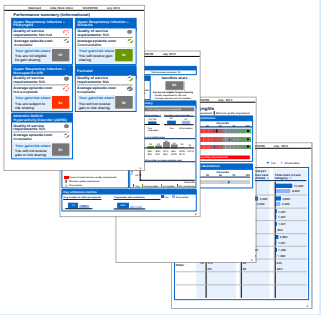
PAPs will be provided tools to help measure and improve patient care

Reports provide performance information for PAP's episode(s):

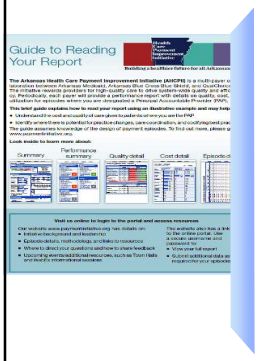
- Overview of **quality** across a PAP's episodes
- Overview of **cost effectiveness** (how a PAP is doing relative to cost thresholds and relative to other providers)
- Overview of **utilization** and drivers of a PAP's average episode cost

Example of provider reports



NOTE: Episode and health home model for adult DD population in development. Tools and reports still to be defined.

PAP performance reports have summary results and detailed analysis of episode costs, quality and utilization



Details on the reports

- First time PAPs receive detailed analysis on costs and quality for their patients increasing performance transparency
- Guide to Reading Your Reports available online and at this event
  - Valuable to both PAPs and non-PAPs to understand the reports
- Reports issued quarterly starting July 2012
  - July 2012 report is informational only
  - Gain/risk sharing results reflect claims data from Jan – Dec 2011
- Reports are available online via the provider portal

NOTE: Episode and health home model for adult DD population in development. Tools and reports still to be defined.

ARKANSAS DEPARTMENT OF HUMAN SERVICES

Health Care Payment Improvement Initiative

Building a healthier future for all Arkansans

Arkansas Health Care Payment Improvement Initiative
Provider Report

Medicaid
Report date: July 2012

Historical performance: January 1, 2011 – December 31, 2011

DISCLAIMER: The information contained in these reports is intended solely for use in the administration of the Medicaid program. The data in the reports is neither intended nor suitable for other uses, including the selection of a health care provider. For more information, please visit www.paymentinitiative.org

Table of contents

Performance summary (Informational)

Upper Respiratory Infection - Pharyngitis
- Quality of service requirements: Met
- Average episode cost: Acceptable
- Your gain/risk share: $0
- You will not receive gain or risk sharing

Upper Respiratory Infection - Sinusitis
- Quality of service requirements: N/A
- Average episode cost: Not acceptable
- Your gain/risk share: $275.00
- You are subject to risk sharing

Upper Respiratory Infection - Non-specific URI
- Quality of service requirements: N/A
- Average episode cost: Commendable
- Your gain/risk share: $18.00
- You will receive gain sharing

Perinatal
- Quality of service requirements: Not met
- Average episode cost: Commendable
- Your gain/risk share: $0
- You are not eligible for gain sharing

Attention Deficit/Hyperactivity Disorder (ADHD)
- Quality of service requirements: N/A
- Average episode cost: Below min. case threshold
- Your gain/risk share
- You are not subject to gain or risk sharing

Summary - Perinatal

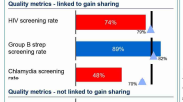
Overview
Total episodes: 147 | Total episodes included: 107 | Total episodes excluded: 40

Average cost of care compared to other providers

Gain/Risk share
$0
You are not eligible for gain sharing
- Quality requirements: Not met
- Average episode cost: Commendable

Quality summary
You did not meet the minimum quality requirements

Quality metrics - linked to gain sharing

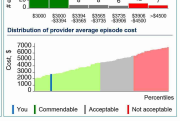


Quality metrics - not linked to gain sharing

Does not meet minimum quality requirement
Minimum quality requirement
All providers

Cost summary
Your average cost is commendable

Your episode cost distribution



Distribution of provider average episode cost

Key utilization metrics

Quality and utilization detail - Perinatal

You | Metric with a minimum quality requirement | Minimum quality requirement

Quality metrics: Performance compared to provider distribution

Metric	You	Percentile 25th	50th	75th	Percentile 0 25 50 75 100
HIV screening rate	74%	70%	80%	90%	
Group B strep screening rate	89%	80%	90%	95%	
Chlamydia screening rate	48%	60%	75%	85%	
Gestational diabetes screening rate	71%	50%	80%	90%	
Asymptomatic bacteriuria screening rate	55%	40%	65%	85%	
Hepatitis B screening rate	73%	70%	80%	90%	

You did not meet the minimum quality requirements

Utilization metrics: Performance compared to provider distribution

Metric	You	Percentile 25th	50th	75th	Percentile 0 25 50 75 100
C-section rate	25%	20%	30%	40%	
% episodes with an ultrasound	92%	90%	90%	100%	
Average number of ED visits per episode	1.1	0.4	0.5	0.7	

Cost detail - Perinatal

Total episodes included = 107

You | All providers

Care category	# and % of episodes with claims in care category	Average cost per episode when care category utilized, $	Total cost in care category, $
Inpatient professional	103 96% / 99%	1,034 / 1,125	90,662 / 85,000
Inpatient facility	107 100% / 100%	1,198 / 1,500	140,101 / 112,000
Outpatient professional	74 69% / 70%	158 / 145	13,363 / 7,500
Pharmacy	96 90% / 90%	114 / 125	12,785 / 8,600
Outpatient lab	105 98% / 95%	230 / 275	22,872 / 2,100
Outpatient radiology / procedures	92 86% / 90%	194 / 200	17,217 / 15,000
Emergency department	54 50% / 35%	83 / 70	4,968 / 2,200
Outpatient surgery	59 54% / 45%	242 / 230	29,195 / 9,500
Other	80 75% / 70%	194 / 240	16,726 / 13,000

Health Care Payment Improvement Initiative

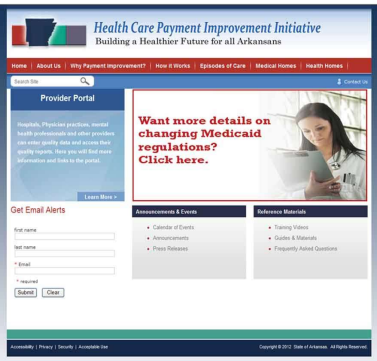
Building a healthier future for all Arkansans

- Dawn Zekis, Medicaid Health Innovation Unit Director - **Overview of the Healthcare Payment Improvement Initiative**
- Shelley Tounzen, Medicaid Health Innovation Unit Public Information Coordinator – **Initiative Update**
- Dr. William Golden, Medicaid Medical Director – **URI Providers , Patients & Quality**
- Wanda Colclough and Paula Miller – HP Enterprises Technical Consultant and HP APII Analyst - **Episode Descriptions & Reports**
- Sheryl Hurt, Provider Relations Representative – Arkansas Foundation for Medical Care - **Provider Portal**

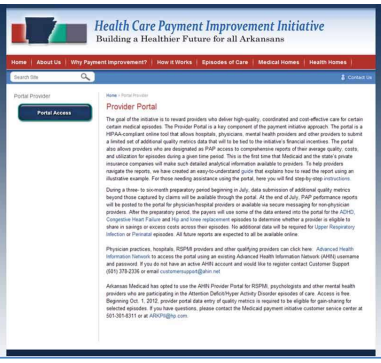
The provider portal is a multi-payer tool that allows providers to enter quality metrics for certain episodes and access their PAP reports

- Accessible to all PAPs
  - Login with existing username/ password
  - New users follow enrollment process detailed online
- Key components of the portal are to provide a way for providers to
  - Enter additional quality metrics for select episodes (Hip, Knee, CHF and ADHD with potential for other episodes in the future)
  - Access current and past performance reports for all payers where designated the PAP

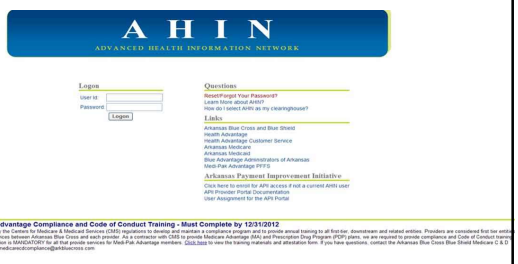
Provider Portal

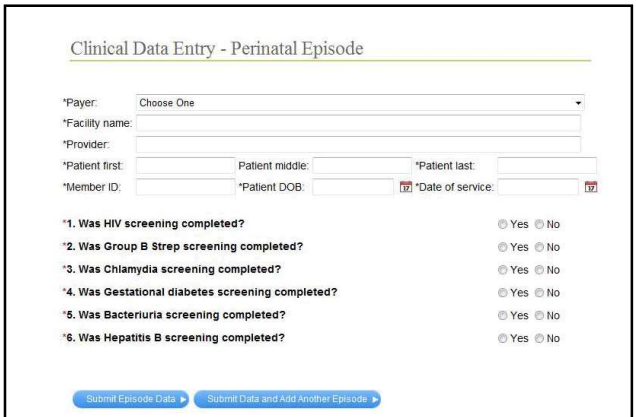


Provider Portal



Provider Portal





Questions

For more information talk with provider support representatives…

Online

- **More information on the Payment Improvement Initiative can be found at www.paymentinitiative.org**
  - Further detail on the initiative, PAP and portal
  - Printable flyers for bulletin boards, staff offices, etc.
  - Specific details on all episodes
  - Contact information for each payer's support staff
  - All previous workgroup materials

Phone/ email

- **Medicaid:** 1-866-322-4696 (in-state) or 1-501-301-8311 (local and out-of state) or **ARKPII@hp.com**
- **Blue Cross Blue Shield:** Providers 1-800-827- 4814, direct to EBI 1-888-800-3283, APIICustomerSupport@arkbluecross.com
- **QualChoice:** 1-501-228-7111, providerrelations@qualchoice.com

Episode Summary:
Perinatal

Arkansas Health Care Payment Improvement Initiative

For the latest information on the initiative, visit www.paymentinitiative.org.

I. What is the perinatal episode, and how will the episode model encourage more effective and efficient care?

Each year, providers in Arkansas provide care to nearly 40,000 pregnant women. Ensuring a healthy mother and a healthy baby requires months of care by many different providers, ranging from obstetricians, family practice physicians, and nurse midwives to hospitals, emergency departments, obstetric specialists, and others.

Today, the many providers engaged in perinatal care function independently. The perinatal episode, by contrast, encourages more holistic, patient-centered care over the entire pregnancy. It also facilitates continuation of the many quality improvements already underway in the obstetric community, and increases accountability for improving the quality and efficiency of perinatal care in Arkansas.

II. Key features of the perinatal episode

- **Episode definition:** The perinatal episode includes all pregnancy-related care provided during the course of the pregnancy. This includes all of the prenatal care, care related to labor and delivery, and postpartum maternal care. It encompasses the full range of services provided during this time period (e.g., labs, imaging, specialist consultations, inpatient care). The initial episode design excludes neonatal care.

- **Principal Accountable Provider:** The Principal Accountable Provider (PAP) for the perinatal episode is the physician or nurse midwife who performed the delivery.

- **Quality measures:** The design of the perinatal episode inherently incentivizes high-quality care. However, in order to participate in upside savings, PAPs must also meet additional quality targets related to prenatal screening (e.g., rate of prenatal HIV screening). PAPs also will receive reports highlighting their performance on a number of additional measures related to the quality of perinatal care. PAPs do not need to self-report any quality measures for this episode.

- **Adjustments and exclusions:** The perinatal episode excludes very high-risk pregnancies, including pregnancies where the mother presented with or developed a severe clinical condition (e.g., amniotic fluid embolism) as well as high-risk care pathways (e.g., sickle cell disease). The episode also incorporates adjustments to the cost of individual pregnancies based on the clinical severity of each patient.

Health Care Payment Improvement Initiative

Building a healthier future for all Arkansans

AFMC has partnered with the initiative to provide communication design and printing.

Division of
Health Care
Finance & Administration

Health Care
Innovation Initiative

Executive Summary

Perinatal Episode

V2.2

Updated August 25, 2016

OVERVIEW OF A PERINATAL EPISODE

The perinatal episode revolves around women with low- to medium-risk pregnancies. The trigger event is the birth of a live infant. All pregnancy-related care including prenatal visits, lab tests, ED visits, medications, ultrasound imaging, delivery of the baby (professional and facility components) and post-partum care are included in the perinatal episode. A complete perinatal episode begins 40 weeks (280 days) prior to the delivery and ends 60 days after the mother is discharged from the hospital following the birth her infant.

CAPTURING SOURCES OF VALUE

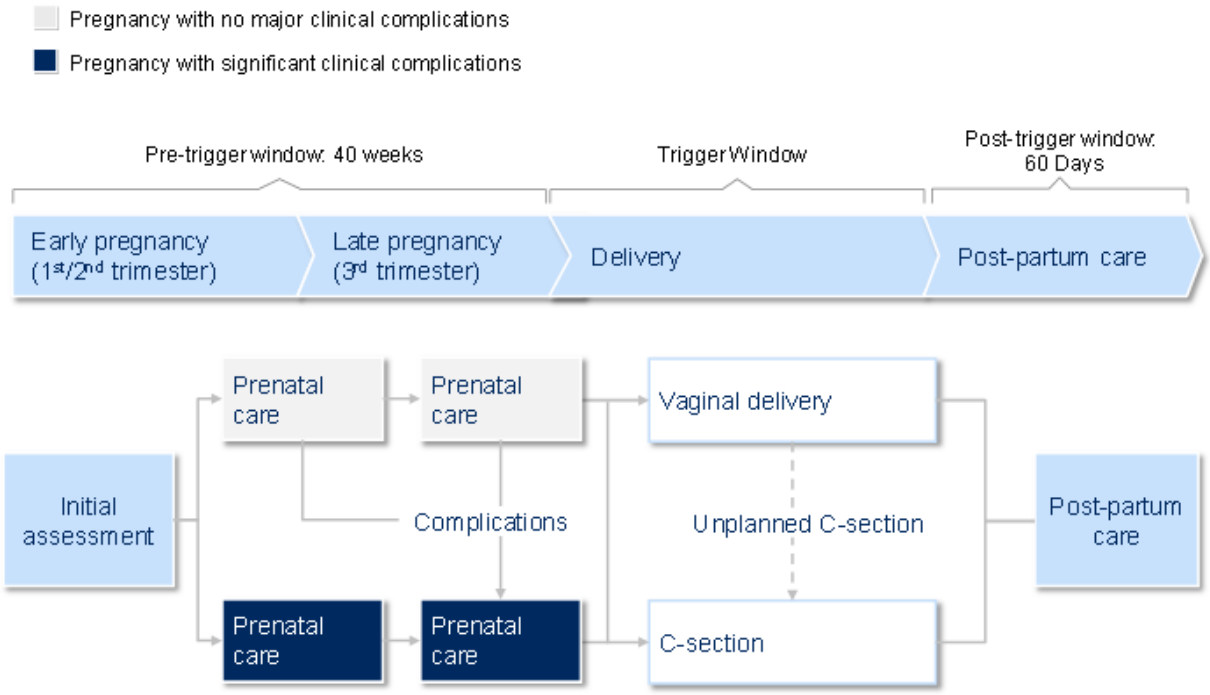
During the perinatal period, health care providers have multiple opportunities to improve the quality and cost of care. For example, providing an appropriate and effective mix of prenatal care may reduce complications during labor and delivery. The provider can also influence the utilization of elective interventions (e.g., C-sections). During a hospital stay, the provider can influence the use of appropriate support during labor and delivery and a suitable length of stay. In the post-partum period, the provider can ensure appropriate post-partum care, including education on desired post-natal practices such as proper nutrition and breast feeding. In general, these practices could reduce the likelihood of avoidable complications, readmissions, and the total cost of perinatal care. Further, providing high-quality care during the perinatal episode may ultimately improve neonate outcomes, which is a major source of value, although this is not captured directly within the perinatal episode.

To learn more about the episode's design, please reference the following documents on our website at www.tn.gov/hcfa/topic/episodes-of-care:

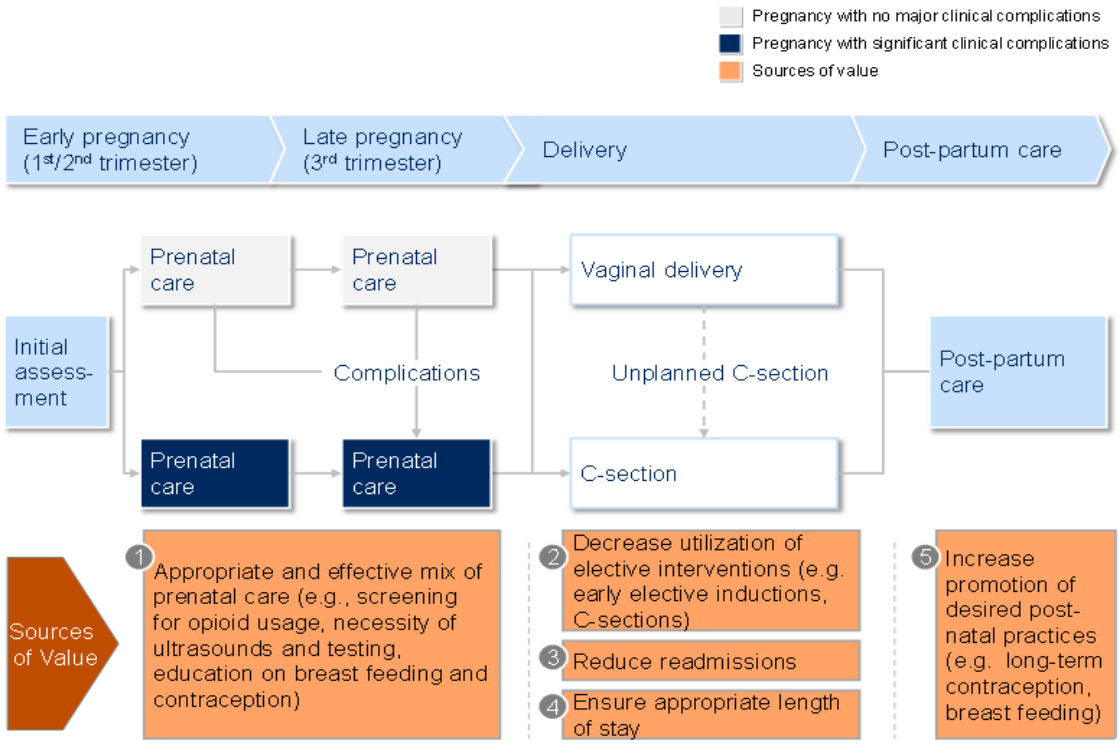
- *Detailed Business Requirements: Complete technical description of the episode*
  http://www.tn.gov/assets/entities/hcfa/attachments/perinatalSummaries.pdf

- *Configuration File: Complete list of codes used to implement the episode*
  http://www.tn.gov/assets/entities/hcfa/attachments/PerinatalConfiguration.xlsx

Illustrative Patient Journey



Potential Sources of Value



Updated August 25, 2016

ASSIGNING ACCOUNTABILITY

The Principal Accountable Provider (also referred to as the quarterback) of the episode is the specific health care provider deemed to have the greatest accountability for the quality and cost of care for a patient. To state it differently, the quarterback is the provider who has the greatest ability to influence all of the health care delivered in a given episode. For the perinatal episode, the quarterback is the provider or provider group that is responsible for the delivery. All quarterbacks will receive reports according to their contracting entity or tax identification number.

MAKING FAIR COMPARISONS

The episode model is designed to be fair to providers and incentivize best practices without penalizing providers who care for sicker patients. As such, important aspects of the model are:

- Exclusion of episodes when clinical circumstances create the likelihood that the case will deviate substantially from the typical care path or when claims data is likely to be incomplete, and
- Risk adjusting to account for the cost of more complicated patients.

Some exclusions apply to any type of episode, i.e., are not specific to the perinatal episode. For example, an episode would be excluded if more than one payer was involved in a single episode of care, the patient was not continuously insured by the payer between the day of the earliest claim included in the episode and the end of the episode, or if the patient had a discharge status of "left against medical advice". Other examples of exclusion criteria specific to the perinatal episode include patients in active cancer management or patients with HIV. Episodes will also be excluded if the rendering provider of the trigger claim is a Maternal Fetal Medicine (MFM) specialist.

For the purposes of determining the cost for each episode of care, the actual reimbursement for the episode will be adjusted to reflect risk factors captured in recent claims data in order to be fair to providers caring for more complicated patients. Over time, a payer may add or subtract risk factors in line with new research and/or empirical evidence. Furthermore, there may be some factors with a low prevalence or significance that would make accurate risk adjustment difficult

and may be used to exclude patients completely instead of adjusting their costs. The final risk adjustment methodology decisions will be made at the discretion of the payer after analyzing the data.

MEASURING QUALITY

The episode reimbursement model is designed to reward providers who deliver cost effective care AND who meet certain quality thresholds. A quarterback must meet or exceed all established benchmarks for any quality metric tied to gain sharing in order to be eligible to receive monetary rewards from the episode model. Quality metrics tied to gain sharing are referred to as threshold metrics. Other quality metrics may be tracked and reported for quality improvement purposes but may not be tied directly to gain sharing.

The quality metrics linked to gain sharing for the perinatal episode are:

- **Screening for HIV:** Percent of valid episodes where the patient is screened for HIV within the episode window (higher rate indicative of better performance).

- **Screening for Group B streptococcus (GBS):** Percent of valid episodes where the patient is screened for Group B streptococcus within the episode window (higher rate indicative of better performance).

- **C-section:** Percent of valid episodes where the patient undergoes a C-section within the trigger window (lower rate indicative of better performance).

The quality metrics that will be tracked and reported to providers but that are not directly tied to gain sharing are:

- **Screening for gestational diabetes:** Percent of valid episodes where the patient is screened for gestational diabetes within the episode window (higher rate indicative of better performance).
- **Screening for asymptomatic bacteriuria:** Percent of valid episodes where the patient is screened for asymptomatic bacteriuria within the episode window (higher rate indicative of better performance).

- **Screening rate for hepatitis B specific antigens:** Percent of valid episodes where the patient is screened for hepatitis B specific antigens within the episode window (higher rate indicative of better performance).

- **Tdap vaccination rate:** Percent of valid episodes where the patient is given a Tdap vaccination within the episode window (higher rate indicative of better performance).

It is important to note that quality metrics are calculated by each payer on a per quarterback basis across all of a quarterback's episodes covered by that payer. Failure to meet all quality benchmarks tied to gain sharing will render a quarterback ineligible for gain sharing from that payer for the performance period under review.

Ohio | Governor's Office of Health Transformation

Introduction to the Ohio Episode-Based Payment Model

December 2015

www.HealthTransformation.Ohio.gov

Ohio | Governor's Office of Health Transformation

1. **Ohio's approach to paying for value instead of volume**
2. Episode-Based Payment Model
3. Specific episode example
4. Want to learn more?

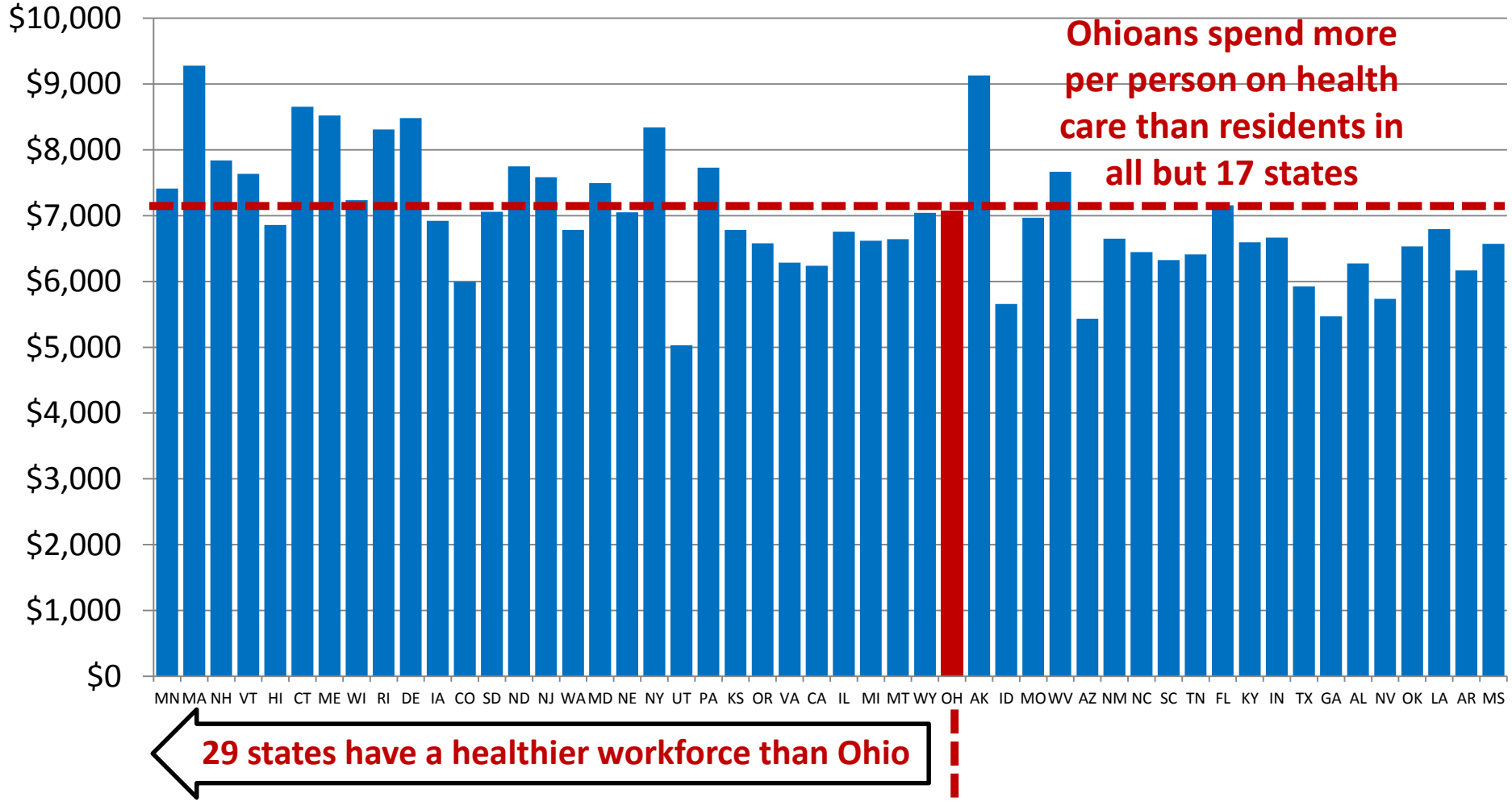
In fee-for-service, we get what we pay for

- **More volume** – to the extent fee-for-service payments exceed costs of additional services, they encourage providers to deliver more services and more expensive services
- **More fragmentation** – paying separate fees for each individual service to different providers perpetuates uncoordinated care
- **More variation** – separate fees also accommodate wide variation in treatment patterns for patients with the same condition – variations that are not evidence-based
- **No assurance of quality** – fees are typically the same regardless of the quality of care, and in some cases (e.g., avoidable hospital readmissions) total payments are greater for lower-quality care

Source: UnitedHealth, *Farewell to Fee-for-Service: a real world strategy for health care payment reform* (December 2012)

Ohio can get better value from what is spent on health care

Health Care Spending per Capita by State (2011) in order of resident health outcomes (2014)



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Sources: CMS *Health Expenditures by State of Residence* (2011); The Commonwealth Fund, *Aiming Higher: Results from a State Scorecard on Health System Performance* (May 2014).

Ohio | Governor's Office of Health Transformation

Ohio's Path to Value

Modernize Medicaid	Streamline Health and Human Services	Pay for Value
Initiate in 2011	***Initiate in 2012***	***Initiate in 2013***
Advance Governor Kasich's Medicaid modernization and cost containment priorities	***Share services to increase efficiency, right-size capacity, and streamline governance***	***Engage private sector partners to set clear expectations for better health, better care and cost savings through improvement***
• Extend Medicaid coverage to more low-income Ohioans • Eliminate fraud and abuse • Prioritize home and community based (HCBS) services • Reform nursing facility payment • Enhance community DD services • Integrate Medicare and Medicaid • Rebuild community behavioral health system capacity • Restructure behavioral health system financing • Improve Medicaid managed care plan performance	• Create the Office of Health Transformation (2011) • Implement a new Medicaid claims payment system (2011) • Create a unified Medicaid budget and accounting system (2013) • Create a cabinet-level Medicaid Department (2013) • Consolidate mental health and addiction services (2013) • Simplify and integrate eligibility determination (2014) • Refocus existing resources to promote economic self-sufficiency	• Join Catalyst for Payment Reform • Support regional payment reform • Pay for value instead of volume (State Innovation Model Grant) – Provide access to medical homes for most Ohioans – Use episode-based payments for acute events – Coordinate health information infrastructure – Coordinate health sector workforce programs – Report and measure system performance

In 2013, Ohio won a federal innovation grant to adopt two payment models that reward higher-quality, value-based care

Goal	80-90 percent of Ohio's population in some value-based payment model (combination of episodes- and population-based payment) within five years
State's Role	▪ Shift rapidly to PCMH and episode model in Medicaid fee-for-service ▪ Require Medicaid MCO partners to participate and implement ▪ Incorporate into contracts of MCOs for state employee benefit program

	Patient-centered medical homes	Episode-based payments
2014	▪ In 2014 focus on Comprehensive Primary Care Initiative (CPCi)	▪ State leads design of six episodes: asthma acute exacerbation, COPD exacerbation, perinatal, acute and non-acute PCI, and joint replacement
2015	▪ Collaborate with payers on design decisions and prepare a roll-out strategy	▪ State leads design of seven new episodes: URI, UTI, cholecystectomy, appendectomy, GI hemorrhage, EGD, and colonoscopy
2016	▪ Model rolled out to at least two major markets	▪ 20 episodes defined and launched across payers, including behavioral health
2017-2018	▪ Model rolled out to all markets ▪ 80% of patients are enrolled	▪ 50+ episodes defined and launched across payers, including behavioral health

updated August 27, 2015

Ohio | Governor's Office of Health Transformation

1. Ohio's approach to paying for value instead of volume
2. **Episode-Based Payment Model**
3. Specific episode example
4. Want to learn more?

Retrospective episode model mechanics

Patients and providers continue to deliver care as they do today

1

Patients seek care and select providers as they do today

2

Providers submit claims as they do today

3

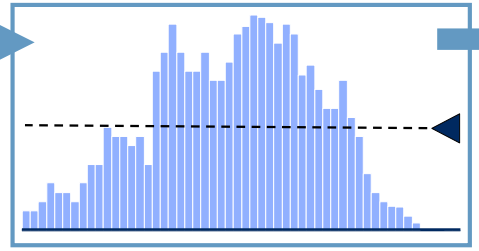
Payers reimburse for all services as they do today

Calculate incentive payments based on outcomes after close of 12 month performance period

4

Review claims from the performance period to identify a **'Principal Accountable Provider'** (PAP) for each episode

5 Payers calculate **average risk-adjusted reimbursement per episode** for each PAP



Compare to predetermined "commendable" and "acceptable" levels

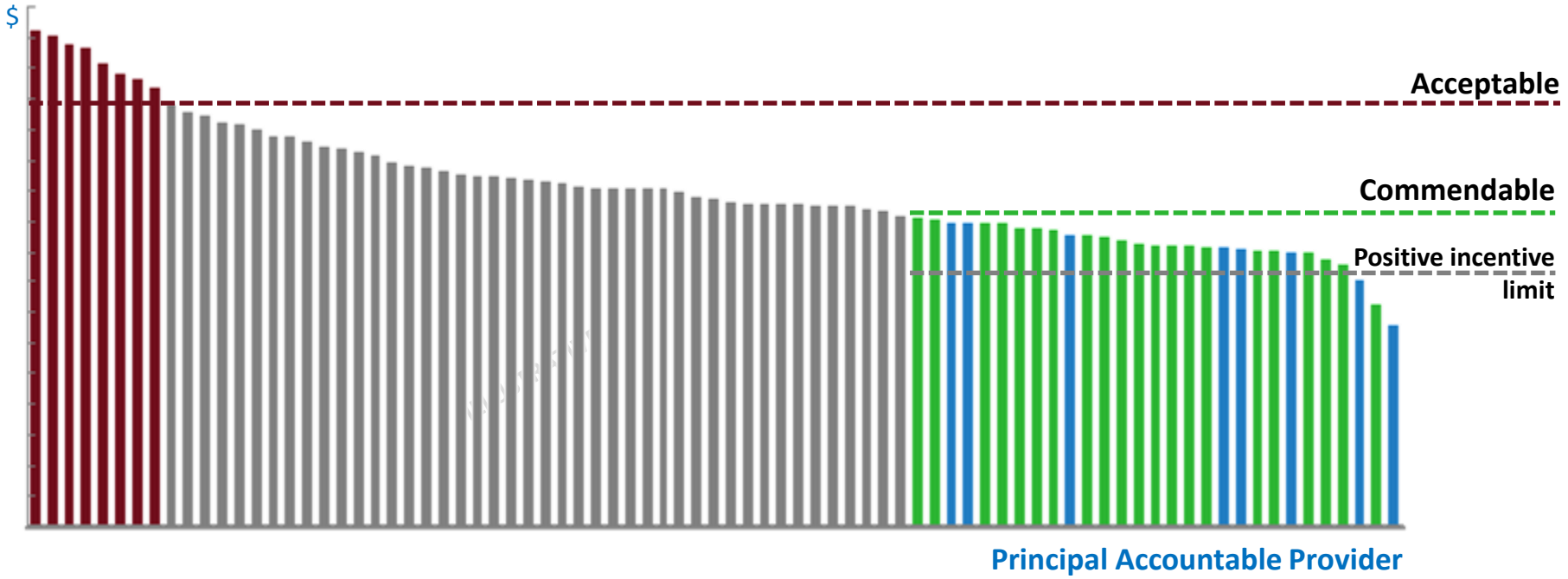
6 **Providers may:**

- **Share savings**: if average costs below commendable levels and quality targets are met
- **Pay negative incentive:** if average costs are above acceptable level
- **See no impact:** if average costs are between commendable and acceptable levels

Retrospective thresholds reward cost-efficient, high-quality care

Provider cost distribution (average risk-adjusted reimbursement per provider)

- ***Negative incentive***
- ***No change***
  No incentive payment
- ***No Change***
  Eligible for positive incentive payment based on cost, but did not pass quality metrics
- ***Positive incentive***



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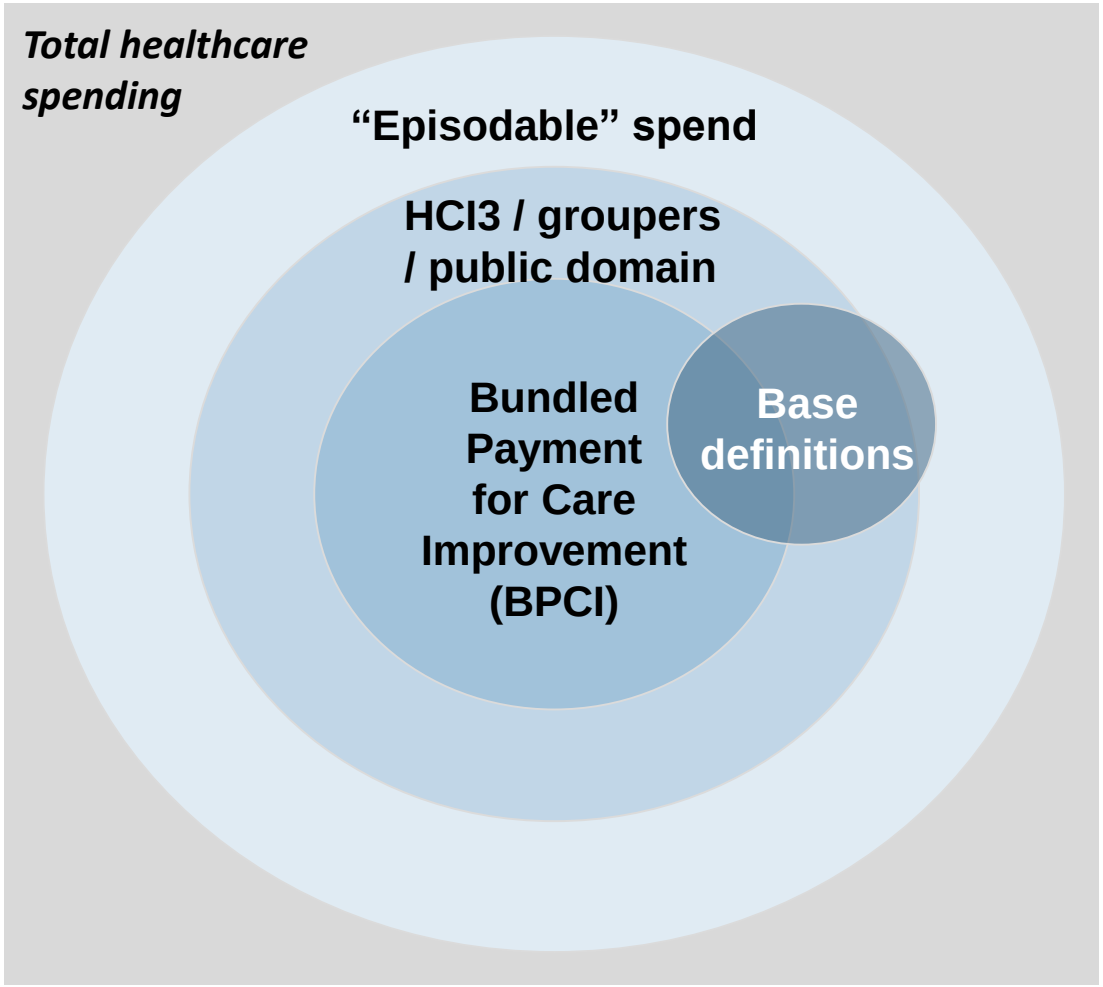
NOTE: Each vertical bar represents the average cost for a provider, sorted from highest to lowest average cost

Elements of the Episode Definition

Category	Description
1 Episode trigger	▪ Diagnoses or procedures and corresponding claim types and/or care settings that characterize a potential episode
2 Episode window 3 Claims included	▪ **Pre-trigger window:** Time period prior to the trigger event; relevant care for the patient is included in the episode ▪ **Trigger window:** Duration of the potential trigger event (e.g., from date of inpatient admission to date of discharge); all care is included ▪ **Post-trigger window:** Time period following trigger event; relevant care and complications are included in the episode
4 Principal accountable provider	▪ Provider who may be in the best position to assume principal accountability in the episode based on factors such as decision making responsibilities, influence over other providers, and portion of the episode spend
5 Quality metrics	▪ Measures to evaluate quality of care delivered during a specific episode
6 Potential risk factors	▪ Patient characteristics, comorbidities, diagnoses or procedures that may potentially indicate an increased level of risk for a given patient in a specific episode
7 Episode-level exclusions	▪ Patient characteristics, comorbidities, diagnoses or procedures that may potentially indicate a type of risk that, due to its complexity, cost, or other factors, should be excluded entirely rather than adjusted

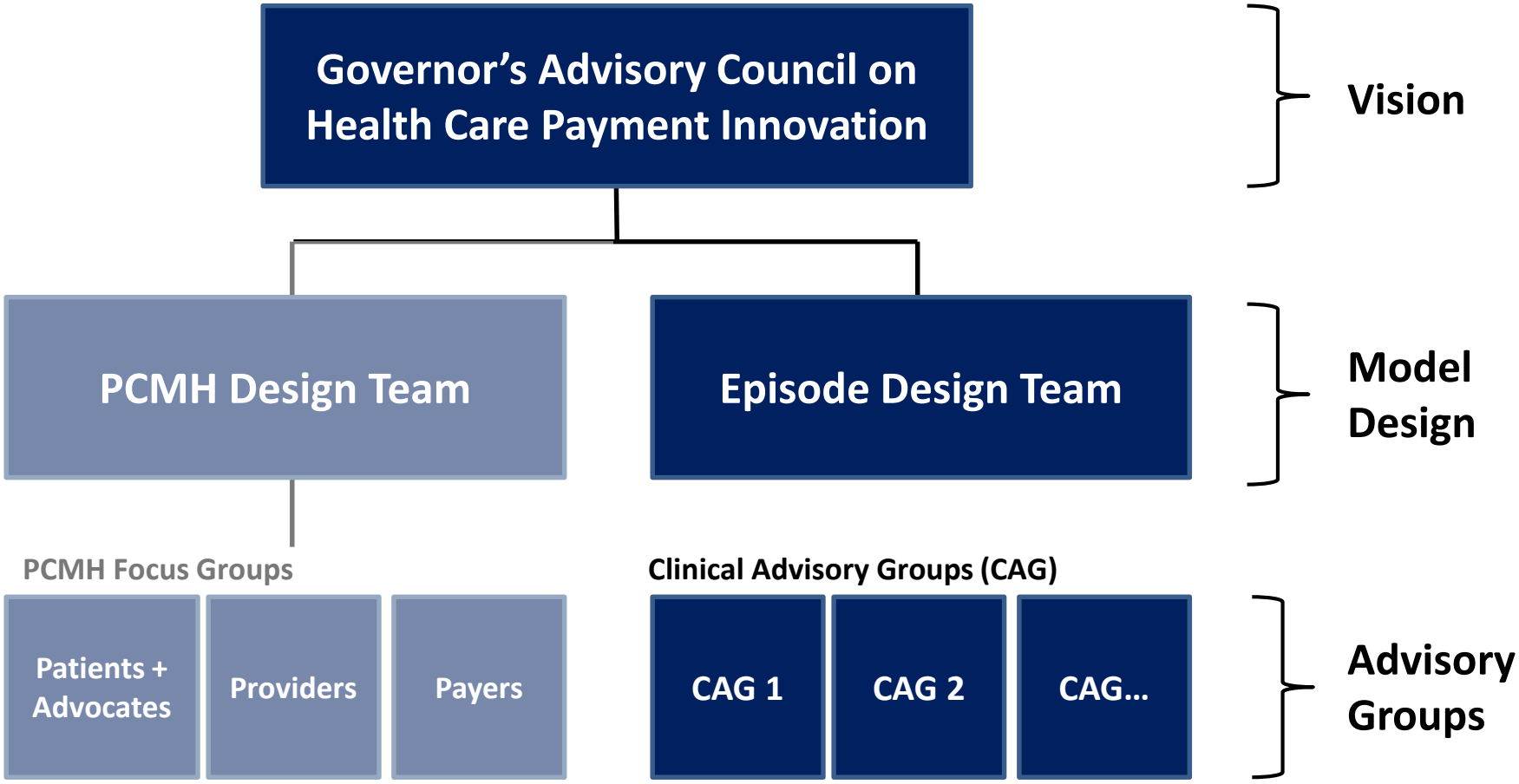
Base definition incorporates work from pilots nationwide



Base definitions incorporate work from multiple episode initiatives, including

- Work in other states (e.g., Arkansas)
- Prometheus
- Bundled payment for care improvement

Ohio's payment innovation design team structure is on track to deliver 5-7 new episodes annually



Ohio | Governor's Office of Health Transformation

Selection of episodes

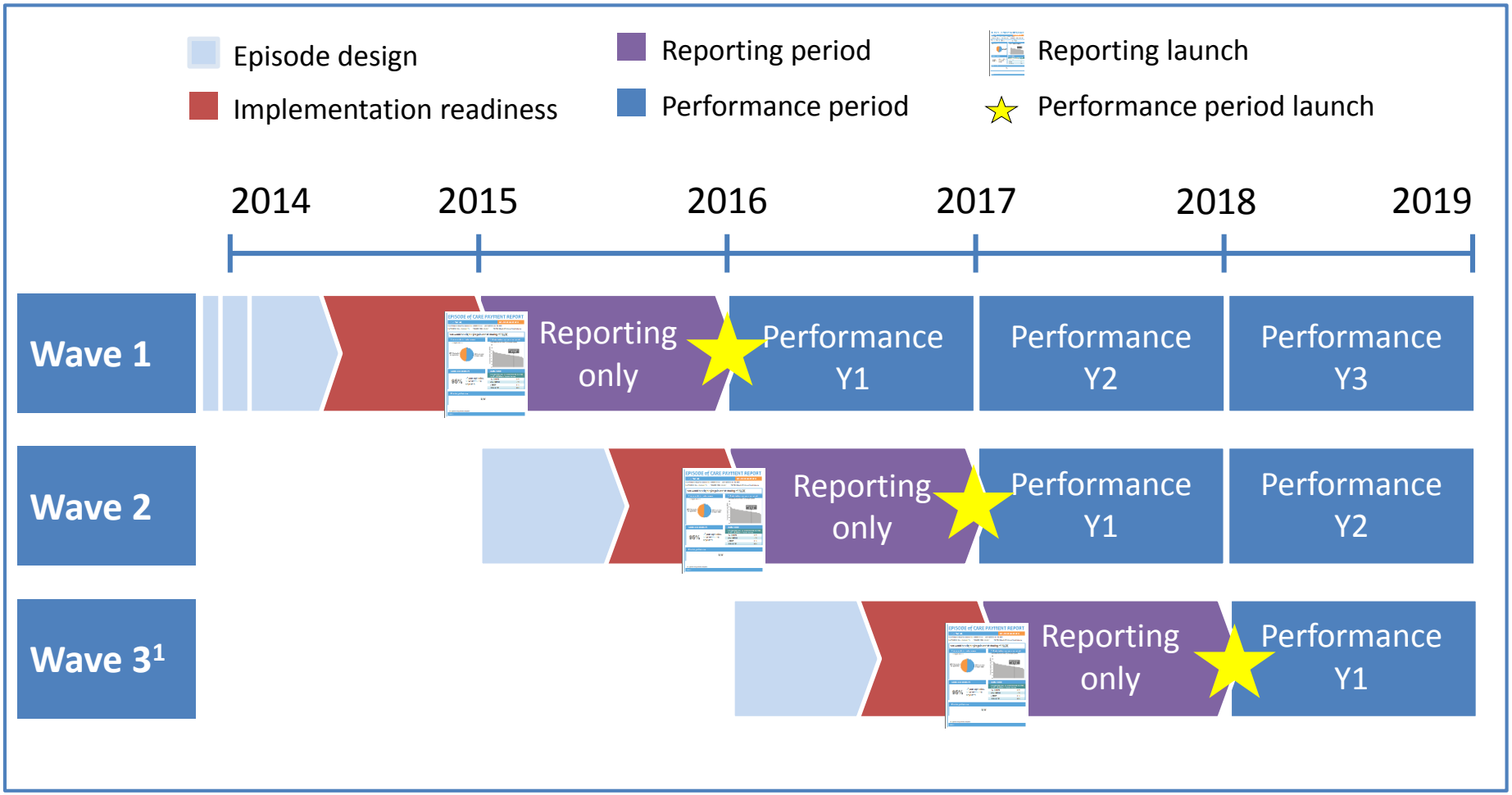
Principles for selection:

- Leverage episodes in use elsewhere to **reduce time to launch**
- Prioritize meaningful **spend across payer populations**
- Look for opportunities with **clear sources of value** (e.g., high variance in care)
- Select episodes that incorporate a **diverse mix** of accountable **providers** (e.g., facility, specialists)
- Cover a **diverse set of "patient journeys"** (e.g., acute inpatient, acute procedural)
- Consider **alignment with current priorities** (e.g., perinatal for Medicaid, asthma acute exacerbation for youth)

Ohio's episode selection:

Episode	*Principal Accountable Provider*
WAVE 1 (launched March 2015)	
1. Perinatal	Physician/group delivering the baby
2. Asthma acute exacerbation	Facility where trigger event occurs
3. COPD exacerbation	Facility where trigger event occurs
4. Acute Percutaneous intervention	Facility where PCI performed
5. Non-acute PCI	Physician
6. Total joint replacement	Orthopedic surgeon
WAVE 2 (launch January 2016)	
7. Upper respiratory infection	PCP or ED
8. Urinary tract infection	PCP or ED
9. Cholecystectomy	General surgeon
10. Appendectomy	General surgeon
11. Upper GI endoscopy	Gastroenterologist
12. Colonoscopy	Gastroenterologist
13. GI hemorrhage	Facility where hemorrhage occurs
WAVE 3 (launch January 2017)	
14-19. Package of episodes including some related to behavioral health	

Ohio's episode timeline



1 Expected timing for Wave 3

Ohio | Governor's Office of Health Transformation

This is an example of the performance report format that will be released in 2016 with the launch of the performance period for Wave 1 and used for both Wave 1 and Wave 2 episodes in 2016

EPISODE of CARE PROVIDER REPORT

EPISODE NAME | Q1 + Q2 YYYY

Reporting period covering episodes that ended between **Start Date to End Date**

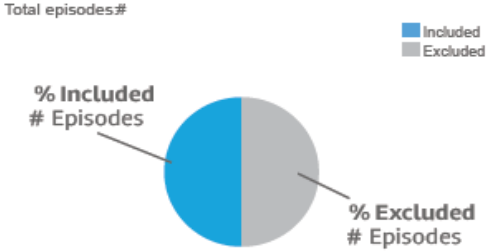
PAYER: Payer Name | PROVIDER ID: PAP ID | PROVIDER: Provider Name

Eligibility requirements for gain or risk-sharing payments

- **Episode volume:** You have at least 5 episodes in the current performance period.
- **Spend:** Your average risk-adjusted spend per episode is below the commendable threshold.
- **Quality:** You are not currently eligible for gain-sharing because you have not passed all quality metrics linked to gain-sharing.
- **This report is informational only.** Eligibility for gain or risk-sharing will be determined at the end of the performance period and any applicable payments will be calculated at that time.

Episodes included, excluded & adjusted

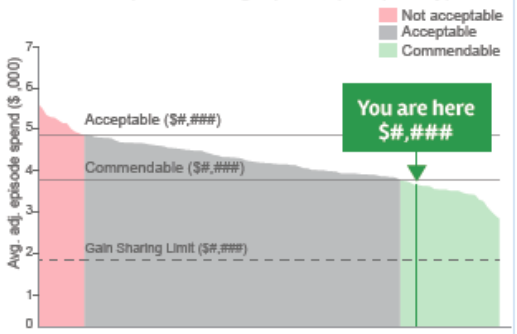
Total episodes#



% of your episodes have been risk adjusted

Risk adjusted average spend per episode

Distribution of provider average episode spend (risk adj.)



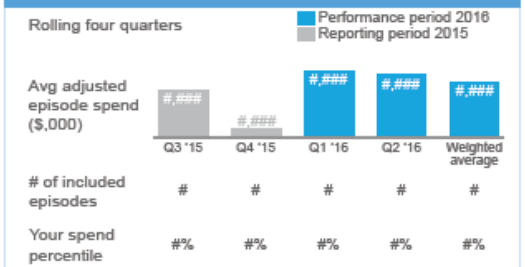
Quality metrics

You achieved # of # quality metrics linked to gain sharing

Quality metric 01	#% ✓
Quality metric 02	#% ✓
Quality metric 03	#% ✗
Quality metric 04	#% ✗

Key performance

Rolling four quarters



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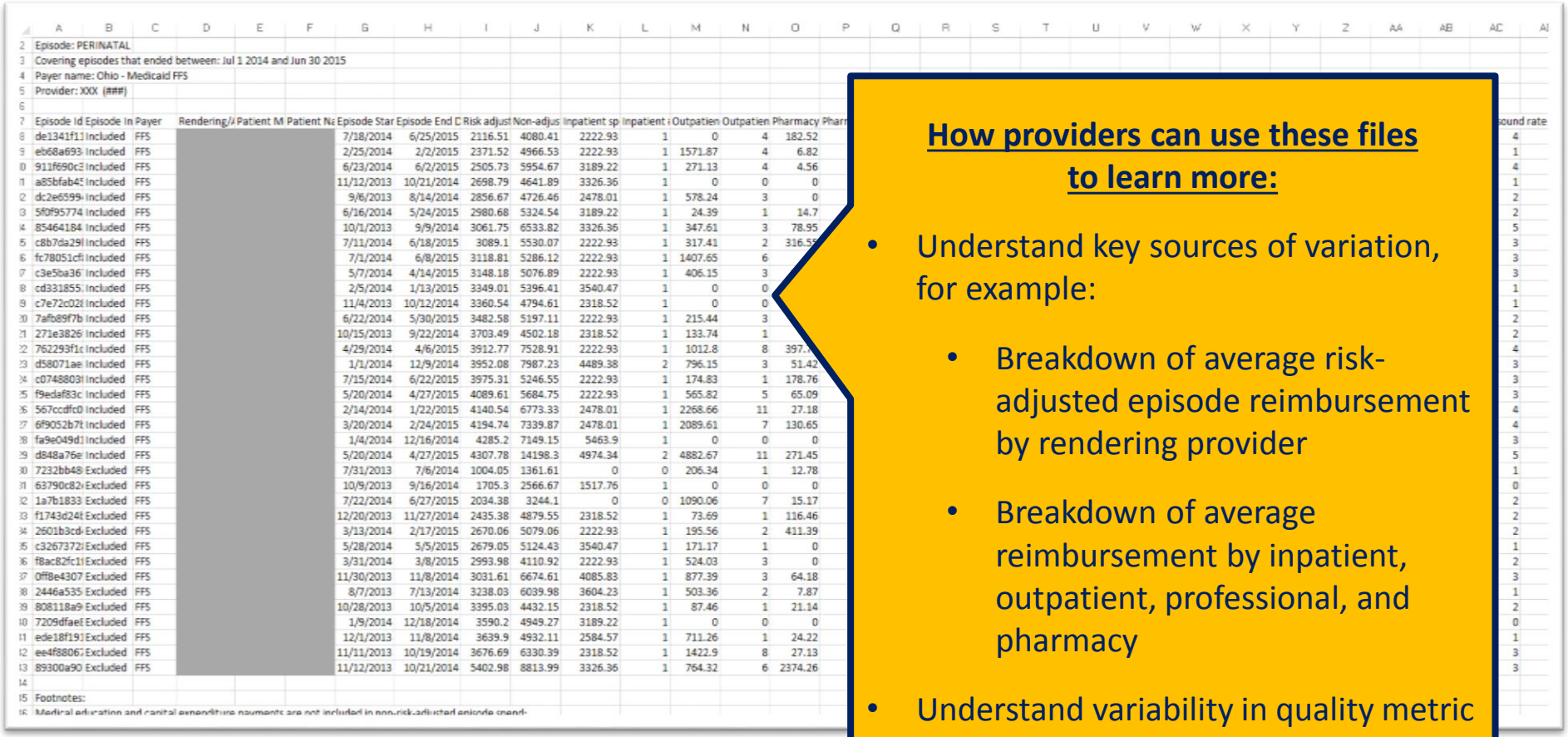
Detailed file delivered to each Principal Accountable Provider to complement quarterly provider reports



Episode: PERINATAL
Covering episodes that ended between: Jul 1 2014 and Jun 30 2015
Payer name: Ohio - Medicaid FFS
Provider: XXX (###)

Episode Id	Episode In	Payer	Rendering/A	Patient M	Patient Na	Episode Star	Episode End D	Risk adjust	Non-adjus	Inpatient sp	Inpatient a	Outpatien	Outpatien	Pharmacy	Pharr	sound rate
de1341f1	Included	FFS				7/18/2014	6/25/2015	2116.51	4080.41	2222.93	1	0	4	182.52		4
eb68a693	Included	FFS				2/25/2014	2/2/2015	2371.52	4966.53	2222.93	1	1571.87	4	6.82		1
911f690c	Included	FFS				6/23/2014	6/2/2015	2505.73	5954.67	3189.22	1	271.13	4	4.56		4
a85bfab4	Included	FFS				11/12/2013	10/21/2014	2698.79	4641.89	3326.36	1	0	0	0		1
dc2e6599	Included	FFS				9/6/2013	8/14/2014	2856.67	4726.46	2478.01	1	578.24	3	0		2
5f0f9577	Included	FFS				6/16/2014	5/24/2015	2980.68	5324.54	3189.22	1	24.39	1	14.7		2
85464184	Included	FFS				10/1/2013	9/9/2014	3061.75	6533.82	3326.36	1	347.61	3	78.95		5
c8b7da29	Included	FFS				7/11/2014	6/18/2015	3089.1	5530.07	2222.93	1	317.41	2	316.5		3
fc78051c	Included	FFS				7/1/2014	6/8/2015	3118.81	5286.12	2222.93	1	1407.65	6			3
c3e5ba36	Included	FFS				5/7/2014	4/14/2015	3148.18	5076.89	2222.93	1	406.15	3			3
cd331855	Included	FFS				2/5/2014	1/13/2015	3349.01	5396.41	3540.47	1	0	0			1
c7e72c02	Included	FFS				11/4/2013	10/12/2014	3360.54	4794.61	2318.52	1	0	0			1
7afb89f7	Included	FFS				6/22/2014	5/30/2015	3482.58	5197.11	2222.93	1	215.44	3			2
271e3826	Included	FFS				10/15/2013	9/22/2014	3703.49	4502.18	2318.52	1	133.74	1			2
762293f1	Included	FFS				4/29/2014	4/6/2015	3912.77	7528.91	2222.93	1	1012.8	8	397.7		4
d58071ae	Included	FFS				1/1/2014	12/9/2014	3952.08	7987.23	4489.38	2	796.15	3	51.42		3
c0748803	Included	FFS				7/15/2014	6/22/2015	3975.31	5246.55	2222.93	1	174.83	1	178.76		3
f9edaf83	Included	FFS				5/20/2014	4/27/2015	4089.61	5684.75	2222.93	1	565.82	5	65.09		3
567ccdfc0	Included	FFS				2/14/2014	1/22/2015	4140.54	6773.33	2478.01	1	2268.66	11	27.18		4
6f9052b7	Included	FFS				3/20/2014	2/24/2015	4194.74	7339.87	2478.01	1	2089.61	7	130.65		4
fa9e049d	Included	FFS				1/4/2014	12/16/2014	4285.2	7149.15	5463.9	1	0	0	0		3
d848a76e	Included	FFS				5/20/2014	4/27/2015	4307.78	14198.3	4974.34	2	4882.67	11	271.45		5
7232bb48	Excluded	FFS				7/31/2013	7/6/2014	1004.05	1361.61	0	0	206.34	1	12.78		1
63790c82	Excluded	FFS				10/9/2013	9/16/2014	1705.3	2566.67	1517.76	1	0	0	0		0
1a7b1833	Excluded	FFS				7/22/2014	6/27/2015	2034.38	3244.1	0	0	1090.06	7	15.17		2
f1743d24	Excluded	FFS				12/20/2013	11/27/2014	2435.38	4879.55	2318.52	1	73.69	1	116.46		2
2601b3cd	Excluded	FFS				3/13/2014	2/17/2015	2670.06	5079.06	2222.93	1	195.56	2	411.39		2
c3267372	Excluded	FFS				5/28/2014	5/5/2015	2679.05	5124.43	3540.47	1	171.17	1	0		1
f8ac82fc1	Excluded	FFS				3/31/2014	3/8/2015	2993.98	4110.92	2222.93	1	524.03	3	0		2
0ff8e4307	Excluded	FFS				11/30/2013	11/8/2014	3031.61	6674.61	4085.83	1	877.39	3	64.18		3
2446a535	Excluded	FFS				8/7/2013	7/13/2014	3238.03	6039.98	3604.23	1	503.36	2	7.87		1
808118a9	Excluded	FFS				10/28/2013	10/5/2014	3395.03	4432.15	2318.52	1	87.46	1	21.14		2
7209dfae	Excluded	FFS				1/9/2014	12/18/2014	3590.2	4949.27	3189.22	1	0	0	0		0
ede18f19	Excluded	FFS				12/1/2013	11/8/2014	3639.9	4932.11	2584.57	1	711.26	1	24.22		1
ee4f8806	Excluded	FFS				11/11/2013	10/19/2014	3676.69	6330.39	2318.52	1	1422.9	8	27.13		3
89300a90	Excluded	FFS				11/12/2013	10/21/2014	5402.98	8813.99	3326.36	1	764.32	6	2374.26		3

Footnotes:
Medical education and capital expenditure payments are not included in non-risk-adjusted episode spend.

How providers can use these files to learn more:

- Understand key sources of variation, for example:
  - Breakdown of average risk-adjusted episode reimbursement by rendering provider
  - Breakdown of average reimbursement by inpatient, outpatient, professional, and pharmacy
- Understand variability in quality metric performance and relationship to average episode reimbursement

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Wave 1 performance period launch: Proposed Medicaid quality metric thresholds

- The State's goal is to set quality metric thresholds at the **top quartile of current performance** to encourage delivery of high quality care
- However, to ensure a majority of providers eligible for incentives can participate, in **Year 1**, the quality metric thresholds will be at a level where **75% of providers pass all metrics tied to incentive payments**
- Quality metric thresholds will **ramp up** to **top quartile** performance level over the **next 5 years**

	Quality metric	Threshold
Asthma	QM1: Follow-up visit rate	28%
	QM2: Controller medication prescription fill-rate	26%
COPD	QM1: Follow-up visit rate	50%
Perinatal	QM1: HIV screening rate	50%
	QM2: GBS screening rate	50%
	QM3: C-section rate	45%
	QM4: Post-partum visit rate	50%

SOURCE: Ohio Medicaid claims data, CY 2014

Wave 1 performance period launch: Medicaid spend threshold methodology

Determining…

Threshold levels

- Ohio Medicaid will set cost and quality thresholds for all MCPs
- Ohio Medicaid will set one acceptable threshold for all of Medicaid so that ~10 percent of providers are above the acceptable threshold, assuming no behavior change[1]
- Ohio Medicaid will set one commendable threshold for all of Medicaid such that it would be budget neutral after positive and negative incentive payments, assuming no change in the PAP curve[2]
- Ohio Medicaid is using the same methodology to set thresholds across all Wave I episodes

Payments

- For Ohio Medicaid, including the managed care plans, the incentive payment allocation for PAPs will be 50 percent
- Payments will be proportional to the non-risk adjusted payment for each PAP

1 The threshold will be set midway between the avg. cost for the last provider above acceptable and the first one not. Including 10% of providers means including the minimum number of providers such that at least 10% of providers are included

2 Assumes all providers pass the quality measures

Wave 1 performance period launch: Proposed Medicaid spend thresholds[1]

		Acceptable	Commendable	Positive incentive limit
Asthma	Value, $	$372	$292	$24
	'All Medicaid' percentile	90th percentile	55th percentile	N/A
COPD	Value, $	$1,087	$683	$58
	'All Medicaid' percentile	91st percentile	21st percentile	N/A
Perinatal	Value, $	$4,405	$3,169	$1,235
	'All Medicaid' percentile	90th percentile	12th percentile	N/A

1 Subject to inflationary adjustment based on actuarial review; final adjusted thresholds will be posted in 2016 and included on all reports in 2016

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NOTE: Thresholds are based on risk-adjusted episode reimbursement and should be used in tandem with average risk-adjusted episode reimbursement delivered on quarterly provider reports.

SOURCE: Ohio Medicaid claims data, CY 2014

All Medicaid PAP curve (used to set thresholds) - Perinatal

Provider risk-adjusted cost distribution

PAP average episode cost

Low volume | High volume[1]

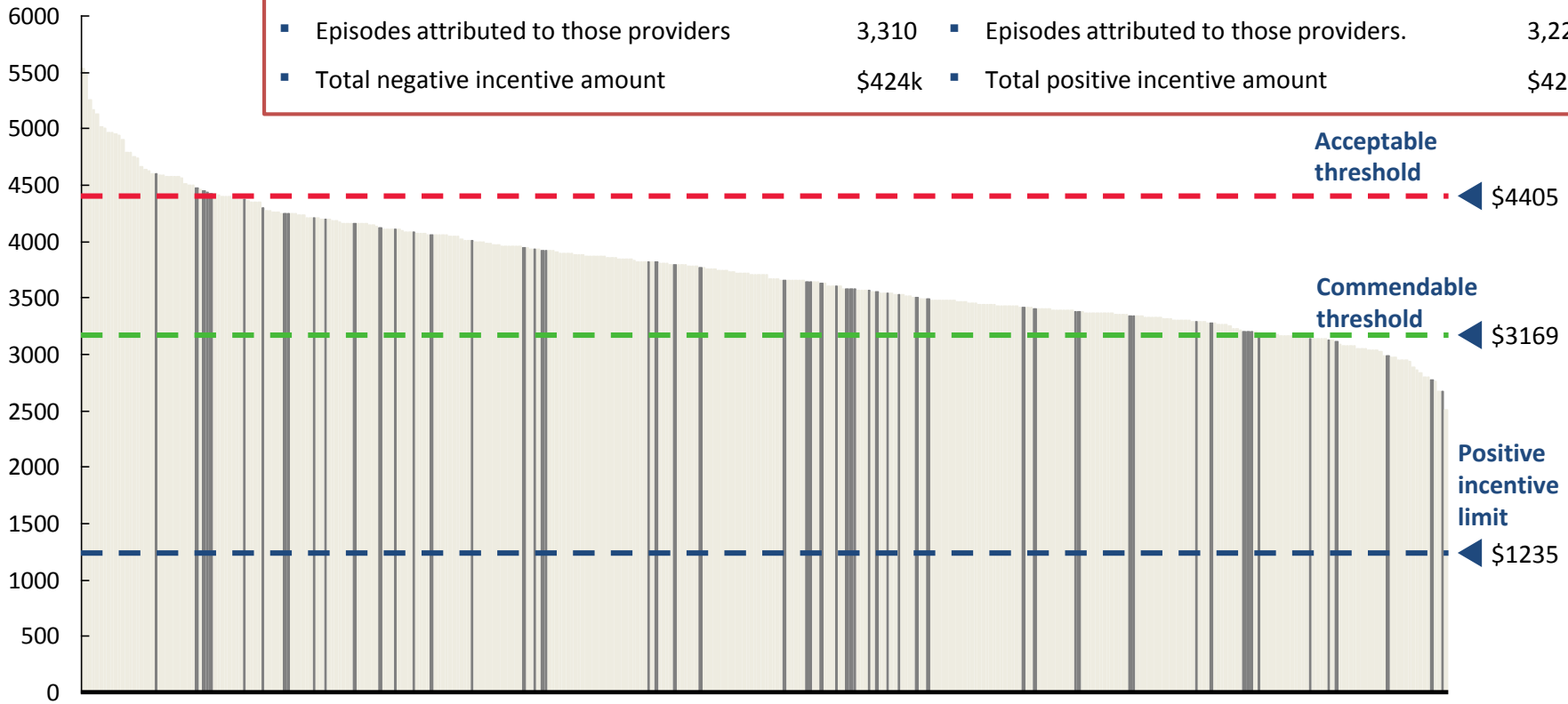
'All Medicaid' summary statistics

Negative incentive payments

Providers above acceptable threshold	38
Episodes attributed to those providers	3,310
Total negative incentive amount	$424k

Positive incentive payments[2]

Providers below commendable threshold	45
Episodes attributed to those providers.	3,220
Total positive incentive amount	$424k



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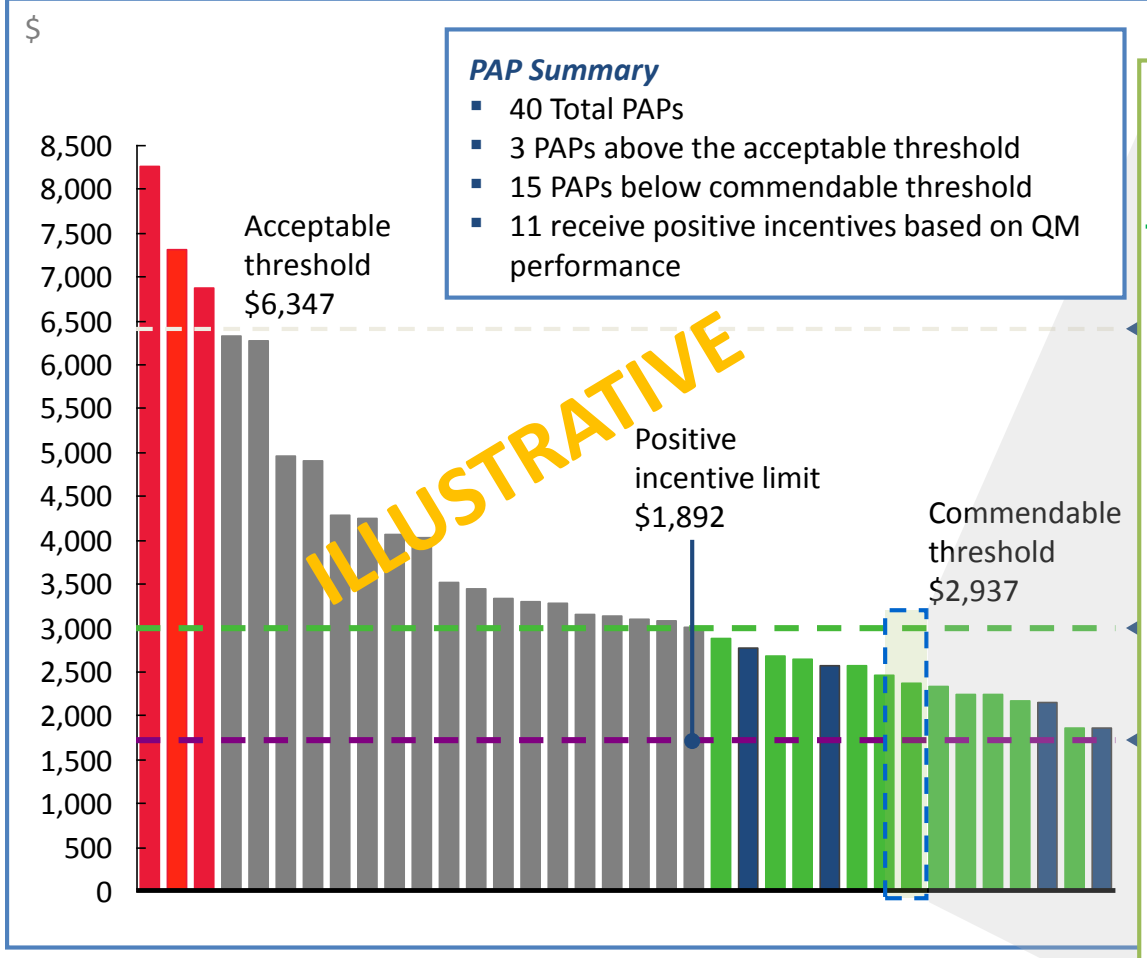
1. Top 10 percent of providers by volume
2. Assumes all providers pass quality metrics tied to incentive payments

SOURCE: Ohio Medicaid FFS and encounter data, CY 2014

Positive incentive payments are based on average risk-adjusted episode reimbursement for providers that pass quality metrics

Risk-adjusted average spend for one managed care plan (Illustrative)



PAP Summary

- 40 Total PAPs
- 3 PAPs above the acceptable threshold
- 15 PAPs below commendable threshold
- 11 receive positive incentives based on QM performance

Did not pass QM | Neutral | Positive incentive | Negative incentive

Risk-adjusted average spend

$, 1 PAP

$466	Difference to comm-endable threshold
÷	
$2,471	Risk-adjusted average
19%	**Percentage of spend applicable for incentive calculation**
×	
$4,492	Un-adjusted average
×	
15	# of episodes
×	
50%	*Incentive payment allocation*
$6,401	**Total positive incentive payment**

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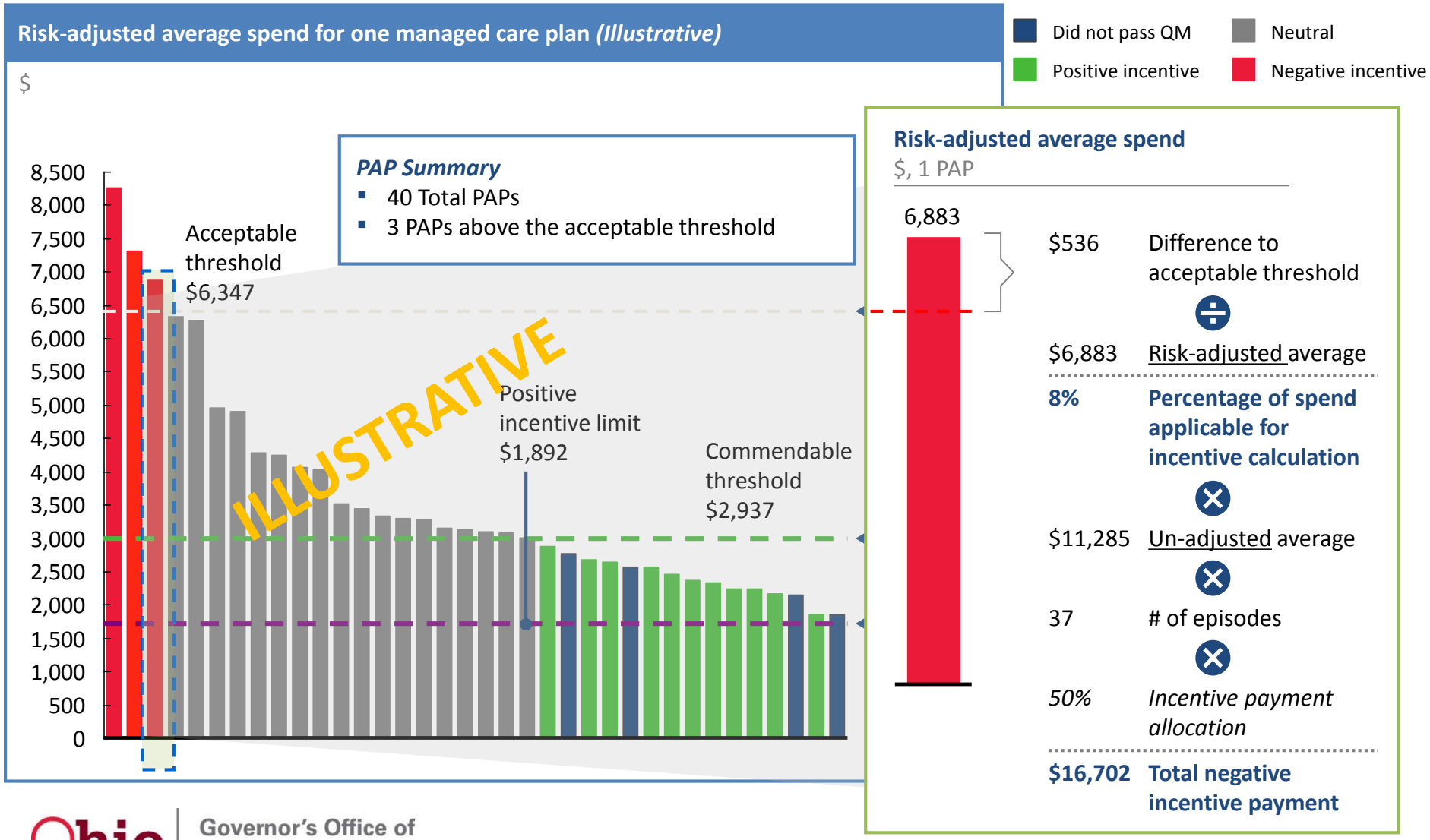
Negative incentive payment is calculated based on average episode spend within each payer



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Wave 2 materials now available online

Summary definitions

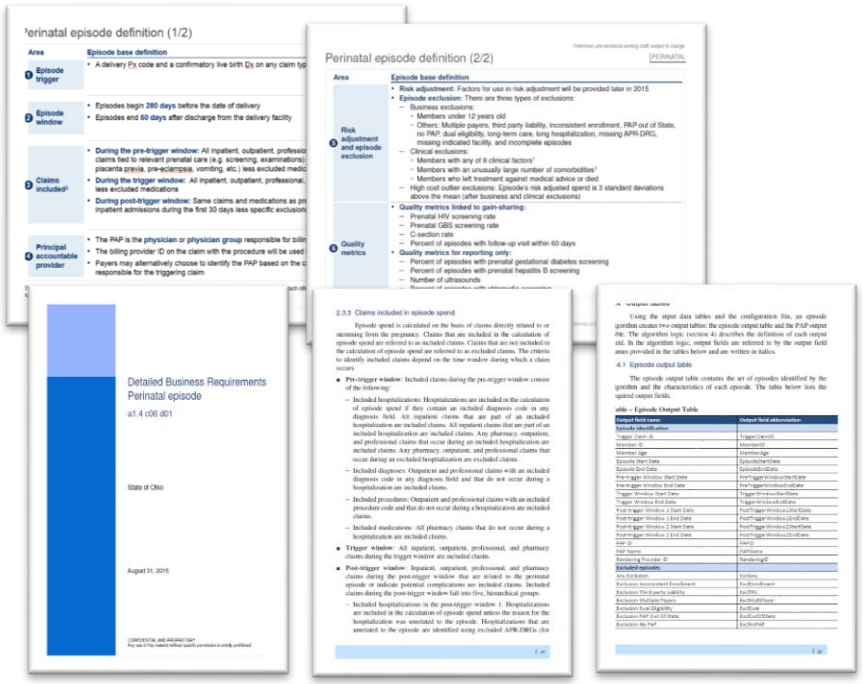
- Overview of definitions resulting from CAG process
- '2 page' view of all design elements

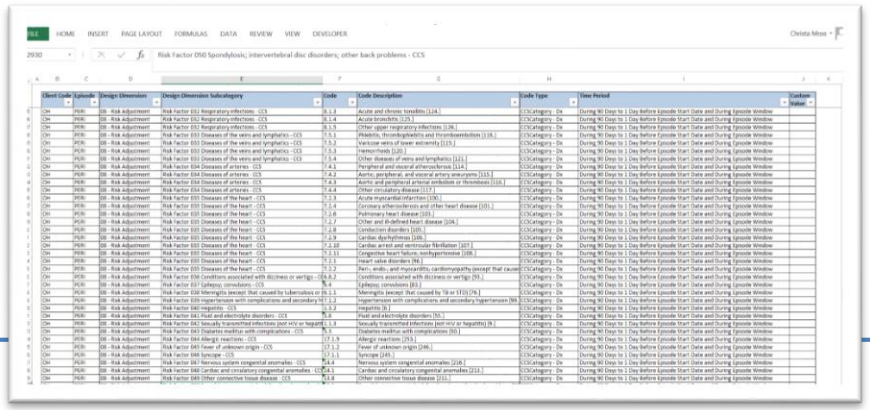
Detailed business requirements

- Detailed word file including all of the specifics required to code an algorithm

Code sets

- Excel file containing specific diagnosis and procedure codes used for trigger, included claims, exclusions, risk adjustment, etc.





SOURCE: Ohio Medicaid website

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Ohio | Governor's Office of Health Transformation

1. Ohio's approach to paying for value instead of volume
2. Episode-Based Payment Model
3. **Specific episode example**
4. Want to learn more?

Perinatal episode definition

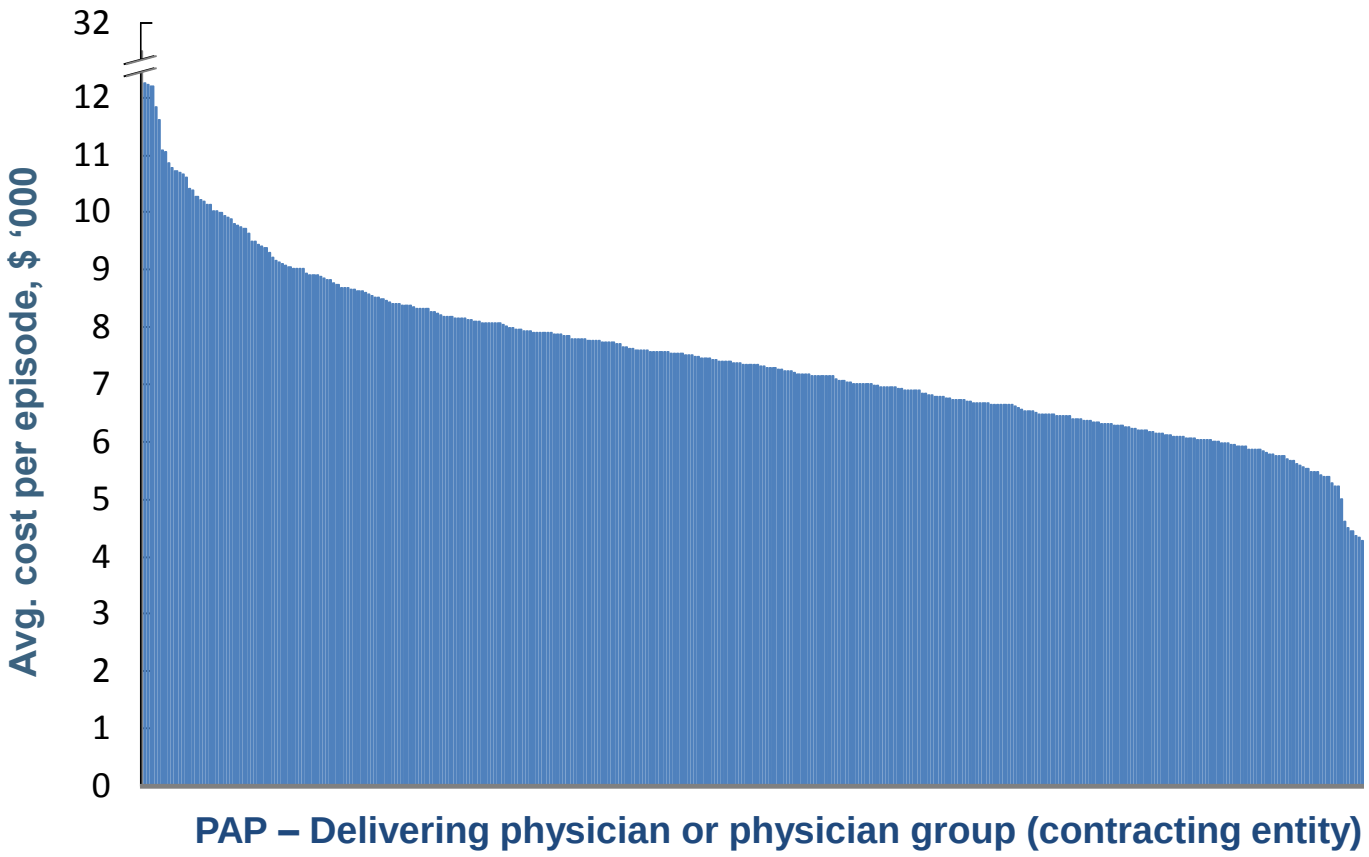
Category	Episode definition
1 Episode trigger	• A delivery Px code with a confirmatory live birth Dx on any claim type[1]
2 Episode window	• *Pre-trigger:* Begins 280 days before delivery and ends on day prior to trigger window start • *Trigger:* Starts on day of admission and ends on day of discharge • *Post-trigger:* Begins day after discharge from delivery admission and ends 60 days later
3 Claims included	• *Pre-trigger window:* Relevant prenatal care and complications (except excluded medications) • *Trigger window:* All • *Post-trigger window:* – Relevant care and complications including diagnoses, procedures, labs, and pharmacy – Readmissions (except those not relevant to episode)
4 Principal accountable provider	▪ Physician or physician group responsible for the delivery (billing provider or contracting entity)
5 Quality metrics	*Linked to positive incentive payment:* • Prenatal HIV screening rate • Prenatal GBS screening rate • C-section rate • Percent of episodes with follow-up visit within 60 days *For reporting only:* • Percent of episodes with prenatal gestational diabetes screening • Percent of episodes with prenatal hepatitis B screening • Percent of episodes with chlamydia screening • Ultrasound rate
6 Potential risk factors	• Comorbidities (e.g., hypertension, diabetes, substance abuse, obesity, prior C-section)
7 Exclusions	• Clinical (e.g., cystic fibrosis, cancer, end stage renal disease, HIV, paralysis) • Business (e.g., dual coverage, inconsistent eligibility) • Patients < 12 years old and > 49 years old • Death in hospital, left AMA

1 The live birth code and delivery procedure code can occur on different claims but must occur within 7 days of each other

Perinatal: Provider Performance

Distribution of provider average episode cost

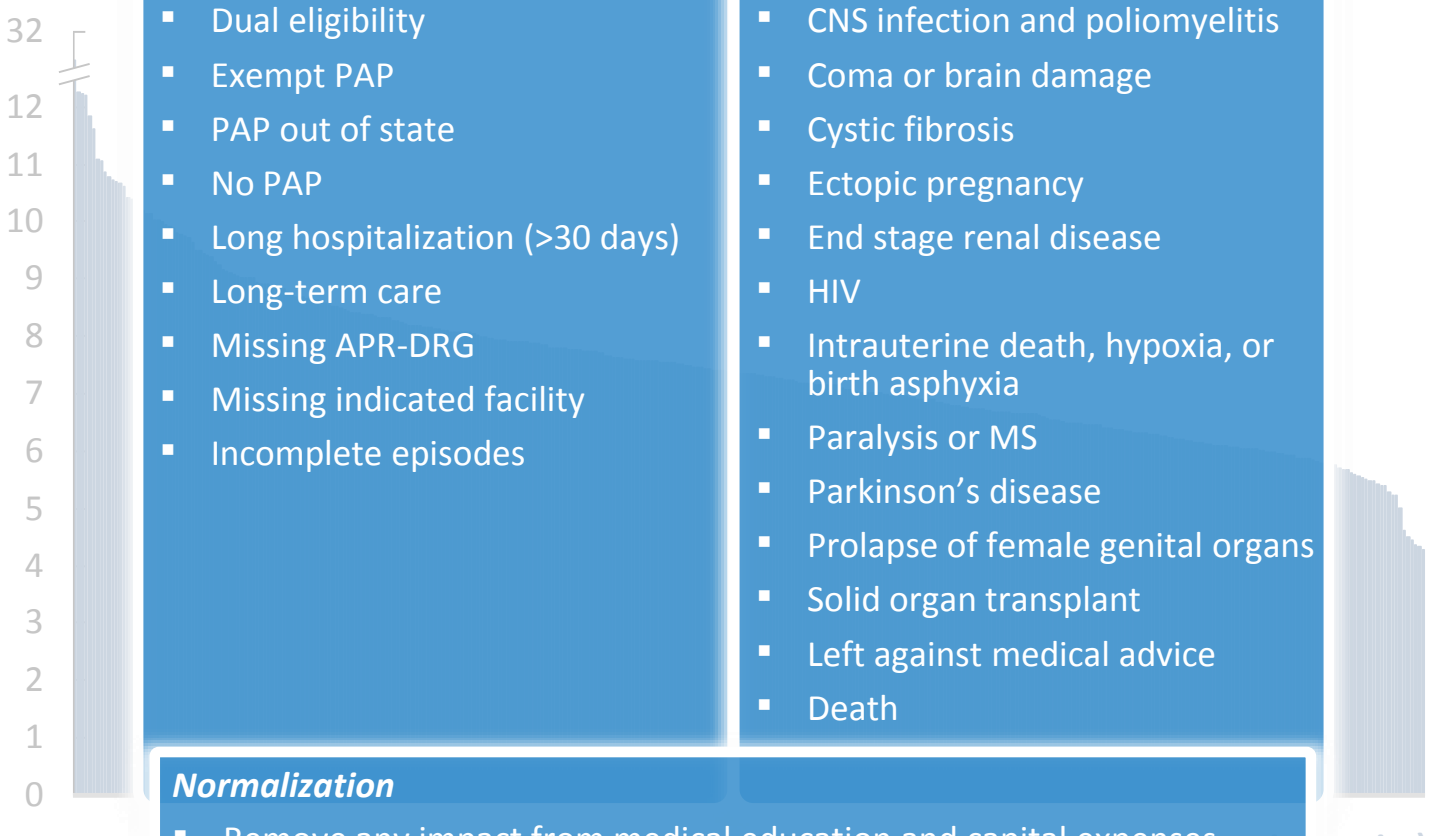
$ in thousands



- **Unadjusted episode cost, no exclusions**
- Average cost after episode exclusions (e.g., clinical, incomplete data) and removal of impact of medical education and capital
- Average cost after risk adjustment and removal of high cost outliers

SOURCE: Ohio Medicaid claims data, CY2014

Perinatal: Provider Performance



Business exclusions

- Inconsistent enrollment
- Third party eligibility
- Dual eligibility
- Exempt PAP
- PAP out of state
- No PAP
- Long hospitalization (>30 days)
- Long-term care
- Missing APR-DRG
- Missing indicated facility
- Incomplete episodes

Clinical exclusions

- Age (<12 or >49)
- Cancer under active mgmt.
- CNS infection and poliomyelitis
- Coma or brain damage
- Cystic fibrosis
- Ectopic pregnancy
- End stage renal disease
- HIV
- Intrauterine death, hypoxia, or birth asphyxia
- Paralysis or MS
- Parkinson's disease
- Prolapse of female genital organs
- Solid organ transplant
- Left against medical advice
- Death

Normalization

- Remove any impact from medical education and capital expenses

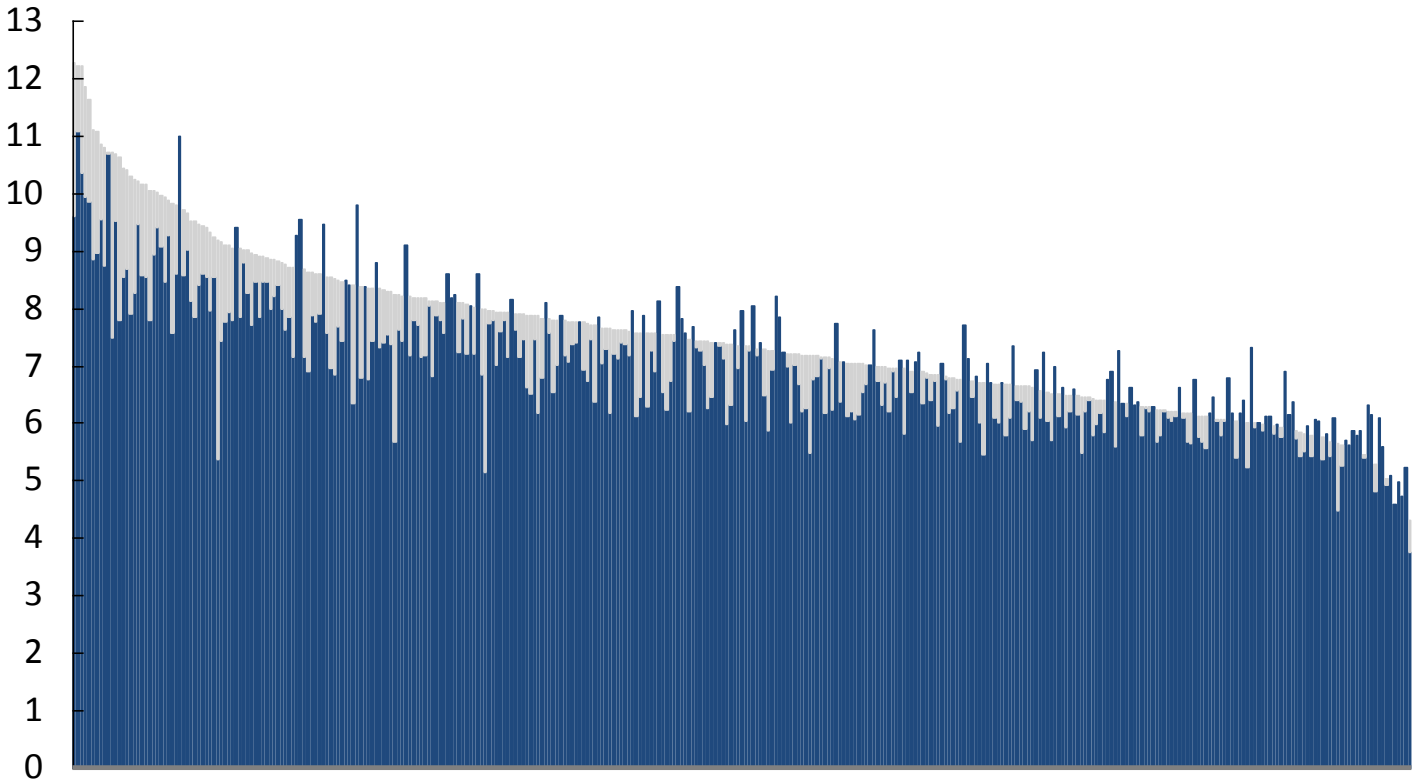
- **Unadjusted episode cost, no exclusions**
- Average cost after episode exclusions (e.g., clinical, incomplete data) and removal of impact of medical education and capital
- Average cost after risk adjustment and removal of high cost outliers

SOURCE: Ohio Medicaid claims data, CY2014

Perinatal: Provider Performance

Distribution of provider average episode cost
$ in thousands

Avg. cost per episode, $ '000



PAP – Delivering physician or physician group (contracting entity)

- Unadjusted episode cost, no exclusions
- **Average cost after episode exclusions (e.g., clinical, incomplete data) and removal of impact of medical education and capital**
- Average cost after risk adjustment and removal of high cost outliers

SOURCE: Ohio Medicaid claims data, CY2014

Perinatal: Provider Performance

Risk adjustment

Adjust average episode cost down based on presence of 70+ clinical risk factors including:

- Hypertension
- Prior C-section
- Obesity
- Diabetes
- Diseases of the central nervous system
- Substance related mental or behavioral illness
- Emotional and behavioral mental illnesses
- Non-anemic blood diseases
- Viral infections
- Anemia
- Congenital anomalies
- Abortion related disorders
- Complications mainly related to pregnancy
- Diseases of the urinary system
- Diseases of the respiratory system
- Diseases of the heart

High cost outliers

- Removal of any individual episodes that are more than three standard deviations above the *risk-adjusted* mean

- Unadjusted episode cost, no exclusions
- **Average cost after episode exclusions (e.g., clinical, incomplete data) and removal of impact of medical education and capital**
- Average cost after risk adjustment and removal of high cost outliers

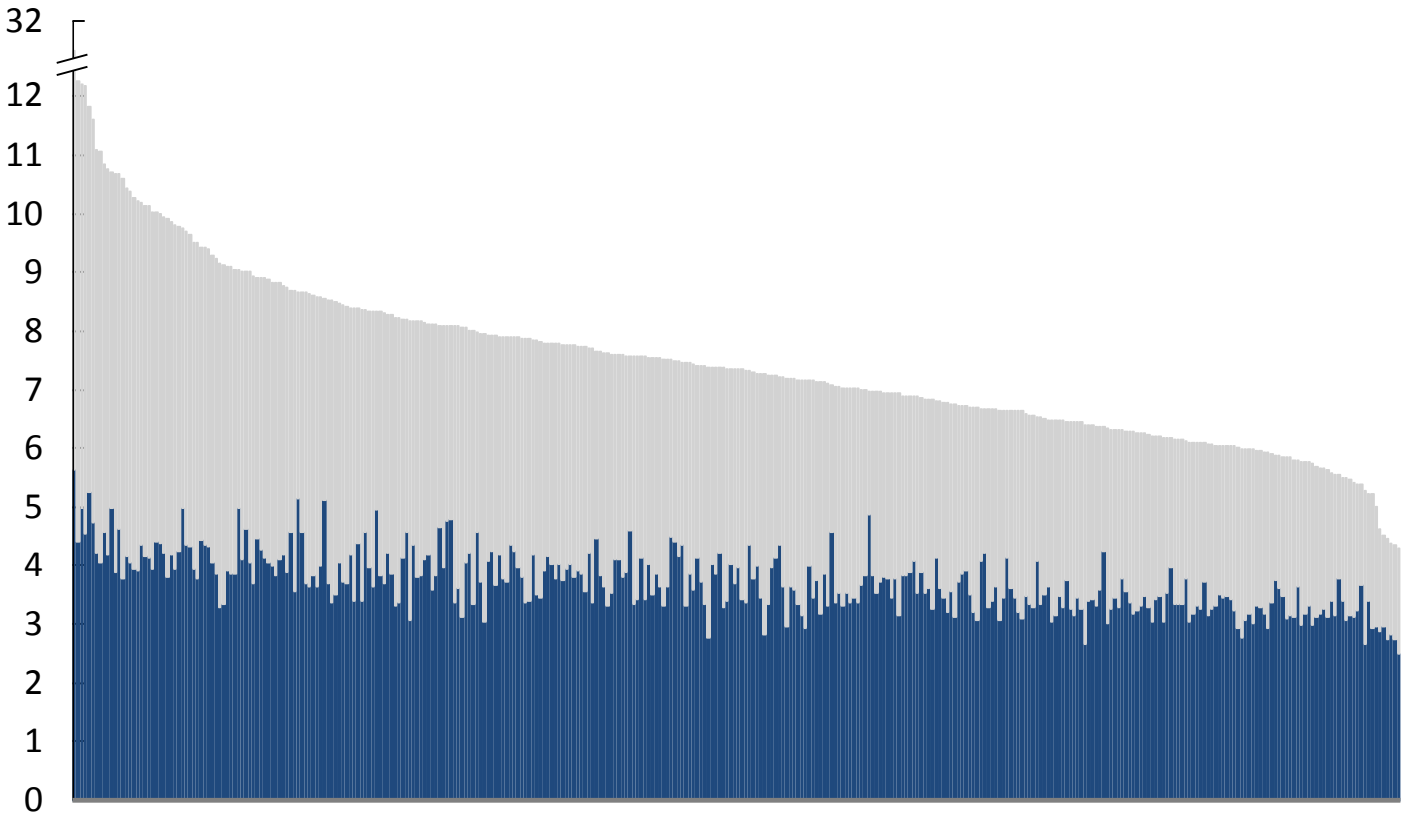
SOURCE: Ohio Episode-Based Payment Model Clinical Design Team definitions.

Perinatal: Provider Performance

Distribution of provider average episode cost

$ in thousands

Avg. risk-adjusted reimbursement per episode, $ '000



PAP – Delivering physician or physician group (contracting entity)

- Unadjusted episode cost, no exclusions
- Average cost after episode exclusions (e.g., clinical, incomplete data) and removal of impact of medical education and capital
- **Average cost after risk adjustment and removal of high cost outliers**

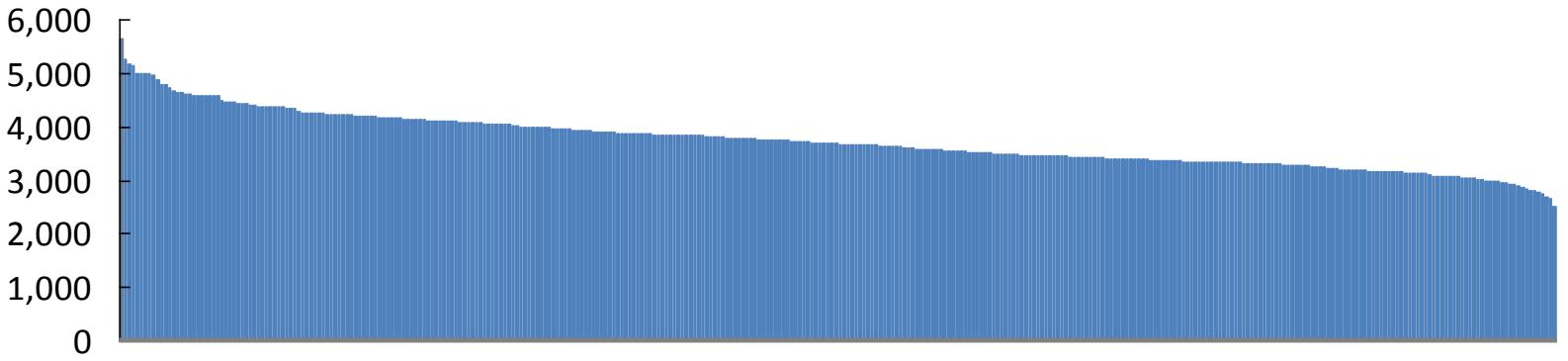
SOURCE: Ohio Medicaid claims data, CY2014

Perinatal: Provider Performance

Distribution of provider average episode cost

$

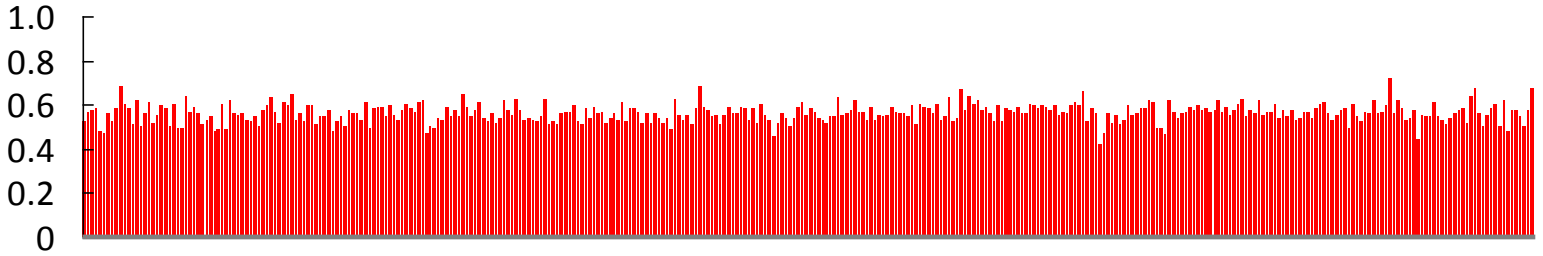
Avg. risk-adjusted reimbursement per episode, $



Degree of risk adjustment distribution

Percent of risk adjustment per provider

Risk adjustment percentage



Principal Accountable Provider

There is no correlation between average episode risk-adjusted reimbursement and level of risk

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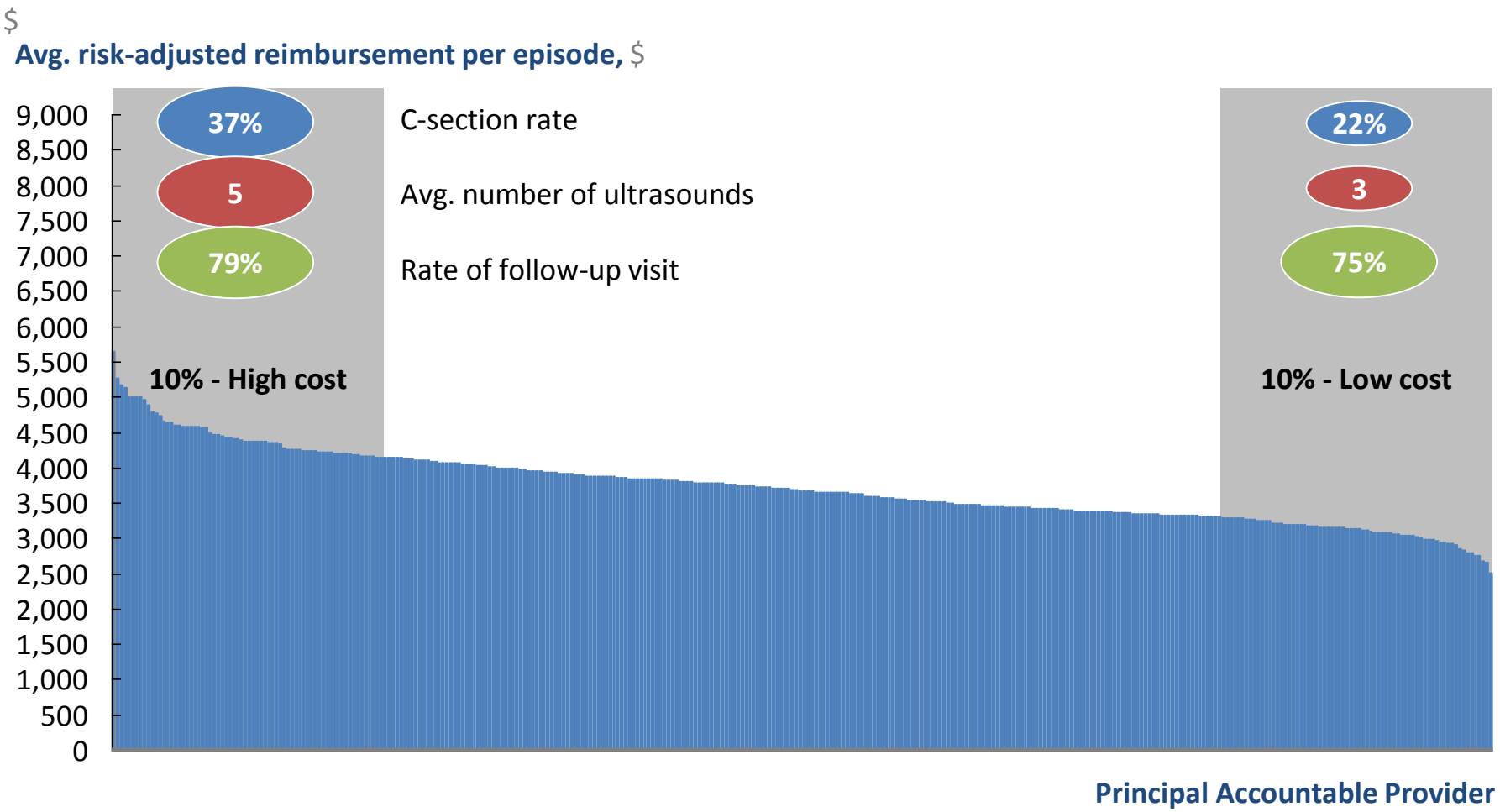
SOURCE: Ohio Medicaid claims data, CY2014

Variation across the Perinatal episode

Distribution of provider average episode cost



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NOTES: Average episode spend distribution for PAPs with five or more episodes; each vertical bar represents the average spend for one PAP.
SOURCE: Analysis of Ohio Medicaid claims data, CY2014.

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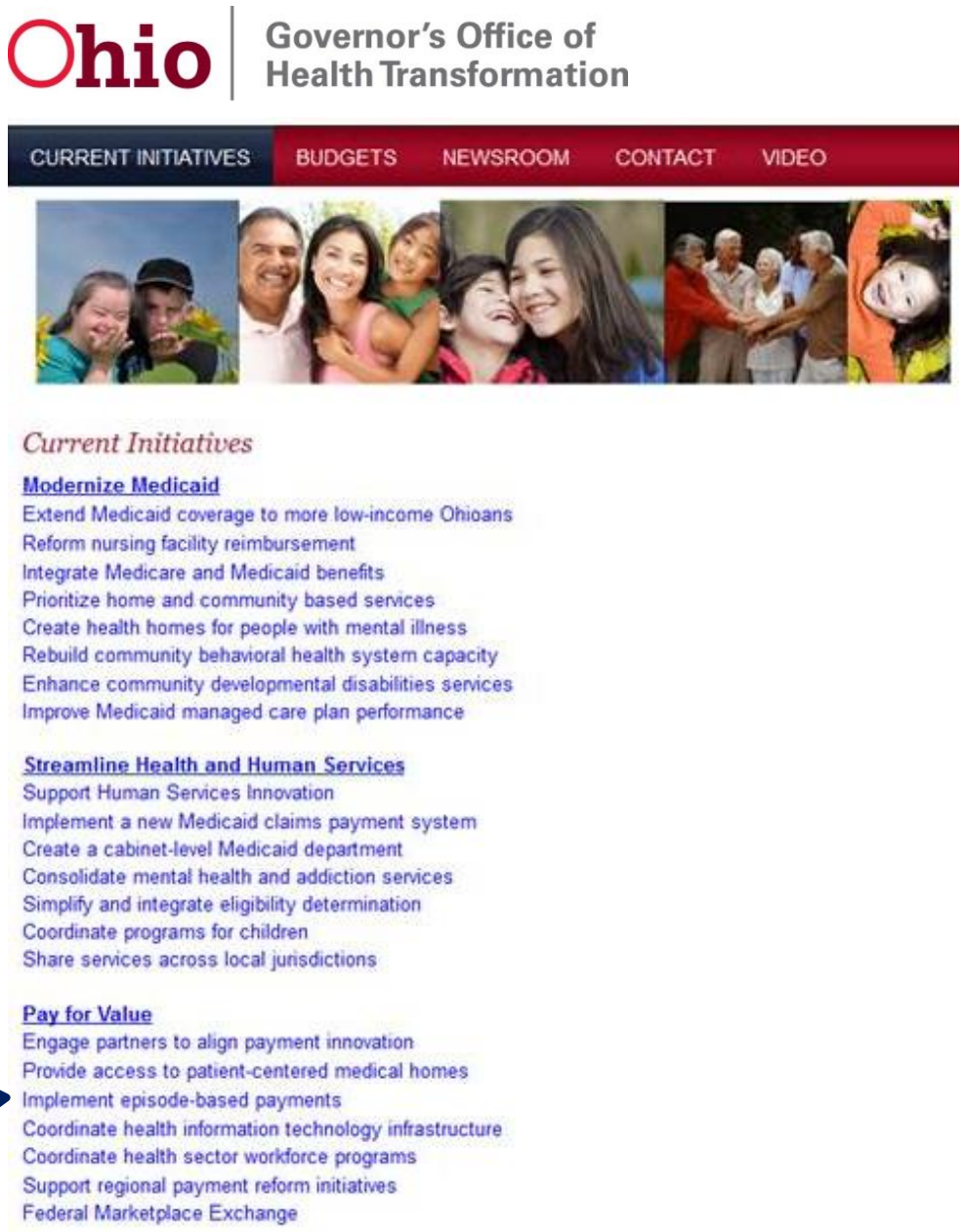
1. Ohio's approach to paying for value instead of volume
2. Episode-Based Payment Model
3. Specific episode example
4. **Want to learn more?**

Want to learn more?

www.HealthTransformation.Ohio.gov

Episode-Based Payment Model:

- **Overview Presentations**
- **Charter for Payers**
- **State Innovation Model Test Grant Detail**



www.Medicaid.ohio.gov/providers/paymentinnovation.aspx

Information for Providers

Episode quick reference tables - A summary of key episode definition components for all episodes.

Detailed episode information

Definitions, Detailed Business Requirements (DBR), and code tables for all episodes. DBRs include a more detailed definition as well as the associated coding algorithm. The code tables refer to an excel spreadsheet with the code detail for reach episode.

Wave 1: Reporting for the initial set of episodes began in March of 2015. For Medicaid, the performance period for asthma, COPD, and perinatal begins January 1st, 2016. Episodes ending during the 12- month performance period will be used to determine whether or not a provider is eligible for an incentive payment. Reporting will continue for all episodes.

- Asthma (definition, DBR, code sheet)
- COPD (definition, DBR, code sheet)
- Perinatal (definition, DBR, code sheet)
- Acute percutaneous coronary intervention episodes (definition, DBR, code s
- Non-acute percutaneous coronary intervention episodes (definition
- Total joint replacement (definition, DBR, code sheet)

Wave 2: Reporting will begin for the episodes listed below in 2016. The perfo

- Appendectomy (definition, DBR, code sheet)
- Cholecystectomy (definition, DBR, code sheet)
- Colonoscopy (definition, DBR, code sheet)
- Esophagogastroduodenoscopy (definition, DBR, code sheet)
- Gastrointestinal bleed (definition, DBR, code sheet)
- Upper respiratory infection (definition, DBR, code sheet)
- Urinary tract infection (definition, DBR, code sheet)

Risk Adjustment Document: Detailed description of principles and process of ris

Details for Providers:

- **Episode quick reference tables**
- **Frequently Asked Questions**
- **"Wave I & 2" episode definitions, business requirements, code sets, and risk adjustment**
- **Risk adjustment methodology**

Summary Review of Selected Maternity Care Initiatives

This information presents the Summary Review of Selected Maternity Care Initiatives. Results reported are based on studies of varying statistical rigor and extrapolated from publications. These results are current as of August 1, 2016.

Arkansas Health Care Payment Improvement Initiative

- Low-risk pregnancy with a live birth, beginning roughly 40 weeks prior to delivery and continuing through 60 days postpartum. This bundle only includes the mother's services related to all prenatal care, labor and delivery, and postpartum maternal care. The provider or provider group who delivers the baby and performs the majority of prenatal care is the accountable entity who is paid using a FFS payment with retrospective reconciliation. The provider average episode cost is compared to Commendable, Acceptable, and Unacceptable thresholds, established by payers annually, to determine gainsharing or risk sharing. Cost savings require a provider to meet quality thresholds on certain performance metrics and require data to be reported on certain screening measures.

- Results: Medicaid cesarean section rate reduced from 38.6% (baseline) to 33.5% (2014), with an estimated 2-4% direct savings to date. Preliminary results show an increase in reported screenings. From 2012 to 2014, chlamydia screening increased from 65% to 90% and group B strep screening increased from 90% to 93%.

Providence Health & Services *"The Pregnancy Care Package"*

- This episode begins with a positive pregnancy confirmation and continues until 6 weeks after delivery for low-risk pregnancies. Both the mother and the newborn are included, as well as all prenatal care (check-ups, prenatal tests, education, psychosocial support), labor, delivery, hospital stay, and postpartum care. Doulas and patient navigators are also included in the services offered. The nurse midwife is the accountable entity and receives prospective payment using a fixed, negotiated fee. This episode includes both upside and downside risk.

- Results: The first implementation at a nurse midwife-based clinic showed a 10% reduction in overall pregnancy costs and a cesarean section rate of 19%.

Geisinger Health System's (GHS) Perinatal ProvenCare Initiative

- Beginning with the identification of pregnancy in the first or second trimester and ending with the postpartum visit between 21-56 days after delivery, mothers with low-risk pregnancies are included in this initiative and services include all prenatal care, labor and delivery, and postpartum care. Neonatal care and certain other exclusions are defined. GHS providers serve as the accountable entity, therefore at least 12 continuous weeks of prenatal care and delivery must by performed by a GHS provider. The episode is prospectively paid using a fixed rate, with upside and downside risk included. There are 103 evidence-based elements of care incorporated, measured, and tracked for compliance, and a "Patient Compact" was developed to encourage patients to be partners in their own care.

- Results: Although no cost savings have been made publicly available to date, preliminary results show improvement in nearly all 103 measures identified, with reduced NICU admissions by 25%; 23% reduction in NICU use; 26% reduction in cesarean sections; and 68% reduction in birth trauma. Since 2011, Geisinger has not performed an early induction or elective cesarean before 41 weeks unless medically indicated.

Pacific Business Group on Health (PBGH) - *PBGH Blended Case Rate*

- This is a pilot implemented at three California hospitals to measure cesarean rates. Both high- and low-risk pregnancies are included, and a blended case rate is used for the mother's facility and professional fees related to hospital labor and delivery only. Prospective payment is negotiated between payers and hospitals and payers and physician groups, and the rate is the same for both cesarean sections and vaginal births. Quality metrics measure the rate of cesarean sections performed among primary, low risk (NTSV) births and the incidence of unexpected newborn complications.

- Results: The three hospitals in this pilot demonstrated a 20% decrease in cesarean section rates, which was sustained. There were also no changes in incidence of unexpected newborn complications.

Summary Review of Selected Maternity Care Initiatives

This information presents the Summary Review of Selected Maternity Care Initiatives. Results reported are based on studies of varying statistical rigor and extrapolated from publications. These results are current as of August 1, 2016.

American Association of Birth Centers - Bundled Payment Proposal

- This is a bundled payment proposal that has not been implemented or measured. The proposal includes the mother and newborn care through the first 28 days of life, and begins with enrollment in a freestanding birth center and includes the 6-week postpartum care visit. The freestanding birth center serves as the accountable entity with larger centers receiving a bundled rate for professional and facility services with shared savings (upside and downside risk) and small birth centers receiving incentive payments for each participant who received enhanced services (upside risk only). Doulas, peer counselors, and continuous support during labor and birth are included, and various quality metrics are suggested for use with this proposal to measure performance.

- Birth center typical results show an average cesarean rate of 6% for women admitted to birth centers while in labor, with a 1.59% episiotomy rate, and a 0.11% elective delivery rate before 39 weeks of pregnancy.

Baby+ Company

- This model includes care provided at a birth center and begins with the initial OB visit at the birth center and continues through 6 weeks postpartum. It includes mothers with low-risk pregnancies and newborns, and includes facility and professional fees for services associated with prenatal care, birthing plans, classes, postpartum care, newborn exams, metabolic screenings, and medications. The freestanding birth center is the accountable entity and works with payers to set pricing based on the outcomes. A separate bundle rate applies if the mother is transferred out of the birthing center before or during labor. Various quality metrics are used to measure performance and patient engagement is encouraged through the EHR's mirrored interface which allows for patients to record their own experiences.

- Results: More than 90% engagement, NTSV rate of 11/8%, exclusive breastfeeding rate of 100%, and a cesarean rate for birth center labors at 5.3%.

The Minnesota Birth Center's BirthBundle™

- This bundle begins 270 days prior to delivery and ends 56 days postpartum for both the mother and the newborn. The budget is prospectively determined but payment is currently retrospective with both upside and downside risk included. The episode price is set based on historical data, and only if all of the care is within the birth center will both facility and professional fees be included in the bundle price. If the delivery occurred in the hospital, professional fees only are included and facility fees are paid fee for service outside of the bundle.

- Although detailed results are not yet available, there has been significantly lower levels of cesarean sections than the national average.

Tennessee Health Care Improvement Initiative

- Low-risk pregnancy beginning 40 weeks prior to delivery and continuing through 60 days after delivery or discharge. This initiative includes the mother only, uses FFS payment with retrospective reconciliation and includes upside and downside risk. Various quality metrics are measured, mainly related to screening rates, and the physician or midwife who delivers the baby is the accountable entity.

Summary Review of Selected Maternity Care Initiatives

This information presents the Summary Review of Selected Maternity Care Initiatives. Results reported are based on studies of varying statistical rigor and extrapolated from publications. These results are current as of August 1, 2016.

Community Health Choice

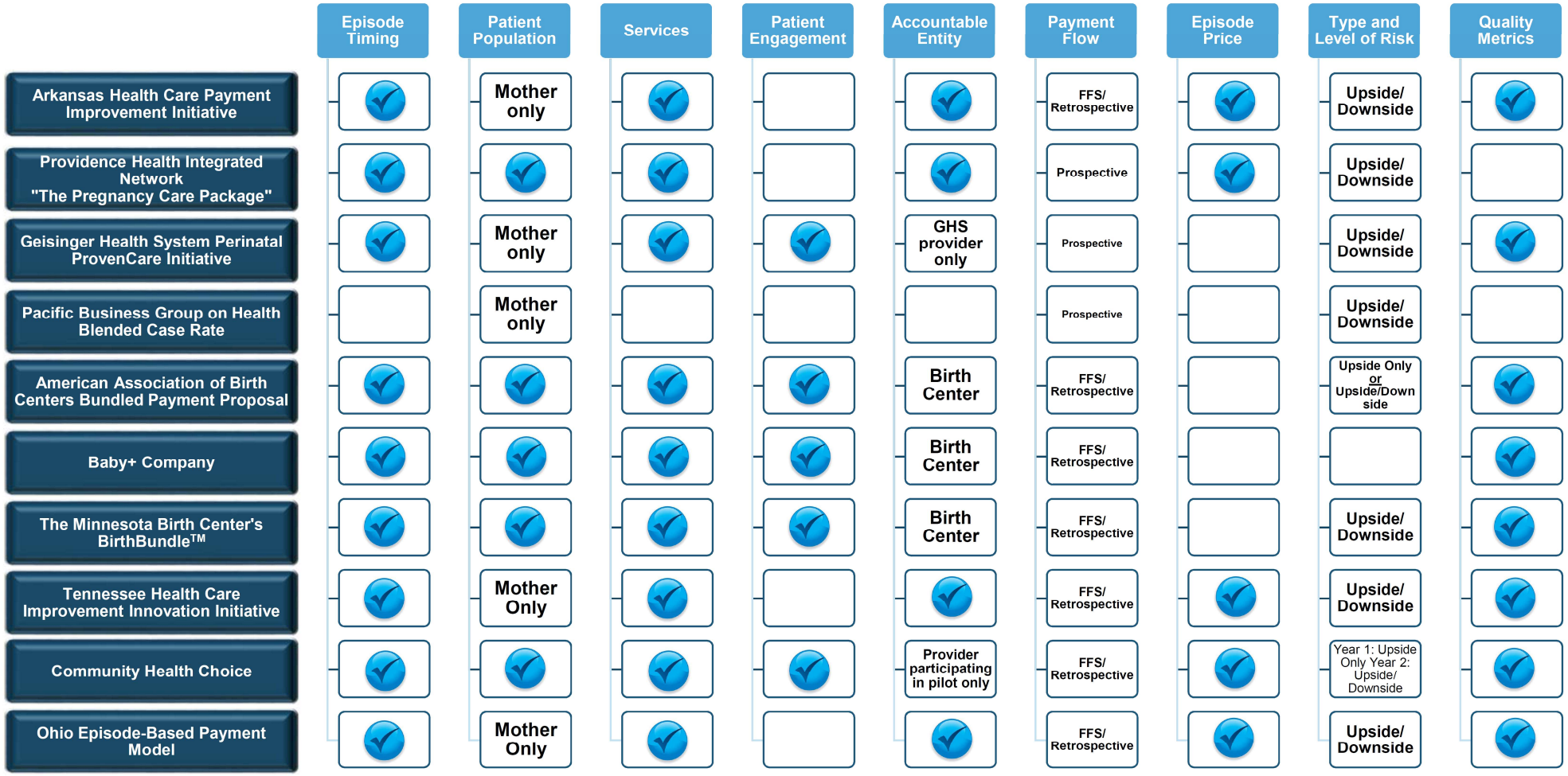
- Low-risk and high-risk deliveries are included, as well as services for both the mother and newborn (except for level 4 NICU stays). This model includes OB/GYNs from 2 multispecialty groups providers who are participating in the pilot. Historical average costs are used to set the episode price, adjusted based on risk factors, with upside only risk in Year 1 and the move to upside and downside risk in Year 2. The payment is FFS with retrospective reconciliation. The pilot groups are active within the community with groups that promote prenatal care.

Ohio Episode-Based Payment Model

- This model includes the mother only and starts 280 days prior to delivery and continues until 60 days post delivery. The physician or group delivering the baby is considered the accountable entity and is paid FFS with retrospective reconciliation using risk adjustment reimbursement per episode for each accountable provider. Upside and downside risk is included and based on meeting Commendable and Acceptable levels and quality targets.

Summary Review of Selected Maternity Care Initiatives

The check mark symbol ***does not*** Indicate that the selected maternity care initiative's design element is an exact replica of the LAN recommendations, but that it aligns closely. For more information on each initiative, please refer to Appendix D of the *Accelerating and Aligning Clinical Episode Payments White Paper*.



This information presents the Summary Review of Selected Maternity Care Initiatives. Results reported are based on studies of varying statistical rigor and extrapolated from publications. These results are current as of August 1, 2016.

Session 9: Working Session #2: Mock Exercise in Identifying Quality Measures for Implementation to Support Episode Payment

- **Mock Exercise to Identify Quality Measures to Support Episode and Non-Episode Alternative Payment**
- **Commonly Used Maternity Quality Measures**
- **Article: *Considerations for State Development of Performance Measure Sets***
- **Article: *Developing a State-based Quality Measurement Program Using an Episode-of-Care Framework: Recommendations for State Purchasers***

MAC Kickoff Meeting Session 9: Mock Exercise to Identify Quality Measures to Support Episode and Non-Episode Alternative Payment

Objective: Assist MAC kick-off meeting participants to understand the process steps to take in order to develop a measure set to be used for a maternity APM.

The following outline reflects the steps involved in developing a measure set. **The order of the steps is notional, and not all steps will be relevant to all markets.** The outline is informed by experience across multiple states in measure set development exercises.

Step 1: Determine who should be participating in the measure selection process.

- Those party to the contract(s) and other interested parties (e.g., consumers)?
- How large a group?
- Mix of clinical and measurement expertise?
- How coordinated with other payers for a regional set of measures?
- E.g. Medicaid with commercial? All payers?

Step 2: Determine whose performance is to be measured.

Options include:

- Obstetrical clinicians
- Hospitals
- Neonatologists
- Pediatricians
- Some combination of the above

Step 3: Identify the intended use(s) of the measure set.

Options include:

- To adjust payment in some fashion (exactly how is a separate conversation)
- To monitor performance without financial consequence
- To test new measures for potential future use for payment or monitoring
- To support one payer or a payer/provider dyad, or to support a multi-payer and/or multi-provider strategy
- To provide information to consumers and patients

Step 4: Identify the criteria to be used to inform measure selection.

Example criteria for individual measures

1. Evidence-based and scientifically acceptable
2. Has a relevant benchmark
3. Not greatly influenced by patient case mix
4. Consistent with the goals of the program
5. Useable and relevant
6. Feasible to collect

7. Aligned with other measure sets
8. Promotes increased value
9. Present an opportunity for quality improvement
10. Transformative potential
11. Sufficient denominator size

Example criteria for the measure set as a whole

1. Representative of the array of services provided
2. Representative of the diversity of patients served
3. Not unreasonably burdensome to payers or providers

Step 5: Identify the process by which measure selection decisions will be made.

- Group consensus or voting?
- One or more rounds of review?
- Explicit (e.g., with scoring) or implicit use of selection criteria?

Step 6: Identify populations and performance domains for measurement

Options include:

- Populations: all women, women with substance use disorder, women with mental illness, other women with high-risk pregnancies
- Performance domains: Prenatal Care, Labor and Delivery, General Newborn, High-Risk Newborns, Maternal Complications, Emergency Care, Postpartum Care

Step 7: Identify candidate measures.

Options include:

- Measures currently in use by participating providers and payers
- Measures found in national measure sets
- Measures that address a priority opportunity for performance improvement

Step 8: Identify potential data sources, operational means for obtaining data, and how the data source will affect contracting agreements.

Potential data sources include:

- Clinical data – from EHRs and/or HIE (if available)
- Claim data both outpatient and hospital PDD
- Survey data – provider and patient
- For maternity care other admin sets can be used

Will contracts include all-payer, or payer-specific data?

Step 9: Estimate desired size of the measure set.

Step 10: Begin measure selection process by reviewing individual measures.

Commonly Used Maternity Care Measures

Note: This document provides a comprehensive list of commonly used maternity care quality measures and is intended to reflect a sample of how these measures are used at a sample of state and commercial payer models.

Table 1: Federal and Commercial Programs

Measures	Source	Medicaid and CHIP Adult Core	Medicaid and CHIP Child Core	Joint Commission Perinatal Care Set	AHRQ	Commercial Payers
PC-01: Elective delivery[1,2]	NQF 0469	X		X		
PC-03: Antenatal steroids[2]	NQF 0476	X		X		
Prenatal and Postpartum Care[3]		X	X			
PC-02: Cesarean Section[2]	NQF 0471		X	X		X
PC-04: Health Care Associated Blood Stream Infections in Newborns	NQF 1731			X		
Live births less than 2500 grams	NQF 1382		X			
Frequency of ongoing prenatal care[2]			X			
Behavioral health risk assessment for pregnant women	AMA-PCPI		X			X
Pediatric Central Linked Associated Bloodstream infections: neonatal ICU and pediatric ICU (CLABSI)	NQF 0139		X			
Contraceptive Care, Postpartum	NQF 2902		MAP Medicaid Child Task Force recommends inclusion in Medicaid Core Set			

[1] NQF has also endorsed equivalent e-measure versions of PC-01 (#2829) and PC-05 (#2830).

[2] CQMC has also included this measure in its core set of quality measures

[3] NQF discontinued endorsement of 1391 and 1517 in 2016; MAP Medicaid Adult and Child Task Forces will consider status within Medicaid Core Sets in 2017.

Measures	Source	Medicaid and CHIP Adult Core	Medicaid and CHIP Child Core	Joint Commission Perinatal Care Set	AHRQ	Commercial Payers
IQI-22: Vaginal Birth After Cesarean Delivery Rate, Uncomplicated	IQI-22				X	
IQI-34: Vaginal Birth After Cesarean Delivery Rate, All	IQI-34				X	
Cervical Cancer Screening[2]	NQF 0032					
Incidence of Episiotomy[2]	NQF 0470					
PC-05 Exclusive Breast Milk Feeding[2]	NQF 0480[1]			X		
Percentage of Low Birthweight Births	NQF 1382					
Reduction in potentially avoidable complications, Type 1						X
Hepatitis B screening						X
Maternal mental health depression screening	NQF 1401					X
Smoking cessation						X
Breast Cancer Screening[2]	NQF 2372					
Appropriate Work Up Prior to Endometrial Ablation Procedure[2]	NQF 0567					
Unexpected Complications in Term Newborns	NQF 0716					

Table 2: State and Commercial Programs

Measures	Arkansas		Ohio		Tennessee		Commercial Payers
Measures	**Payment**	**Accountability**	**Payment**	**Accountability**	**Payment**	**Accountability**	
HIV Screening	**X**		**X**		**X**		**X**

Group B Strep Screening	X		X		X		
Chlamydia Screening*	X			X			
Ultrasound screening		X		X			
Gestational Diabetes screening		X		X		X	X
Asymptomatic Bacteriuria		X				X	
C-Section Rate			X		X		X
Hepatitis B Screening				X		X	
Tdap Vaccination Rate						X	X
Percent of episodes with follow-up visits within 60 days			X				

Other Potential Measures and Measure Concepts:

- The generic Consumer Assessment of Healthcare Providers and Systems (CAHPS) patient experiences of care facility, clinician, and health plan measures do not map well to antenatal through postpartum and newborn care and this population. But, there may be specific CAHPS supplemental items that could be of use to measure patient experience.[4]

- To measure experience of care within its episode payment model, Community Health Choice, a maternity clinical episode payment initiative in Texas Medicaid, developed a survey by selecting items that have primarily been used in previous national *Listening to Mothers* surveys. Topics included the timing and communication experience in prenatal care, planning for the birth, and the mother's experience after the birth including caregiver follow up and her overall satisfaction with the experience.

- Functional status, particularly after birth, to capture such self-reported outcomes as pain, ability to perform activities, and depression is also a domain that needs more focus, as it is a time period that sets the stage for the health of the recovering woman and her newborn. Functional status instruments are not routinely used in the initiatives we have reviewed but have been used for postpartum research and could be developed into survey instruments for this context. Research on these functional status surveys demonstrate their ability to measure postpartum health.

- A measure of patient skills, knowledge and confidence in managing one's health—the Patient Activation Measure ((*NQF #2483: Gains in Patient Activation (PAM) Scores from 6-12 months*) —would demonstrate whether the health system has provided opportunities for

[4] https://cahps.ahrq.gov/Surveys-Guidance/index.html

increasing activation from early to late pregnancy. Other options are the Birth Satisfaction Scale (BSS) or the Maternal and Infant Health IAP.

Robert Wood Johnson Foundation

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Considerations for State Development of Performance Measure Sets

Prepared by Beth Waldman and Michael Bailit, Bailit Health Purchasing, LLC

Introduction

As states play a more active role in health care delivery system and payment reform, Medicaid programs have joined other public and private sector purchasers in measuring performance as part of value-based purchasing initiatives. While essential to value-based purchasing, performance measurement can create a significant administrative burden for providers. This burden can grow significantly when individual payers (e.g., insurers, managed care plans, and third-party administrators) utilize different measures. There is a growing interest by Medicaid programs and other payers in developing common measure sets to reduce administrative burden on providers and send a common message to them about performance accountability.

This guide provides an overview of the steps states should take in developing a performance measure set—either on their own or in partnership with others—identifies critical considerations, and offers guidance in selecting measures.

Key Initial Steps in Developing a Performance Measure Set

A number of basic questions must be answered in order to appropriately shape a discussion of what measures should be included in a measure set. It is essential to define early on whose performance is to be measured, for what purpose, and by whom. It is also important to decide who will participate in measure set development and how decisions will be made within the participant group.

1. Whose Performance is Being Measured?

States may choose to measure health plans and/or providers. Most current state measure set development work is focused on provider organizations, including one or more of the following: patient-centered medical homes (PCMHs), health homes, hospitals, and accountable care organizations (ACOs). In some cases, states are also developing general, procedure-specific, and condition-specific measures to support episode-based payment programs. There are also efforts to measure the performance of behavioral health and long-term services and supports providers. Measurement of ambulatory health care, however, is most common.

While this guide focuses on developing measure sets for providers, the processes described here are also applicable to health plan measure set development.

2. What is the Purpose of Measuring Performance?

There are a number of reasons why a state chooses to measure provider performance. Historically, states have measured provider performance as a component of a quality monitoring system, and have used performance results to inform selection of quality improvement initiatives. More recently, states have begun using performance measures to provide consumers with information about the performance of a provider and to inform discussions with contracted provider groups about their performance. State

ABOUT BAILIT HEALTH PURCHASING

Bailit Health Purchasing is a health care consulting firm dedicated to ensuring insurer and provider performance accountability on behalf of public agencies and private purchasers.

ABOUT STATE HEALTH AND VALUE STRATEGIES

State Health and Value Strategies, a program funded by the Robert Wood Johnson Foundation, provides technical assistance to support state efforts to enhance the value of health care by improving population health and reforming the delivery of health care services. The program is directed by Heather Howard at the Woodrow Wilson School of Public and International Affairs at Princeton University.

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purchasers and their contracted health plans are also introducing new payment models that tie reimbursement to performance. Some state employer purchasers also use performance measures to tier a provider network or to identify a center of excellence.

It is not uncommon for states to use measures for more than one of the above purposes, or to use some measures for some purposes, and other measures for different purposes. For example, the state of Vermont organized a multistakeholder process to establish a performance measure set for a large ACO pilot. Some measures were selected for ACO reporting only, some for reporting and for influencing payment, and still others for measurement at the health plan level due to high baseline performance.

3. Is Measurement Specific to a State Program or Part of a Multipayer Initiative?

It is important to determine whether state programs will measure performance on their own or as part of a larger, multipayer initiative. For example, it is increasingly common for state Medicaid programs, state-operated insurance exchanges, and agencies charged with purchasing state employees' health coverage to use the same measure sets commercial payers use. When deciding if a single or multipayer measure set is desirable, state staff must determine the following:

- Is there a shared set of providers from whom services are being purchased?
- Are there common areas of measurement interest?
- Is there a shared purpose or intended use for the measures?

If the answer to each of these questions is "yes," then it may make sense for a state agency to embark on a multipayer measure set initiative. Where feasible, there are advantages to both payers and providers. First, it offers a way to consistently assess performance across the entire health system within a state or geographic region. Second, depending upon the approach utilized, it can increase the measure denominator, resulting in greater ability to measure with statistical certainty. Third, it reduces the burden on providers of supplying data and attempting to improve across a large number of measures.* Fourth, it gives providers a clear message on what aspects of care are most important to purchasers and payers, and encourages them to focus on those areas.

4. How Often Will Measurement Occur?

As part of the initial planning process, states and/or multipayer initiatives should consider whether measurement will be one-time or ongoing, and if ongoing, how often. In most cases, measurement occurs on an annual basis as many quality measures use 12-month measurement periods. There may be a desire to measure more frequently to track progress toward an established goal (something the Oregon Health Authority does two to three times a year), or for certain types of measures, such as utilization (something which the Vermont Green Mountain Care Board does when it tracks ACO member service utilization on a year-to-date basis).

5. Who Participates in the Process and How Are Decisions Made?

When developing a measurement set internal to a state agency, it is important to include the right staff from across the organization to ensure appropriate consideration is given to the entirety of the agency's measurement goals, and that the appropriate decision-makers are in the room. There will be some difficult decisions about how to prioritize measures and whether the agency has sufficient resources to implement a particular measure or set of measures. At a minimum, an agency's quality, informatics, medical management, and finance departments should be represented, and there should be a clear decision prior to the start of the project as to who will own the project and serve as the ultimate decision-maker.

In addition, the participation of external stakeholders, such as affected providers, health plans, and consumer advocates can not only increase the likelihood of obtaining buy-in from key constituents, but also contribute to a better-reasoned and effective measure set.

If state agencies are participating in a multistakeholder effort to develop a measure set, it is important to have the right staff from all participating organizations actively engaged. Participants must be able to make decisions and commit their organization to an approach. Individuals who are neither technically informed (e.g., an insurer's regional sales manager) nor empowered will be unable to contribute to the process or ensure that the resulting measure set will be adopted by their organizations.

Multistakeholder initiatives must clearly delineate up front how decisions will be made within the group and how measures will be prioritized when there are differing goals or disagreement on how to move forward. At the start of the process, participants should lay out how decisions will be made and how disagreements will be addressed.

Measure Selection

The first step in selecting measures is to set out selection criteria that allow for a consistent review of potential measures that is informed by the overall goals and desired outcomes for the measurement program.

Selection criteria typically address:

1. clinical and technical merits of the measure;
2. the relation of the measure to goals and improvement opportunities;

* Cambridge Health Alliance (MA) reported having 546 payer-defined measures. (Somava Stout, personal communication, May 14, 2014).

3. operational considerations for generating the measure; and
4. the relation of the measure to other pre-existing measure sets of interest.

Selection Criteria

There are a number of important questions to consider when selecting measures. States should leverage the *Buying Value Measure Selection Tool,* which provides both technical and programmatic criteria for each measure, and a set of criteria for the overall measure set. Further, the tool also provides examples of measure set criteria and can help states track whether the measures under consideration meet measure selection criteria adopted by the state. Such criteria can and should be applied both to individual measures and the entire set, the latter to ensure that the entirety of the measure set is balanced and complete. Examples of criteria commonly adopted include whether measures:

- are collectively consistent with the overall goals of those involved in measure set development;
- are valid and reliable;
- represent opportunities for performance improvement;
- measure the provider's performance in an area within the targeted providers' control;
- have been endorsed by a national body, such as the National Quality Forum (NQF) or the National Committee for Quality Assurance (NCQA);
- have sufficient denominators to produce reliable measurement, be they intended for assessment of statewide, multi-provider, practice site or individual practitioner performance;
- have relevant benchmarks;
- are focused on outcomes;
- are feasible to implement, and are not overly burdensome to generate, report, and if applicable, aggregate;
- are aligned with existing state measure sets and initiatives;
- are aligned with measures currently in use by health plans; and
- are aligned with national and federal measurement initiatives.

One potential criterion is the size of the set. It is often difficult to set a limit on size before knowing the types of measures to be adopted and their intended use. For example, a measure set that includes both physician and hospital measures, as well as access, quality, patient experience, and efficiency measures, should be expected to be larger than one including only physician ambulatory care quality measures. Should the state desire to adopt a measure set size criterion, however, the number should not be set in stone, but should be used to help filter and prioritize potential measures.

Use of New and Innovative Measures

As states look to develop measure sets, they often begin with a desire to look at outcome measures rather than process measures, and to focus on areas that may currently be under-measured, such as care integration, social determinants of health, and social supports. Such measures can pose implementation challenges. This is not to say that a state should not strive to innovate, or adopt "transformational measures," but in so doing the state should ensure that implementation is feasible, recognizing that it will require significant time and resources to develop and/or implement such measures. The state may want to consider staging the implementation of innovative measures, piloting and testing them before using them for transparency or payment purposes.

Designating Measures for Specific Uses and Specific Populations

As indicated above, measures may be selected for one or more uses. The Maine Health Management Coalition organized a multistakeholder measure selection process on behalf of the state with the specific purpose that the measures would be employed in both the state's and commercial insurers' contracts with ACOs. Other states, however, have designated different measures for distinct purposes, including performance monitoring, value-based payment, public reporting, and measure testing.

In addition, measures may be selected for use across populations or for a specific population. For example, Medicaid and commercial payers may agree that common measures of diabetes care are a priority for both of their populations. They may differ in opinion, however, when considering measures specific to persons with serious and persistent mental illness due to the greater prevalence of the condition in the Medicaid population. In such circumstances, the parties may agree to adopt a measure set that is common to commercial and Medicaid populations, but also allows for a limited number of Medicaid-only measures.

This measure designation process can occur during measure set development, or following initial development of the measure set.

Identifying Populations, Performance Domains and Services for Measurement

To develop a comprehensive measure set, the state should include measures that comprehensively address patient populations, performance domains, and services. Table 1 provides a description of potential populations, domains, and clinical service areas. Not all of the categories are mutually exclusive.

Table 1: Potential Measurement Categories

Populations	Performance Domains	Service Areas
▪ children	▪ provider infrastructure	▪ prevention
▪ adolescents	▪ access	▪ acute care
▪ non-disabled adults	▪ clinical process	▪ chronic illness care
▪ adults with disabilities	▪ clinical outcomes	▪ dental care
▪ pregnant women	▪ health status	▪ behavioral health care
▪ seniors	▪ function	▪ inpatient care
	▪ consumer experience	▪ ambulatory care
	▪ patient engagement	▪ long-term services and supports
	▪ patient safety	▪ care management
	▪ cost	
	▪ efficiency	
	▪ utilization	
	▪ overuse and misuse	

States sometimes identify sub-populations, performance domains, and service areas of special interest to them. It is quite common for states to identify specific diseases that are prevalent within a population or program being measured. Where diabetes and asthma are common across populations, Medicaid programs might want to target care for behavioral health conditions, such as serious and persistent mental illness and substance use disorders. The specific conditions and/or procedures to be measured depend on the goals of the measurement program, the participants in the measure selection process, and the criteria that they adopt at the outset of their work.

Resources for Locating Measures

There are many sources that may be used to identify potential measures. In addition to the 700 NQF-endorsed measures, measure set developers should consider the following resources:

- Federal measure sets (partial list)
  - Consumer Assessment of Healthcare Providers and Systems (CAHPS©) surveys
  - Children's Health Insurance Program Reauthorization Act (CHIPRA) core set
  - Center for Medicare and Medicaid Innovation (CMMI) core measures
  - Hospital Compare
  - Meaningful Use Clinical Quality measures*
  - Medicare Advantage Stars Program measures
  - Medicare Shared Savings Program measures
  - Medicare-Medicaid Financial Alignment Model measures
  - Medicaid adult core set
  - Nursing Home Compare
- Pre-existing state measure sets (partial list, not applicable to all states)
  - Measure sets currently in place in state health plan and third-party administrators contracts
  - Measures sets currently in place in state ACO, PCMH, and health home contracts
  - Measure sets defined through state-facilitated processes for multipayer and provider use. For example, Massachusetts' Standard Quality Measure Set and California's CalQualityCare.org.
- Pre-existing multistakeholder coalition measure sets, such as those developed by the Wisconsin Collaborative for Health Care Quality (WCHQ), Better Health *Greater* Cleveland, Minnesota Community Measurement, and the New Mexico Coalition for Healthcare Quality.
- Agency for Healthcare Research and Quality's prevention quality indicators
- NCQA's Healthcare Effectiveness Data and Information Set (HEDIS)
- Long-term services and supports scorecard

* These measures are a subset of the larger Physicians Quality Reporting System and Physician Value Based Payment Modifier Program measure set.

Web links to several of the measure sets cited above are in the Buying Value Measure Selection Tool. The tool also includes a list of the most frequently used measures by domain. In addition, the tool provides a scoring template states can use to organize the measures in use or under consideration and apply their selection criteria. Through an automated crosswalk, the template lets states identify whether a measure is included within a federal measure set.

Measure Set Fidelity

Most current measure set activity involving multiple payers is aimed at achieving true alignment, where each payer agrees to adopt the common measure set in full, with the exception of a few population-specific measures.

An alternative approach, however, involves the adoption of a common measure set from which each participating payer (or payer and provider) chooses which measures to use. While this "menu" approach reduces variation across payer measure sets, it leaves the door open to non-alignment.

Producing the Measure Set

The process of collecting data and producing measures can be resource-intensive. It is important to understand the data that are needed to produce a particular measure, and to consider the ability of the state and/or its health plans to access, collect, and analyze such data prior to selecting a measure for use.

Data Sources

A variety of data sources can be used to generate measures. For the most part, measures that use claims or encounter data are the easiest to produce, because they are readily available to the state and/or its health plans. Measures that require a consumer survey are also relatively easy to produce, particularly if the survey process is already in place.

More difficult to produce are measures that require a review of clinical records. If performed manually, reviewing clinical records is time-consuming and expensive for providers and states and/or health plans. If performed using electronic data sources, there are additional challenges, including:

- limitation in the numbers of providers able to capture and report the designated measures;
- inconsistent reporting across electronic health records (EHRs), creating problems in the reliability of reported data; and
- the inability of many health information exchanges to facilitate electronic measure reporting.

Despite the current difficulties associated with generating measures using clinical data sources, there is little question that current trends toward expanded EHR adoption and health information exchange development will result in increasing use of clinical data-based measures over time. States should anticipate this trend and make provision for testing or including some clinical data-based measures in their measure set.

Identifying Benchmarks

In addition to identifying data sources for measure generation, it is also important to identify benchmarks to which a provider's performance will be compared. This is particularly true if the state anticipates using the measure set for quality improvement, public reporting, or adjusting payment. In all three applications, it is often necessary to assess performance relative to a benchmark to identify opportunities for improvement.

Unfortunately, there are limitations in the number of measures for which national benchmarks are available. Many states select NCQA's HEDIS measures for their measure sets, because NCQA annually publishes Medicaid, Medicare, and commercially-insured population benchmarks for most of the HEDIS measures.[1] Yet, use of the HEDIS health plan measure benchmarks for provider performance can be troublesome. As reported by WCHQ at the *Buying Value* meeting in March 2014, differences in specifications necessary to make a health plan measure applicable to a provider entity can significantly impact the comparability of the two rates.

Other sources for national benchmarks exist, but these too have their limitations, as noted below:

- Health Resources Service Administration (HRSA): HRSA collects and reports on a number of clinical data-based measures. The rates are reported from the EHRs operated by federally-qualified health centers (FQHCs) and reflect FQHC performance only.
- Centers for Disease Control and Prevention (CDC): The CDC publishes the results of the Behavioral Risk Factor Surveillance System, the world's largest, ongoing telephone health survey system. While research has shown the reliability of patient-reported measures to be good, states cannot be certain of the comparability of each measure relative to measures generated from other data sources.
- Medicare Hospital Compare: The CDC publishes benchmarks for hospitals using Medicare performance data, as well as for nursing homes (Nursing Home Compare).

States and state and regional quality improvement organizations have often created their own internal state benchmarks; these can also be a resource.

Reviewing and Modifying the Measure Set

It will be important to develop a process for both ad hoc and regular periodic review of current measures to determine whether they should be retained or modified, or if new measures should be included based on changing circumstances or priorities.

Ad hoc measure review is necessary because changes in national clinical guidelines have direct impact on commonly used, nationally endorsed measures. For example, the new American College of Cardiology/American Heart Association guidelines issued in late 2013 on cholesterol management had significant impact on the LDL-C control measure employed in many measure sets.[2] As a result, many state and multi-payer/multistakeholder organization measure sets had to be modified based on the new guidelines.

Periodic measure set review should occur well in advance of the implementation of any measure set changes so that affected provider organizations will have adequate time to react. For example, the Oregon Health Authority created a calendar of planned measure review activities to inform affected provider organizations 60 days prior to their effective date. As with initial measure set development, a set of explicit criteria should be used to inform decision-making.

Pitfalls in Performance Measurement

While there are important opportunities in performance measurement, it is also important to be mindful of the potential pitfalls. While performance measurement can serve to align goals and incentives, it has the potential to narrowly focus providers and health plans on aspects of care that are being measured, and especially so when the measure is tied a reward or penalty. This narrow focus could lead to unintended consequences, such as paying too little attention to other important health care components that are not being measured. One way to reduce this potential pitfall is to include both monitoring and incentive measures within a performance measurement set. Monitoring measures can be promoted to incentive measure status if performance slides.

As mentioned previously, the development of homegrown measures can be problematic for a number of reasons, including validity, reliability, and the inability to access a performance benchmark. As states try to measure social determinants of health as part of measurement initiatives, it is important to consider whether it is appropriate to hold health care providers accountable for things over which they have little or no control, such as education, environment, and poverty.

Conclusion

In developing a performance measurement initiative, the state should consider how measurement can evolve over time. While there may be short-term limitations to the depth and breadth of measures that can be implemented, the consideration of a broader array of measures gives states a pathway for expanding their measurement set and increasing their options for incentives.

In addition to developing a measure set as part of a multipayer initiative—the state and its payer partners if in a multipayer initiative—should engage the participating providers to help them achieve success on these measures. While quality-based incentives offer providers extrinsic motivation to improve the quality of care and the health status of Medicaid beneficiaries, they are not sufficient. Providers must not only want to change, they must also know what and how to change in order to improve care. States and other payers will need to continue their efforts to actively manage health plans and providers, including setting strategic direction and providing ongoing performance review and support for quality improvement activities. They must also consider how to provide technical and data support to providers to ensure that measurement and other activity yield desired results.

Endnotes

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Developing a State-based Quality Measurement Program Using an Episode-of-Care Framework: *Recommendations for State Purchasers*

Prepared by Francois de Brantes, MS, MBA, Health Care Incentives Improvement Institute (HCI³)

Introduction

As the US health care system moves towards value-based payment, it becomes clearer that, while alternative payment models are important, the underlying information processes required to vivify these new payment models are equally critical to the success of the payment model. As much as Patient Centered Medical Homes, Accountable Care Organizations and episode-based payments matter conceptually, the real effort lies in reforming the nature of health care information, or these payment models will languish. Significant gaps in quality of care measurement continue, as do the means for capturing quality of care data and marrying them to cost of care data.[1]

As a system designed for fostering accountability, federal value-based purchasing (VBP) programs have focused on the clinical outcomes of care that rely on Medicare's Physician Quality Reporting System (PQRS)[2] and Hospital Inpatient Quality Reporting (IQR) System[3], and in some instances, in concentrated local pilots. Both the PQRS and Hospital IQR systems are conveyed through different conduits as defined measures of care. CMS integrates and reports the data in comparative data sets on physician and hospital performance respectively, largely focused on measures of care for Medicare patients.

Whether or not genuine transformation of the delivery system takes place through the use of new payment models will depend almost entirely on the ability of practicing physicians to have access to timely, reliable and actionable feedback loops on clinical and financial outcomes. One area where this appears to be paying off in the Medicare program is the penalty for excessive hospital readmissions.[4] By aligning penalties for excessive readmissions with specific comparative reports on hospital performance, CMS has seen reductions in excessive admissions for Medicare patients. State-led efforts can take a cue from this success: incentives coupled to actionable feedback reporting have the potential to give frontline clinicians the tools they need to redesign care.

This Brief outlines action-oriented steps for state purchasers to develop a quality measurement program based on episodes-of-care that leverages existing information technology infrastructure and clinical registries. Specific suggestions for state purchasers include:

1. Start with an incremental approach to quality measurement and pilot, using manual processes.

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ABOUT HEALTH CARE INCENTIVES IMPROVEMENT INSTITUTE

Health Care Incentives Improvement Institute (HCI³) is a not-for-profit company that designs and implements innovative payment and benefit plan design programs to motivate physicians, hospitals and consumer-patients to improve the quality and affordability of care.

2. Create and publish a master list of data elements required from selected quality measures to appropriately identify current data collection efforts and potential gaps in measurement.

3. Create a central database that leverages existing clinical data registries and utilizes direct provider submission.

4. Develop provider feedback loops that incorporate episode-of-care efficiency metrics, with episode-of-care outcome metrics and synthesize results in a transparent manner.

State-led VBP: Works in Progress

For states leading the way in value-based purchasing, a "pardon our dust" sign should be considered, which is to say, a work in progress is just that. There is no need to leap to artificial or stopgap measures to give the appearance of completion. Indeed, by rushing towards badly-fashioned, readily and/or publicly available mechanisms that give the appearance of completion, states actually distort information or make it too remote and ambiguous for consumers and providers alike. States need to be frank about shortfalls in publicly reported measures and resist filling them in with measures that can lead to false positives and false negatives (classifying a hospital as being good at everything when it's not or bad at everything when it's not).

By emphasizing episode-of-care pathways, as the states of Arkansas, Ohio and Tennessee are doing,[5] gaps in quality measurement can be identified, and where need be, uniquely redesigned. States can address the gaps incrementally and make the most of limited resources by building episode-specific measure sets.

A case example for this incremental approach can be found in the work of Community Health Choice (CHC), a Houston-based Medicaid plan. CHC launched a "womb-to-crib" bundled payment program and tied all of the phases of pregnancy, delivery and newborn care into a single, severity-adjusted global fee. When the plan looked for available data on quality of maternity care, data available to CHC at the time were fragmented and limited. As a result, the plan created a maternity quality scorecard which requires input from clinical record data. Participating providers use manual processes to submit information from medical records as an initial step. Once results are validated and found useful for clinicians, automated processes can be instituted. Ideally, over time manual processes such as these will get converted to automated data feeds using clinical registries[6] as discussed later in this Brief.

Designing a quality scorecard that matches the scope of the bundle is an essential feedback mechanism for clinicians, providing two critical views of the same episode of care: a financial view and a quality of care view. These views are within the clinicians' line of sight and highly actionable, making care redesign and other process changes far more likely to happen faster.

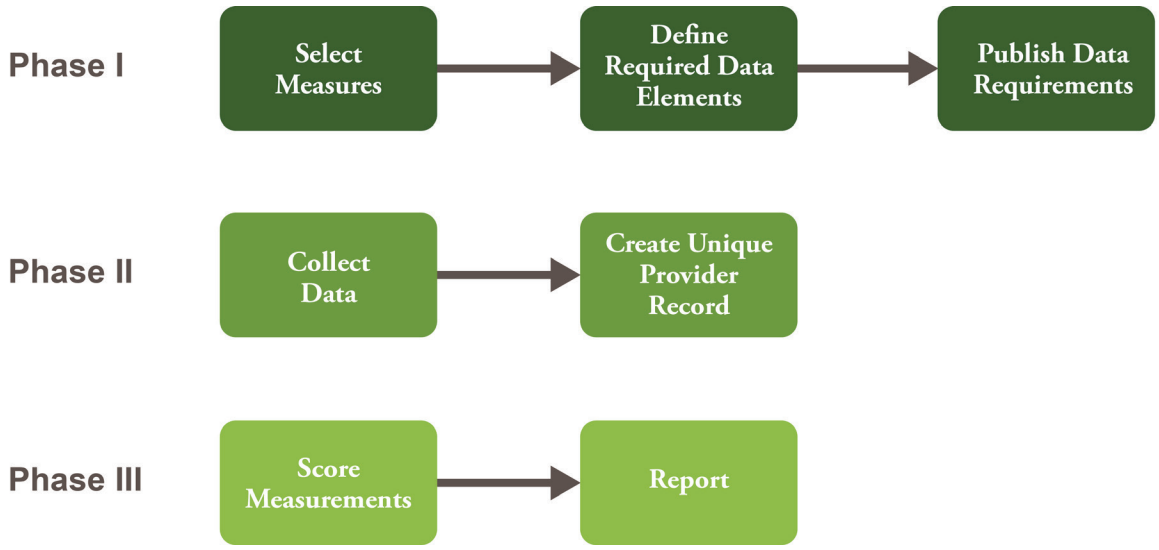
Relying on manual processes to get started and ensure provider engagement, when registries are not available, is defensible to engage providers on quality performance. A manual process allows for refinement and modification, and requires only minimal capital investment and modest amounts of labor. Once methods are proven, scaling issues become important, but not until then.

Given the dearth of publicly available measures on the quality of most episodes of medical care,[7] states must roll up their sleeves, work with local provider advisory groups, and develop ad hoc protocols for data collection and reporting. While few meaningful measures are publicly reported, quality measures have been defined for a large number of medical episodes of care and a reasonable subset are being reported and collected through clinical data registries.[8] As part of the technical assistance for Tennessee Medicaid,[9] HCI[3] delineated the availability of measures and the corresponding registries collecting them related to episodes targeted by the state. **Appendix A** provides examples of clinical data registries (CDRs), including those qualified by Medicare, which align with certain episodes of medical care.

Process for Quality Measuring and Reporting

The following section outlines a three-phase pathway (Figure 1) for establishing, measuring and reporting protocols that enable states to create timely clinical outcome feedback loops by leveraging existing data registries and providing alternative data submission protocols for providers who do not have access to or choose not to use available registries.

Figure 1: Potential Data Sources and Approach for Quality Reporting



Phase 1: Selecting Performance Measures and Defining Data Elements

As noted in *Figure 1*, the first step involves selecting quality performance measures. Using standardized measures and common measure sets reduces the administrative burden and sends a consistent message about provider performance accountability. For additional perspectives on selecting measures, states may wish to review a prior SHVS brief, *"Considerations for State Development of Performance Measure Sets."*[10]

Create and publish a master index of candidate data elements: States should examine clinically related or proximate episodes to reduce potential duplication of data elements being measured. The process for developing performance measures begins with a) the element being measured, for instance, systolic blood pressure, and b) the patients that should be included (and excluded). Data elements for measure sets of related conditions may be used for multiple measures. For example, a measure set often includes measures of superior control (such as number of patients with systolic blood pressure below 120) and measures of poor control (such as number of patients with systolic blood pressure over 140). Noticeably, both of these examples are measuring the same clinical indicator: systolic blood pressure, which can then be used to create a number of quality measures across many episodes of medical care. **It's essential to create a master index of candidate data elements to determine the overall quantity of such data elements and better indicate to physicians and hospitals the extent of the data collection process.** Publishing a master index helps all involved with a state effort to determine which data elements they are currently collecting and to identify potential gaps. Gaps can be assessed both in terms of the extent to which those providers for whom the measures will be applied are collecting the data elements, and the number of data elements that need to be collected to create all agreed-upon measures. The result should enable stakeholders to prioritize data collection efforts.

Publishing the list of desired data elements also signals clinical data registries and Electronic Medical Record (EMR) vendors of upcoming demands from physicians and hospitals on extracting data from internal medical record databases. For the vast majority of existing clinical quality measures, required data elements reside, in some fashion, in existing and deployed EMR systems.[11] Our experience suggests that extracting needed data elements from practices, hospitals and health systems with an EMR is not a particularly big challenge. The key is to be clear on the data elements and any other specifications related to a measure for which the data element will apply, for example clinical exclusions. Alternatives to EMRs are discussed in the next section.

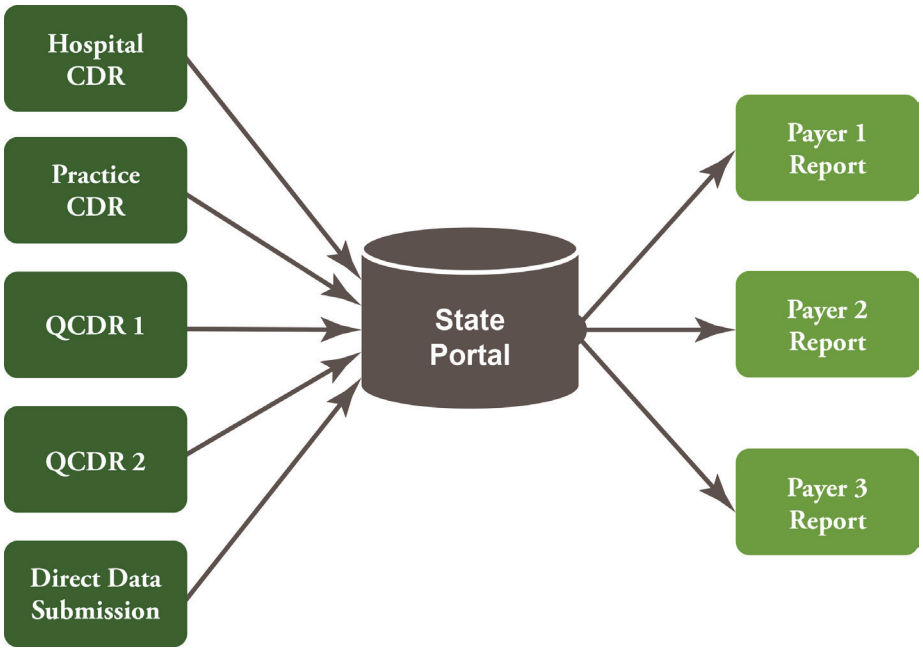
Phase 2: Data Collection for Quality Reporting

Whether measurement data comes from established registries, directly from providers, or participating health plans, it should be subsumed into a master database and reconciled around single provider records. Assembled data can then be analyzed to compare the effectiveness of treatments and reported out to providers in a consistent way, irrespective of payers to the extent feasible. This concept is

important because the traditional way in which provider performance measurement has been conducted is payer by payer. As a result, provider performance reporting has a tendency to vary by payer, creating confusion.

A centralized scoring mechanism across all of a provider's patients will ensure that feedback to the provider on the quality of care will be the same across all payers. As part of technical assistance for Tennessee, HCI[3] suggested a data collection and reporting schema as depicted in Figure 2, where the inputs come from hospital and practice Clinical Data Registries (CDR), CMS-authorized CDRs (known as Qualified Clinical Data Registries (QCDR)), and/or direct data submissions from providers, and the outputs are reports to clinicians.

Figure 2: Potential Data Sources and Approach for Quality Reporting



QCDRs[12] are registries authorized by CMS to collect quality measures from physicians to satisfy reporting requirements of the Medicare Physician Quality Reporting System. As such, leveraging QCDRs can speed up the process of setting up a data collection infrastructure. Generally speaking, leveraging registries – whether native to an EMR in a provider organization, maintained by a medical specialty society, or qualified by CMS – is the more efficient and effective way of developing a central data collection system. Direct data submission by providers requires instituting a series of processes, including data validation and integrity, that have to be designed from scratch.

Basic decisions for states relative to designing direct data submission portals include identifying:

- *The purposes of the portal* – Data submission only or data submission and reporting;
- *The scope of the portal* – Whether direct submission will be accepted for all measures/programs or only some;
- *Whether access by parties other than the clinician managing the patient will be allowed* – Many physicians may elect to have a practice administrator submit data on their behalf;
- *What auditing requirements for sampling of patients included in the direct data submission are necessary* – Typically, direct data submission entails drawing the data from a random sample of patients rather than reporting on all patients.

Phase III: Measure Scoring and Reporting

No matter their good intentions, states getting into the process of scoring and reporting on performance should be aware that the physician community tends to view publicly reported clinical and financial performance with deep suspicion. In addition, two decades of measurement reporting have shown that those being measured gravitate towards emphasizing measures that are common with easily attainable thresholds. This has been true at both the federal and state level. Today, little usable physician and hospital quality information exists for the public at large.[13] **As a result, state purchasers should keep these important lessons regarding performance measurement and reporting in mind:**

1. *Measure what matters* – Scorecards should be concise and populated with high impact measures that have a direct relationship with patient outcomes.

2. *Encourage continuous performance* – All measures should be scored using the result of the numerator/denominator calculation, and that result should be applied against the total number of points allocated to each measure. Additions to numerators should yield additional points, so that clinicians have continuous incentives to improve the quality of care.

3. *Make results actionable* – Feedback should be timely and relevant. This means: (a) providing benchmark comparisons and best practice sharing; (b) making clinical reengineering experts available to frontline clinicians; (c) providing knowledge exchange mechanisms to facilitate peer-to-peer interactions (such as online forums).

4. *Make results and reports consistent* – Whenever feasible, states should assess quality of care across payers, not payer-by-payer. Assessing provider performance across all patients avoids a potential sample selection bias and the likelihood that a physician will have varying scores from one payer to another.

Integrating, Not Reconciling Data Streams: State agencies spearheading these efforts should be cognizant of the fact that there is a good chance discrepancies will appear between the clinical exclusions/inclusions of defined quality measures and the corresponding episodes of care definitions. For example, patients who have undertaken two-step therapies for controlling their blood pressure and who still have high blood pressure can, under certain circumstances, be excluded from a quality measure. However those patients will always be included in an episode of care for several reasons. First, by default, because there is no way to discern such an exclusion from claims data, and second because the quality measure is designed to measure the effectiveness of the physician's treatment of the patient's condition, while episodes of care cost accounting is designed to measure the efficiency with which a physician manages patients with a certain condition. For the latter exercise there is no rationale to exclude patients who have taken two therapies and can't get their blood pressure under control. The payer still has to pay for the costs of care.

Sustainable Feedback Loops: The Real Goal

Over the past decade or so, the use of the term "feedback loop" has increasingly entered health policy. A feedback loop from a quality measurement perspective is a way in which physicians can understand their performance, relative to a benchmark. The underlying assumption of a quality measurement program is that the physician would change behavior to improve their own performance based on the feedback. In **Appendix B**, we outline necessary system parameters common to viable feedback loops that states should keep in mind when designing quality reporting mechanisms.

Insofar as transparency is concerned, state purchasers should set up a performance reporting system that synthesizes cost (efficiency) and quality (effectiveness) in a way that concisely reveals value to payers, providers and consumers. In developing a transparency approach, states should recognize that each of these stakeholders has different interests and levels of understanding. The value synthesis rests on combining efficiency calculations (total episode cost against benchmarks) and effectiveness calculations (episode-specific patient quality of care against benchmarks), and feeding back the resulting value synthesis to all providers and other stakeholders.

Claims and Clinical Data

State purchasers can think of data drawn from claims data as Channel 1 (measuring efficiency), and non-claims, clinical data as Channel 2 (measuring effectiveness). Units of analysis for Channel 1 are patient-centered episodes of care, with an eye towards measuring variability in these episodes. Episode cost variability can come from several sources: the price of individual services, the use of services (either too many or too few), and the mix of services. Information on the contribution of each of these sources to the total variability in episode costs can help providers better understand how to improve the sum of the inputs used to manage an episode of medical care. The importance here is not simply in creating a feedback loop on a provider's specific variability, but rather how that variability compares to that of others. For example, a provider who gets a report that shows her variability comes mostly from higher pricing of services will have a very different strategy than a provider getting a report indicating that his variability comes from a significantly higher use of certain services. As one might surmise, these reports should be payer specific, especially when analyzing variability based on price.

The units of analysis for Channel 2 (non-claims, clinical data) are all patients that have a specific medical episode, irrespective of the payer, and for two principal reasons. First, states should want to encourage providers to treat all patients with a certain condition as optimally as possible and not introduce a potential payer-specific bias. The central idea being that a single provider quality score cannot be manipulated by a payer to try and tilt that provider's

attention preferentially towards that payer's plan members. Second, insofar as transparency is concerned, states should set up a system that synthesizes cost and quality in a way that succinctly reveals value to payers, providers and consumers, with each having different interests and levels of understanding. **The value synthesis rests on combining efficiency calculations (total episode cost against benchmarks) and effectiveness calculations (episode-specific patient quality of care against benchmarks), and feeding back the resulting value synthesis to all providers.**

Conclusion

While the concept of tying cost and quality of care into a timely, actionable and reliable report for physicians seems common sense enough, the general availability of data to create these reports is extremely low. As such, states that wish to accelerate the transformation of the existing delivery system into one that delivers high quality and affordable health care have to take action to develop a comprehensive data collection and reporting mechanism.

This Brief suggests that such an approach be done using episodes of medical care – such as a chronic condition, an illness or a major treatment/procedure – as the central unit of measure because (a) quality measures are generally tied to specific episodes of medical care, and (b) acting on the cost of an episode of care is a lot easier to do for frontline clinicians than acting on a higher level of cost aggregation such as total cost of care. Of course, for states implementing bundled payment programs, the cost of the medical episode is simply the price of the bundled payment.

Further, this Brief outlines specific steps that can be taken by states to launch a data collection and reporting effort, perhaps with manual processes initially, and then to scale such an effort. The information technology infrastructure in place in the US today can be leveraged to rapidly scale a central data collection and reporting process and create highly relevant feedback loops for providers.

Appendix A: Sample of Select Episodes of Care and Related Clinical Data Registries

Episode	Matching Qualified CDRs (QCDRs)*	Matching CDRs
Asthma acute exacerbation	American Academy of Allergy Asthma and Immunology (AAAAI) https://www.aaaai.org/home.aspx	
Bariatric surgery	Metabolic and Bariatric Surgery Accreditation and Quailty Improvement Program	
Breast cancer	American Society of Breast Surgeons Mastery of Breast Surgery Program American College of Physicians (ACP) Genesis Registry https://www.medconcert.com/content/medconcert/Genesis/	
Depression	ACP Genesis	
Diabetes acute exacerbation	ACP Genesis Chronic Disease Registry	
Female reproductive cancer	American Society of Clinical Oncology (ASCO) QOPI Oncology Nursing Society Quality Improvement Registry Oncology Quality Improvement Collaborative	
Lung cancer	ASCO QOPI Oncology Nursing Society Quality Improvement Registry Oncology Quality Improvement Collaborative	
Neonatal		Vermont Oxford VLBW Database https://public.vtoxford.org
Perinatal		American Association of Birth Centers (AABC) Perinatal Data Registry www.birthcenters.org
Spinal fusion	Anesthesia Quality Institute: National Anesthesia Clinical Outcomes Registry	
Tonsillectomy	Anesthesia Quality Institute: National Anesthesia Clinical Outcomes Registry	
Total joint replacement	American Joint Replacement Registry	

* **Qualified CDRs:** clincial data registries authorized by CMS to collect quality measures from physicians to satisfy reporting requirements of the Medicare Physician Quality Reporting System. For a list of 2015 QCDRs see: *https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/PQRS/Downloads/2015QCDRPosting.pdf*

APPENDIX B: 7 Essential Questions That Identify Working Feedback Loops in Healthcare

1. *Where are the circuits of data and information connecting providers?* – Given the fragmented payer and provider institutional arrangements, siloed information systems, and inconsistent means of data collection, it is hard to discern the structured conduits connecting the relevant healthcare actors. The systemic "wires" must be in place.

2. *How is work (output) measured?* – This question would fall into two parts: a) the definition of work, and b) the salient contributors to work. There are so many parties, both governmental and private, creating inconsistent quality measures, the result can only be confusion and lack of uptake. Moreover, the two salient contributors to work, patients and providers, are treated as if they live on different planets. Almost all the measures place heavy emphasis on provider response, with little attention to patient response. In payment reform, this asymmetry begs for correction.

3. *What is the unit of analysis?* – Feedback systems operate on meaningful units of analysis, and thus the unit of analysis has great bearing on work measures. If the work measures are analyzed through inappropriate units, as with hospital-only measures, analysis and work output fall out of sync with each other. The appropriate unit of analysis in healthcare cannot, therefore, be institutional; it has to focus on the primary consumer of the work product: the patient.

4. *How much energy is consumed?* – Engineers are in a constant quest to lower the amount of energy required per unit of work; this is the definition of efficiency, and is often quantified in terms of wasted energy. Systems engineers would be staggered by how much energy is wasted in American healthcare, the current of work being dollars. Dollars, therefore, tie work measured and unit of analysis together as definable work products. FFS and TCOC are not defined healthcare products in dollar terms if the patient is the unit of analysis.

5. *Are the feedback mechanisms parsimonious?* – Not all metrics are equal. At some point, measuring every conceivable variance to the n^{th} degree and granting them equal weight creates more noise than signal. It turns out that most episodes of care have only a handful of meaningful metrics, that when controlled for, give the most amount of bang for the buck. This is what is meant by creating high signal to noise feedback loops. A parsimonious design gives relevant decision-makers the right amount of data points (signal) they need to optimize outcomes (work product), and weeds out extraneous information (noise).

6. *Is the feedback timely?* – This system parameter seems fairly obvious, in that outdated feedback is not only useless; it's a nuisance. Actionable feedback must not only be parsimonious, it must be available at critical decision nodes where applying it has the most amount of potential to affect optimal Delta.

7. *Where are the control mechanisms?* – The means of making operational adjustments to bring actual performance to optimal performance (Delta) are either nowhere to be found (as with FFS), or posited in structures so large and ill defined (as with ACOs), as to conclude there are no controlling mechanisms, at least none that could qualify as actionable feedback systems. And this brings us to the heart of the matter: accountability. Since we're not talking about feedback in machines, but rather, feedback within human networks and relationships, then accountability must be aligned with control, and that means getting the first 6 parameters right; otherwise, managerial spans of control, or "lines of sight," become diffuse, chaotic and very difficult to coordinate.

Endnotes

[1] Report from the National Quality Forum: 2012 Measure Gap Analysis; *www.qualityforum.org/WorkArea/linkit.aspx?LinkIdentifier=id&ItemID=72981*.

[2] *https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/PQRS/index.html?redirect=/pqri/*.

[3] *https://www.cms.gov/medicare/quality-initiatives-patient-assessment-instruments/hospitalqualityinits/hospitalrhqdapu.html*.

[4] See for example "Transitional Care Interventions Prevent Hospital Readmissions For Adults With Chronic Illnesses", Kim J. Verhaegh et al. *Health Affairs* September 2014 vol. 33 no. 9 1531-1539.

[5] Arkansas, Ohio and Tennessee have launched statewide bundled payment programs for specific episodes of care as the central focus of their Medicaid payment reform efforts. For additional detail on the Tennessee initiative, see: *https://www.tn.gov/hcfa/topic/episodes-of-care*.

[6] Registries are databases containing specific information on patients and have been instituted by Medical Specialty Societies to help their members better monitor patient outcomes and understand the effectiveness of treatments. Some registries are also native to electronic medical records and are simply a subset of data stored in EMRs, making it easier for clinicians to extract information.

[7] See HCI³ report, "State Report Card on Transparency of Physician Quality Information," December 16, 2014." at *http://www.hci3.org/content/physician-quality-transparency-report-2014*.

[8] Many clinical data registries exist and are often condition-specific. For example, the Oncology Quality Improvement Collaborative (*https://www.medconcert.com/content/medconcert/ONCQIR/*) measures and reports on outcomes in oncology and specialty care, whereas the Vermont Oxford Network hosts a database about the care and outcomes of high-risk newborn infants (*https://public.vtoxford.org/databases/very-low-birth-weight/*).

[9] Support for this technical assistance work in Tennessee was provided through a grant from the Robert Wood Johnson Foundation's State Health and Value Strategies program.

[10] See *http://statenetwork.org/resource/considerations-for-state-development-of-performance-measure-sets/* accessed November 2015.

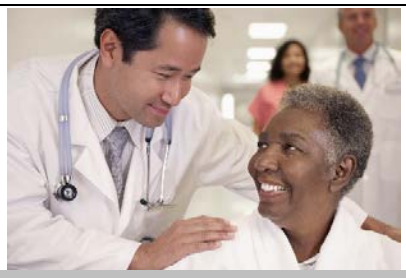
[11] HCI³, through its Bridges To Excellence (BTE) programs, has been successfully collecting data elements for dozens of quality measures on common chronic conditions from various EMR systems for well over five years. For more BTE information see: *http://www.hci3.org/what_is_bte*.

[12] For a list of 2015 QCDRs see: *https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/PQRS/Downloads/2015QCDRPosting.pdf*.

[13] See HCI³ report, "State Report Card on Transparency of Physician Quality Information," December 16, 2014." at *http://www.hci3.org/content/physician-quality-transparency-report-2014*.

Additional Resources

- **HCPLAN Consumer and Patient Affinity Group Principles for Patient– and Family-Centered Payment**
- **HCPLAN's Accelerating and Aligning Clinical Episode Payments White Paper**
  - *Summary of Episode Recommendations*
  - *Maternity Care Chapter*
  - *Operational Considerations*
  - *Appendix D: Maternity Care Bundled Payment Models*
  - *Appendix G: Maternity Care Implementation Resources*
  - *Appendix K: Resources*
- **Article: *How to Pay for Health Care***
- **Article: *Drivers of Maternity Care in High-Income Countries: Can Health Systems Support Woman-Centered Care?***



HCP LAN
Health Care Payment Learning & Action Network

Principles for Patient- and Family-Centered Payment

These principles, produced by the Consumer and Patient Affinity Group, are intended to help guide the development of new payment strategies. They provide guidance and aspirational direction to ensure that we address the needs and priorities of patients and families as we transition to value-based payment. The principles rest on the conviction that consumers, patients, and families are essential partners in every aspect of transforming health care and improving health.

Consumers, patients, families and their advocates should be collaboratively engaged in all aspects of design, implementation, and evaluation of payment and care models, and they should be engaged as partners in their own care.

The collaboration in design of payment and care models should include oversight, governance, and interface with the communities where care is delivered. At the point of care, patients and families should be engaged in ways that match their needs, capacities and preferences. Collaborative care should be aligned with patient goals, values and preferences (including language), and should reflect shared care planning and decision making throughout the care continuum.

Positive impact on patient care and health should be paramount.

The central consideration in all payment design should be improving patient health outcomes, experience of care, and health equity, while also ensuring the most effective use of health care resources.

Measures of performance and impact should be meaningful, actionable, and transparent to consumers, patients and family caregivers.

New payment models should be assessed using measures that are meaningful to patients and families. They should prioritize the use of measures derived from patient-generated data that address both care experience and outcomes. Measures should also address the full spectrum of care, care continuity and overall performance of specific models. Measures should be granular enough to enable patients to make informed decisions about providers and treatments.

Primary care services are foundational and must be effectively coordinated with all other aspects of care.

Payment models should foster this coordination, particularly between primary and specialty care, in order to promote: optimal coordination, communication and continuity of care; trusted relationships between clinicians and patients/families; concordance with patient goals, values and preferences; integration of non-clinical factors and community supports; and coordination of services delivered through non-traditional settings and modalities that meet patient needs. Effective delivery and coordination of primary care services should promote better care experience, optimal patient engagement, better health outcomes, and increased health equity.

Health equity and care for high-need populations must be improved.

New payment models should foster health equity, including access to innovative approaches to care and preventing any discrimination in care. They should collect data that allows for assessment of differential impacts and the identification and redress of disparities in health, health outcomes, care experience, access, and affordability.

Patient and family engagement and activation should be supported by technology.

New payment models should promote use of information technology that enables patients and their designated caregivers to easily access their health information in a meaningful format that enables them to use the information to better manage and coordinate their care. The technology should also enable patients to contribute information and communicate with their providers, and it should foster patient-clinician partnership in ongoing monitoring and management of health and care.

Financial incentives used in all models should be transparent and promote better quality as well as lower costs.

Financial incentives for providers and patients should be fully disclosed so that patients and consumers understand how new payment approaches differ from traditional fee-for-service models, and how certain incentives may impact the care providers recommend or provide. Financial incentives should be developed in partnership with patients and consumers in order to reflect how patients define value, and to reduce financial barriers to needed care and ensure that patients are not steered to lower cost care without regard for quality.

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ACCELERATING AND ALIGNING

CLINICAL EPISODE PAYMENT MODELS

CONTENTS

About the CMS Alliance to Modernize Healthcare

The Centers for Medicare & Medicaid Services (CMS) sponsors the CMS Alliance to Modernize Healthcare (CAMH), the first federally funded research and development center (FFRDC) dedicated to strengthening our nation's healthcare system. The CAMH FFRDC enables CMS, the Department of Health and Human Services (HHS), and other government entities to access unbiased research, advice, guidance, and analysis to solve complex business, policy, technology, and operational challenges in health mission areas. The FFRDC objectively analyzes long-term health system problems, addresses complex technical questions, and generates creative and cost-effective solutions in strategic areas such as quality of care, new payment models, and business transformation.

Formally established under Federal Acquisition Regulation (FAR) Part 35.017, FFRDCs meet special, long-term research and development needs integral to the mission of the sponsoring agency—work that existing in-house or commercial contractor resources cannot fulfill as effectively. FFRDCs operate in the public interest, free from conflicts of interest, and are managed and/or administered by not-for-profit organizations, universities, or industrial firms as separate operating units. The CAMH FFRDC applies a combination of large-scale enterprise systems engineering and specialized health subject matter expertise to achieve the strategic objectives of CMS, HHS, and other government organizations charged with health-related missions. As a trusted, not-for-profit adviser, the CAMH FFRDC has access, beyond what is allowed in normal contractual relationships, to government and supplier data, including sensitive and proprietary data, and to employees and government facilities and equipment that support health missions.

CMS conducted a competitive acquisition in 2012 and awarded the CAMH FFRDC contract to The MITRE Corporation (MITRE). MITRE operates the CAMH FFRDC in partnership with CMS and HHS, and maintains a collaborative alliance of partners from nonprofits, academia, and industry. This alliance provides specialized expertise, health capabilities, and innovative solutions to transform delivery of the nation's healthcare services. Government organizations and other entities have ready access to this network of partners, including RAND Health, the Brookings Institution, and other leading healthcare organizations. This includes select qualified small and disadvantaged business. The FFRDC is open to all CMS and HHS Operating Divisions and Staff Divisions. In addition, government entities outside of CMS and HHS can use the FFRDC with permission of CMS, CAMH's primary sponsor.

Executive Summary

The Health Care Payment Learning & Action Network (LAN) was created to drive alignment in payment approaches across and within the public and private sectors of the U.S. health care system. To advance this goal, the Clinical Episode Payment (CEP) Work Group (the "Work Group") was convened by the LAN Guiding Committee and charged with developing recommendations for the purpose of accelerating adoption of aligned clinical episode payment models in the areas of elective joint replacement, maternity care, and coronary artery disease. Composed of diverse health care stakeholders, the Work Group deliberated, incorporated input from LAN participants, and reached consensus on many critical issues related to designing person-centered clinical episode payment, which is the subject of this White Paper.

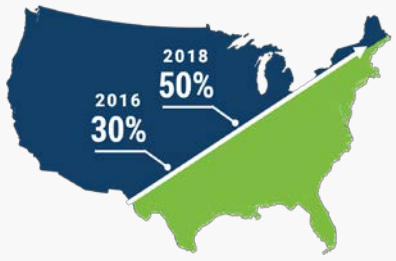
Clinical episode payment models are different from traditional fee-for-service (FFS) health care payment models, in which providers are paid separately for each service they deliver. Instead, clinical episode payment models take into consideration the quality, costs, and outcomes for a patient-centered 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 experiences and health for patients and lower costs for payers and providers.

Since the first episode payments were introduced more than 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, as research has shown, while episode payments offer great potential as an alternative to FFS care, designing and implementing such models comes with financial, technological, cultural, 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.

Health Care Payment Learning & Action Network

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, positive 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 alternative payment models (APMs).

U.S. Health Care Payments in APMs



Thus, the CEP Work Group's charge was to:

- Provide a directional roadmap for providers, health plans, patients and consumers, purchasers, and states, based on existing efforts and innovative thinking in the realm of clinical episode payment;
- Promote alignment in both CEP design and operational approach;
- Strike a balance between alignment/consistency and flexibility/innovation;
- Find the balance between short-term feasibility and long-term aspiration; and
- Recognize the effects of an evolving health care system on the design and implementation of CEP.

The Work Group selected three clinical focus areas on which to build episode payment models: elective joint replacement (EJR), maternity care, and coronary artery disease (CAD). For each episode model, the LAN released a draft White Paper that laid out a set of 10 design element recommendations, as well as operational considerations. Each draft White Paper was made available to the public for a 30-day comment period, and those comments resulted in significant revisions across several design element recommendations.

A number of cross-cutting themes emerge across all three episodes:

Consumer, patient, and family engagement is critical to driving value-based care: At the patient level, this means engaging individual patients and families and supporting them in being partners in their care. At the system level, this involves engaging consumers, patients, families, and their advocates in meaningful participation in the design, implementation, governance, evaluation, and quality improvement of episode payment models. Engagement can be reflected by providers acknowledging and incorporating the types of care that patients value; or by payers, purchasers and providers ensuring that information about payment and reimbursement is available in a way that is linguistically and culturally appropriate and tailored to the health literacy level of patients and families. Other specific examples of how to facilitate this engagement are found throughout the paper.

In clinical episodes with numerous care team members, there are a number of variables to consider in assigning accountability: A common feature across the three clinical episodes described in this paper, as well as clinical episodes in general, is that they are composed of care delivered in multiple settings by a care team that includes numerous clinicians and other providers. While the Work Group initially intended to recommend specific types of providers (e.g. the patient's cardiologist or primary care provider in the coronary artery disease episode), the final recommendation describes the many variables that play into a clinician's ability to take responsibility for the patient, both from a fiscal and from a quality outcomes standpoint. These variables may apply regardless of the clinical focus for any given episode payment model.

Certain design decisions hinge on whether implementation is mandatory or voluntary: As the Work Group studied and analyzed many episode payment initiatives, a key element that seemed to drive various design decisions was whether the initiative was voluntary for providers or whether it was a program mandated by the state or other entity. For example, if a state mandates episode payment in its Medicaid program, it may have more leeway to require that providers take on both upside reward as well as downside risk. In a voluntary initiative, the payer (or other implementer) *may* design the program around upside reward only, while encouraging providers to achieve a state of readiness necessary to take on downside risk.

Using historical data to determine the episode price creates challenges for payment and care transformation: Setting the episode price is a critical aspect of episode payment design. Yet, it creates a significant challenge. Historical data is crucial to giving payers and providers an understanding of the resources needed to deliver high-quality care and optimal outcomes. However, that same historical data may likely reflect care that was unnecessary or inappropriate, and may not reflect the potential for low-cost, high-value services that have traditionally not been used because the providers do not get paid for them. These include care coordination services, lifestyle change support (in the case of coronary artery disease), or pre-natal parenting education support (in the case of maternity care).

A robust data infrastructure is critical to an episode payment model's success: The Work Group heard from many commenters about the importance of providers, payers, patients, and purchasers having access to data in a way that supports the kind of care coordination and care delivery that is central to optimizing outcomes for patients via an episode payment model.

The White Paper provides recommendations for designing clinical episode payment in the above-mentioned clinical areas of elective joint replacement, maternity care, and coronary artery disease, with the goal of creating aligned models that lead to improved outcomes for patients.

A summary description of the design recommendations for each episode can be found in Chapter 2, Episode Payment Design Elements. Chapters 3, 4, and 5, respectively, provide a set of recommendations and detailed discussions about clinical episodes for elective joint replacement, maternity, and coronary artery disease. Chapter 6, Operational Considerations, discusses issues to consider in moving from episode payment design to operationalization and implementation. The White Paper concludes with some immediate next steps that stakeholders can take to advance the Work Group's recommended approach to designing clinical episode payment models.

Chapter 1: Overview

The 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. CAMH, the federally funded research and development center operated by the MITRE Corporation, was asked to convene this national initiative.

In keeping with the goals of HHS, the LAN aims to have 30% of U.S. health care payments in alternative payment models 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 applied in various ways:

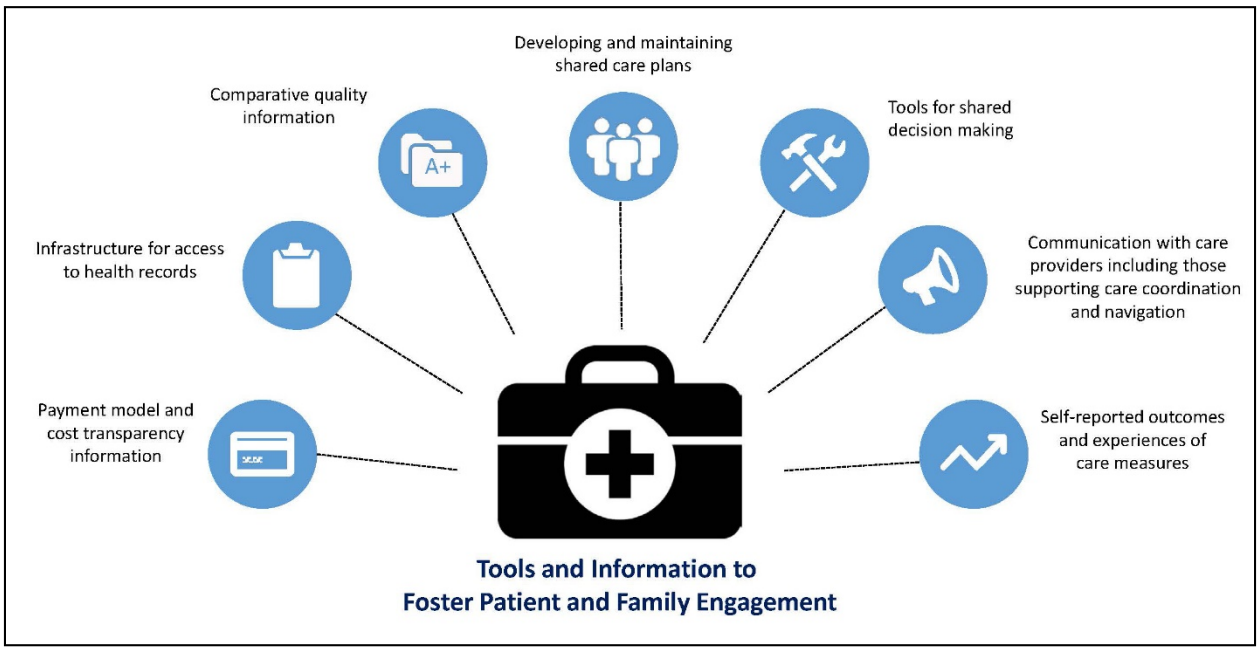
- At the setting level, whereby the episode is focused on a hospital stay;
- At the procedure level, in which the episode encompasses a defined surgical procedure; or
- At the condition level, whereby the episode is defined around a condition. Conditions for which episode payment can be used range from asthma to diabetes to cancer.

Bundling payments for episodes of care shows promise for reducing costs and improving the quality of care. 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.

The recommendations in this paper are presented with recognition of the evolving health care system, and the many forces that are seeking to accelerate the movement from FFS to paying for value. These include the federal initiatives established by the Affordable Care Act, including the CMS Innovation Center and its models like the Bundled Payment for Care Initiative (BPCI) and Comprehensive Primary Care Plus (CPC+). This also includes more recent legislation aimed at accelerating the adoption of APMs like the Medicare Access and CHIP Reauthorization Act (MACRA).

Where accelerated adoption of aligned models does occur, it must do so in a way that supports person-centered care. This paper provides substantive information on how episode payment models can be designed to do just that. Meaningfully engaging consumers, patients, families, and their advocates requires a set of tools and information that are crucial to not just episode payment, but to alternative payment models overall (Figure 1). Consumers, patients, families, and their advocates should be collaboratively engaged in all aspects of design, implementation and evaluation of payment and care models, and they should be engaged as partners in their care. Person-centered episode payment models have a strong investment in engaging patients in multiple ways, including shared care planning, shared decision-making, comparative quality information, care coordination, chronic disease management tools, transparency of payment information, and care transition support. To be effective, communications and resources must be tailored to the health literacy level of patients and families, and be linguistically and culturally appropriate.

Figure 1: Tools for Fostering Patient and Family Engagement



Purpose of the White Paper

In November 2015, the GC convened the CEP Work Group and charged the group members with creating a set of recommendations that can facilitate the adoption of clinical episode-based payment models (CEP Work Group members participated in this effort as individuals and not on behalf of their respective organizations). The GC noted a specific interest in models that fall within Category 3—APMs built on an FFS architecture—and Category 4—population-based payment—of the LAN's Alternative Payment Model Framework, which can be found here.

Clinical episode payment models are different from traditional 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 of 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 both better experiences and health for patients and lower costs for payers and providers.

Since the first episode payments were introduced more than 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, as research has shown, while episode payments offer great potential as an alternative to FFS care, designing and implementing such models comes with financial, technological, cultural, 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 purpose of this paper is to provide an episode payment design framework, as well as recommendations pertaining to each of the ten elements in said framework, that will support adoption of aligned episode payment models in the areas of elective joint replacement, maternity care, and coronary artery disease. The Work Group developed these recommendations with recognition of the evolving health care system, and the many forces currently seeking to accelerate the movement from FFS to value-based payment.

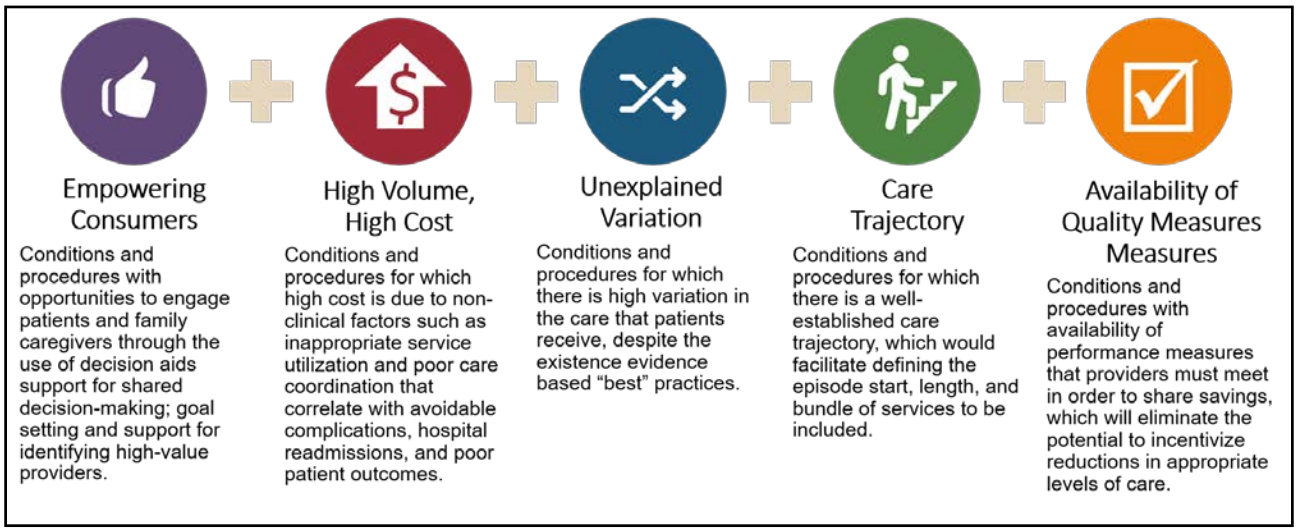
Priority Areas

With this context in mind, the CEP Work Groups viewed its charge as the following:

- 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 aspirations; and
- Recognize that the recommendations will be viewed within the context of an evolving health care system environment, acknowledging the effects of MACRA and other CMS initiatives.

In convening the CEP Work Group, the GC stipulated that the Work 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 Work Group used the criteria in Figure 2 to prioritize the diseases and conditions on which their work would focus.

Figure 2: Criteria for Prioritization



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

- Elective joint replacement;
- Maternity care; and
- Coronary artery disease.

The CEP Work Group chose these three priority areas because they have the greatest potential to create a greater consensus and alignment of payment methods across payers and, 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. They are, however, focused specifically on the design of episode payments. In addition, in their research and discussion, the CEP Work Group chose clinical areas in which clinical episode payment in particular could also achieve one or more of the following:

Incentivize person-centered care: One intended effect of APMs (and a principle of the LAN APM Framework[1]) is to deliver[2] person-centered care, defined as high-quality care that is evidence based, delivered in an efficient manner, and where patients' and caregivers' individual preferences, needs, and values are paramount. Recognizing that payment reform must ultimately serve the interests of consumers and patients, the LAN Guiding Committee endorsed a set of Principles for Patient- and Family-Centered Payment. These principles, prepared by the LAN Consumer and Patient Affinity Group, are intended as guideposts so that new payment models and implementation activities can address the needs and priorities of patients and families. The principles are reflected in this White Paper, and their text is included in Appendix J.

Improve patient outcomes through effective care coordination: Episode payment encourages providers to better coordinate care across and within care settings, and to 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.

Reward high-value care: Another intended effect of APMs is to reward high-value care by incentivizing providers and patients, together with their family caregivers, to discuss the appropriateness of services, including certain procedures. In this way, services that do not align with patient preferences can be avoided.

Reduce unnecessary costs: Reducing unnecessary costs to the patient and to the health care system is another intended effect of APMs. 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 an "apples-to-apples" comparison for assessing quality and

[1] Principle 1 of the APM Framework
[2] Definition of Patient-Centered Care (APM Framework White Paper, page 4)

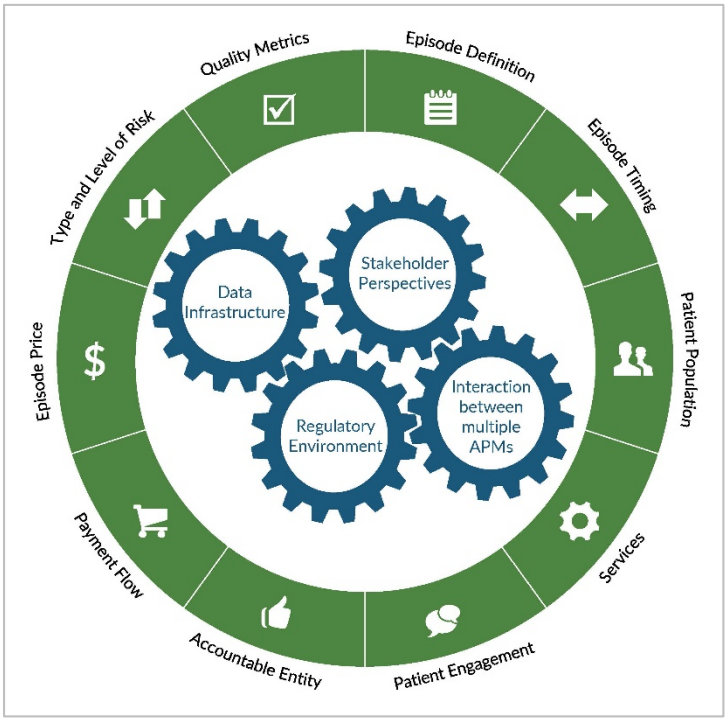
cost (for payers and consumers). This well-defined "product" allows buyers to compare price and quality.

Recommendations Framework: Design and Operations

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 3); and
- 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 3: Episode Payment Design Elements and Operational Considerations



This paper is organized according to the following structure:

- Summary of Episode Design Element Recommendations for elective joint replacement, maternity care, and coronary artery disease;
- A chapter on each of the three episodes that provides more in-depth discussion on 1) why the clinical focus area is appropriate for applying episode payment to achieve improvements in quality and outcomes; and 2) the thinking behind each of the ten design element recommendations; and
- A chapter on operational considerations (stakeholder perspectives, data infrastructure, and regulatory environment) that cut across the three clinical episode payment models. Also included in this chapter is a discussion of questions and issues that may arise in the course of implementing clinical episode payment together with another APM, namely, population-based payment.

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CLINICAL EPISODE PAYMENT MODELS

SUMMARY OF EPISODE RECOMMENDATIONS

Chapter 2: Summary of Episode Recommendations

The CEP Work Group conducted research and analysis on a range of existing episode payment initiatives. Based on their experience and the analysis of current initiatives, the Work Group identified a set of 10 episode payment model design elements (Figure 3). These elements reflect the decisions that payers and providers need to make prior to implementation. The tables below summarize the 10 recommendations, based on the design elements that are discussed in this White Paper.

Table 1: Summary of Joint Replacement Episode Recommendations

Episode Definition	The episode is defined as an elective and appropriate total hip or total knee replacement due to osteoarthritis.
Episode Timing	The episode should start pre-procedure (e.g. 30 days), and end 90 days post discharge in order to include the most resource-intensive aspects of care for elective joint replacement patients. Accountability for functional improvement and performance measurement goes beyond 90 days.
Patient Population	The episode should apply to the broadest-possible pool of patients, using risk and severity adjustment to account for age and complexity.
Services	All services needed by the patient that are related to the joint replacement procedure should be covered by the episode price.
Patient Engagement	Require use of shared decision making and patient engagement tools, transparency of performance and the payment model, shared care planning, access to full health records, care coordination, and patient-reported quality measures in patient-facing materials to maximize opportunities to engage patients and families in advancing high-value care, both for themselves and overall.
Accountable Entity	The accountable entity should be chosen based on readiness to re-engineer change in the way care is delivered to the patient and to accept risk. In this model, the accountable entity will likely require a degree of shared accountability, given the number of clinicians working to care for a patient.
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 Price	The episode price should strike a balance between provider-specific and multi-provider/regional utilization history. The price should: 1) acknowledge achievable efficiencies already gained by previous initiatives; 2) reflect a level that potential provider participants see as feasible to attain; and 3) include the cost of services that help achieve the goals of episode payment.
Type and Level of Risk	The goal should be to utilize both upside reward and downside risk. Transition periods and risk mitigation strategies should be used to encourage broad provider participation and support inclusion of as broad a patient population as possible.
Quality Metrics	Prioritize use of metrics that capture the goals of the episode, including outcome metrics, particularly patient-reported outcome and functional status measures; use quality scorecards to track performance on quality and inform decisions related to payment; and use quality information and other supports to communicate with, and engage patients and other stakeholders.

Table 2: Summary of Maternity Care Episode Recommendations

Episode Definition	The episode is defined to include the large majority of births, including the newborn care, that are lower-risk. While not necessarily lower risk, episode payment may also be considered appropriate for women who may be at elevated risk due to conditions that have defined and predictable care trajectories, such as gestational diabetes. As the CEP model matures, some groups with significant high-risk pregnancy experience and capacity may seek to manage the entire continuum of risk.
Episode Timing	The episode should begin 40 weeks before the birth and end 60 days postpartum for the woman, and 30 days post-birth for the baby.
Patient Population	The episode should primarily include the large majority of births, including newborn care, that are lower-risk. The Work Group also supports CEP for women who may be at elevated risk because of predictable risk factors that have defined care trajectories, such as gestational diabetes.
Services	Covered services include all services provided during pregnancy, labor and birth, and the postpartum period (for the women) and newborn care for the baby. Exclusions should be limited. Initiatives should also consider including high-value support services, such as doula care and prenatal and parenting education.
Patient Engagement	Engaging women and their families is critical in all three phases of the episode—prenatal, labor and birth, and postpartum/newborn—to contribute to the foundation for healthy women and babies.
Accountable Entity	The accountable entity should be chosen based on readiness to re-engineer change in the way care is delivered to the patient and to accept risk. In this model, the accountable entity will likely require a degree of shared accountability, given the number of clinicians working to care for a patient.
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 Price	The episode price should strike a balance between provider-specific and multi-provider/regional utilization history. The price should: 1) acknowledge achievable efficiencies already gained by previous initiatives; 2) reflect a level that potential provider participants see as feasible to attain; and 3) include the cost of services that help achieve the goals of episode payment.
Type and Level of Risk	The goal should be to utilize both upside reward and downside risk. Transition periods and risk mitigation strategies should be used to encourage broad provider participation and support inclusion of as broad a patient population as possible.
Quality Metrics	Prioritize use of metrics that capture the goals of the episode, including outcome metrics, particularly patient-reported outcome and functional status measures; use quality scorecards to track performance on quality and inform decisions related to payment; and use quality information and other supports to communicate with, and engage patients and other stakeholders.

Table 3: Summary of Coronary Artery Disease Episode Recommendations

Episode Definition	The episode is defined as care for a cohort of patients with diagnosed CAD, for a 12-month period that will ultimately align with the benefit year (see Episode Timing). Once aligned with the benefit year, the episode will continue for consecutive periods of 12 months of active care management for as long as a patient is under active management for CAD. PCI and/or CABG procedures deemed necessary during any given 12-month episode period will also be delivered within an episode payment model.
Episode Timing	The 12-month condition episode may commence at various points post-CAD diagnosis. For any nested procedure within the condition-level episode, the procedure episode begins 30-days pre-procedure and lasts 30-90 days post discharge.
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 determination of appropriateness.
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).
Patient Engagement	Models should support patient and family involvement in episode payment design, implementation, and evaluation, and patient and family engagement in all phases of cardiac care. This should be facilitated by health information technology.
Accountable Entity	The accountable entity should be chosen based on readiness to re-engineer change in the way care is delivered to the patient, and to accept risk. In this model, the accountable entity will likely require a degree of shared accountability, given the number of clinicians working to care for a patient.
Payment Flow	The unique circumstances of the condition-level/nested procedure episode model makes upfront FFS payment to individual providers within the episode, with retrospective reconciliation and a potential for shared savings/risk, the more feasible option.
Episode Price	The episode price should strike a balance between provider-specific and multi-provider/regional utilization history. The price should: 1) acknowledge achievable efficiencies already gained by previous initiatives; 2) reflect a level that potential provider participants see as feasible to attain; and 3) include the cost of services that help achieve the goals of episode payment.
Type and Level of Risk	The goal should be to utilize both upside reward and downside risk. Transition periods and risk mitigation strategies should be used to encourage broad provider participation and support as broad a patient population as possible.
Quality Metrics	Prioritize use of metrics that capture the goals of the episode at both the condition and procedure levels. These include outcome metrics, patient-reported outcome and functional status measures, and some process measures related to procedures. Use quality scorecards to track performance on quality and inform decisions related to payment. Use quality information and other supports to communicate with, and engage patients and other stakeholders.

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CLINICAL EPISODE PAYMENT MODELS

ELECTIVE JOINT REPLACEMENT

Chapter 3: Elective Joint Replacement

Background: Why Use Episode Payment for Elective Joint Replacement?

Total hip and total knee replacements are among the most commonly performed surgical procedures today. According to the U.S. Centers for Disease Control and Prevention, over one million such procedures are performed each year across all payers. Despite the high volume of these surgeries, outcomes and costs of care for joint replacement surgeries vary greatly among providers and across geographic areas (Table 4). This variation, combined with a clear care trajectory, the availability of quality measures, and the ability to empower consumers, made it an ideal focus for the CEP Work Group to develop recommendations.

Table 1: Joint Replacement in the U.S.: Prevalence, Cost, and Opportunities for Improvement[1]

	Commercial Market	Medicare
Number of Procedures	In 2011, there were more than 645,000 knee replacements and more than 306,000 hip replacements (American Academy of Orthopaedic Surgeons, 2014).	In 2014, FFS Medicare covered more than 400,000 procedures (U.S. Department of Health and Human Services, 2015).
Reason for Procedure	Joint replacements are most often due to osteoarthritis. Hip replacements may also be due to fracture.	
Spending by Payers	Knee replacement costs range from $11,317 to $69,654. Hip replacement costs range from $11,327 to $73,987 (Blue Cross Blue Shield Association & Blue Health Intelligence, 2015).	In 2014, on hip and knee replacement, FFS Medicare spent more than $7 billion (including cost sharing) for the hospitalizations alone (U.S. Department of Health and Human Services, 2015).

[1] The data in this table includes both elective and non-elective joint replacement, as well as joint replacements conducted for reasons other than osteoarthritis.

	Commercial Market	Medicare
Variation in Cost	The cost of a joint replacement procedure can vary by tens of thousands of dollars, depending on the geographic location. Variation can occur within the same metropolitan market. For example, in Dallas, a knee replacement can cost anywhere from $16,000 to $61,000, depending on the hospital. In Boston, a hip replacement can cost anywhere between $17,000 and $73,987. A study of 64 markets in the U.S. found that costs can vary up to 313% (Blue Cross Blue Shield Association & Blue Health Intelligence, 2015).	Medicare expenditures for surgery, hospitalization, and post-acute recovery range from $16,500 to $33,000, across geographic areas (U.S. Department of Health and Human Services, 2015).
Factors Affecting Variation	• Duplication of exams, imaging, and other diagnostics due to lack of communication between the surgical practice and the hospital. • Site of service; i.e. performing the procedure in an inpatient hospital setting when a less costly outpatient setting would be deemed safe and appropriate for a given patient. • Variation in the price paid for inpatient length of stay. • Delays and/or lack of coordination in transferring patients from hospital to post-acute care (home health, outpatient or inpatient rehabilitation, or skilled nursing). • Variation in value and cost of services, technology, equipment, and implants. • Variation in the use of standardized care protocols. • Variation in, and unnecessary use of, high intensity, post-acute care (PAC).	

Source: The MITRE Corporation.

Medicare, Medicaid, large purchasers, commercial payers, and providers have all developed clinical episode payment strategies for hip and knee joint replacement in an effort to reduce variation and thus positively affect overall costs and variation. As described in in Appendix C: Summary of Joint Replacement Initiatives Reviewed, joint replacement episode payment efforts tend to correlate with reduced use of non-value-added care, such as unnecessary post-acute care, lengthy inpatient hospital stays, avoidable complications and readmissions, all of which together contribute to better outcomes and experiences and lower total episode costs.

Recommendations: Elective Joint Replacement

The design element recommendations reflect the CEP Work Group's research and analysis on a range of existing episode payment initiatives for joint replacement (see Appendix C). See Chapter 2, Episode Payment Design Elements, for a summary of the recommendations described in more detail below.

1. Episode Definition

The episode is defined as an elective and appropriate total hip or total knee replacement due to osteoarthritis.

The recommendations in this chapter are based on defining the episode as a total hip or total knee replacement procedure[2] that is both **elective** and **appropriate.**

Elective: There are a number of reasons why this episode is defined around elective total hip and elective total knee replacement. Compared to lower extremity joint replacement due to fracture, elective joint replacement is higher volume and more predictable. Focusing on elective joint replacement then provides a higher value "target" than focusing on an episode that includes fractures and emergency joint replacement. It is also a more controlled clinical event, in which there are greater opportunities for patient engagement and shared decision-making. In addition, the pre-operative and post discharge care trajectories for elective joint replacement have an evidence base and are well-standardized, which can ease the way for wide adoption of this episode model. Finally, an elective procedure creates the opportunity for patients and providers to have a meaningful discussion about whether the procedure is truly appropriate, and/or whether there are alternative treatments that would better suit the patient's goals and values.

Appropriate: As noted previously, joint replacement is among the most common inpatient surgeries in the United States, and some estimate that the demand for this procedure will quadruple by 2030 (Ghomrawi, Schackman, & Mushlin, 2012). Finding data on how many of those joint replacement procedures were elective and appropriate, however, is not as straightforward. Stakeholders see joint replacement as a prime opportunity for applying appropriateness criteria in the course of determining whether or not it should be performed, or whether alternative, less invasive treatments are preferred by the person with osteoarthritis that can achieve similar or better functional outcomes at lower costs.

When appropriateness criteria were applied in other countries, studies found that 20% to 40% of elective joint replacement procedures were considered inappropriate, when using evidence-based criteria (Quintana et al., 2008; Van Walraven et al., 1996). The model described here is designed to include only those patients for whom the decision to have an elective joint replacement is evidence-based and, consistent with patient preferences and values.

Appropriateness will be determined via **both** the use of a functional status assessment tool **and** a meaningful, validated, shared-decision making process:

1. Evidence-based functional status assessment: For a patient to be included in the episode, there should be evidence that in addition to a clinical assessment, a provider used a **standardized, validated functional status assessment tool** to determine that the patient is an appropriate

[2] The episode definition does not include partial knee replacements or partial hip replacement due to their low volume in the Medicare population. Organizations that want to pursue adding these procedures to the episode should be aware that the cost is often higher than the cost for total replacement, which will factor into the episode price.

candidate for a surgical procedure, as opposed to being a candidate for less invasive care such as weight loss, activity modifications, non-steroidal anti-inflammatory medications, and exercise. The assessment should look not only at the functional capability of a patient's hip or knee, but also the pain that the patient is experiencing, optimization of modifiable risk factors (such as obesity, smoking, opioid tolerance, untreated depression or anxiety, and/or poorly controlled diabetes). It should also include an assessment of whether the procedure will meaningfully affect both function and pain levels.

Examples of Functional Status Assessment Tools

Some examples of provider-administered functional status tools are:

- Western Ontario and McMaster Universities Arthritis Index (WOMAC) score;
- Hip Disability and Osteoarthritis Outcome Score (HOOS JR);
- Knee Injury and Osteoarthritis Outcome Score (KOOS JR);
- Patient Reporting Outcome Measurement Information System (PROMIS); and
- Veterans RAND 12-item Health Survey (VR-12).

2. Meaningful Shared Decision-Making: In addition to formal assessment of pain and functional status, there must be evidence that the **patient, possibly with a family caregiver, has worked through a decision aid** that is highly rated according to International Patient Decision Aids Standards (IPDAS) with the support of a decision coach or a health educator, if needed (Ottawa Hospital Research Institute, 2014a). One example of a decision aid provider is Healthwise, a not-for-profit corporation that provides consumer health information to patients and caregivers, which has highly rated decision aids for both hip and knee replacement, as assessed by the IPDAS (Ottawa Hospital Research Institute, 2014b; Ottawa Hospital Research Institute, 2014c). Healthwise includes information about care options—including the pros and cons of each—and how to consider a patient's values and preferences as they relate to the care options.

   In addition to an initial shared decision-making, there should be evidence of ongoing engagement of patients in the discussion of care options and subsequent decisions related to the joint replacement procedure, if one is deemed appropriate. Primary care providers can perform this role, and in doing so, provide greater continuity of care to their patients. These providers could also support patients in reviewing comparative quality information about choice of surgeon, surgical facility, rehab services, and home health services at a time when the patient still have time to make proactive decisions about his or her treatment.

Ideally, both of these processes should be integrated into discussions with patients about appropriateness of care, and patients should be able to weigh in with their own values about the potential risks and benefits of the treatment options.

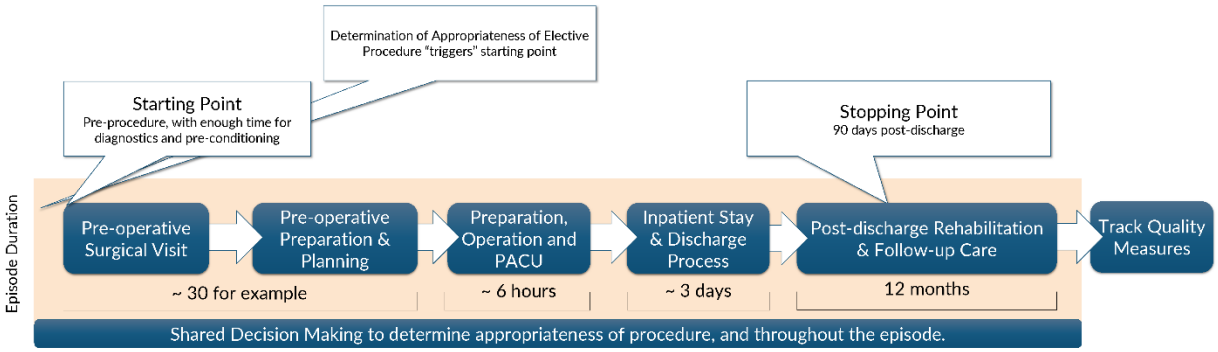
The Implementation Resources (Appendix F) includes information on Appropriate Use Criteria developed by organizations such as the American Association of Orthopedic surgeons. Providers and payers will need to determine how best to apply appropriateness criteria while avoiding the potential for limiting necessary care.

Finally, while functional status assessments and coaching/education are critical to making the initial determination that a procedure is necessary and appropriate, these are activities that should occur across the continuum of care to ensure that care is having the intended effect and that patients' preferences are reflected in the course of care.

2. Episode Timing

The episode should start pre-procedure (e.g. 30 days), and end 90 days post discharge (Figure 4) in order to include the most resource-intensive aspects of care for elective joint replacement patients. Accountability for functional improvement and performance measurement goes beyond 90 days.

Figure 1: Episode Timing



Source: Derived from Premier, Inc., and Institute for Healthcare Improvement. *Integrated Care Pathway for Total Joint Arthroplasty.* Charlotte, NC: Premier, Inc. and Cambridge, MA: Institute for Healthcare Improvement; 2013. (Available at www.premierinc.com and www.ihi.org)

Start and End Points

Optimally, the start and end points should be established based on the time when unwarranted (i.e. not evidence-based) variation in care begins and ends **and** when the opportunity to impact quality and outcomes is greatest (Figure 4). While defining start and end points is necessary, incentives can be created for services to be scheduled either before or after the dates in order to improve patient outcomes and decrease the costs of the episode. Therefore, an analysis of utilization patterns and outcomes should be built into the data analytics and monitored frequently in order to ensure that patient care is not inappropriately affected.

Episode Start Point: The episode should begin pre-procedure (as opposed to starting at the point-of-procedure), in order to create an incentive for reducing unnecessary or duplicative imaging and other diagnostics. The critical issue when determining the episode start point is ensuring that it provides an appropriate amount of time to achieve this goal, without creating perverse incentives to over- or under-deliver appropriate pre-operative care. Alternatively, the episode design could include care that is not directly related to the procedure. Based on the design of current initiatives, a reasonable starting point

may be 30 days pre-procedure. Operationally, this requires creating a look-back period, which an elective procedure by definition makes feasible.

An important factor to consider when setting the start point is the patient population. Older adults and Medicare beneficiaries may need a different time window than their younger counterparts who are covered by commercial insurance.

Episode End Point: The length of the episode after surgery is a critical decision point. This is because poor post discharge care coordination around auxiliary services such as post-acute care, rehabilitative treatment, home and community-based services and supports, and even delivery of medicines can be a significant contributor to costs and reduced patient outcomes. Based on the principle that the episode design should be patient-centered, and acknowledging the challenges patients experience during the rehabilitation period, the recommendation is for the episode to end 90 days post discharge. Even though costs may not vary as much in the latter days of the episode, the risk of significant complications continues throughout the 90 days; in fact, for many people, the recuperation period often exceeds that time period.

Current models feature end points that vary from 30 days to 90 days. This recommendation balances the ability of the accountable party to have some control over the patient's care (which would support a shorter episode) with the recognition that patients can benefit enormously from professional support in coordinating clinical and other post-operative services during recovery, which extends well beyond 30 days post discharge. One factor to consider in determining episode length is the specificity of the definition of the episode, including the inclusions or exclusions, as the more narrowly it is defined, the more comfortable providers will be with a longer episode.

Accountability: Quality measurement may include data for up to 12 months post discharge, even though the episode payment period ends 90 days post discharge.

3. Patient Population

The episode should apply to the broadest-possible pool of patients, using risk and severity adjustment to account for age and complexity.

Stakeholder views on which patients should be eligible for these episodes may vary significantly. Within the context of *elective* joint replacement, the patient population to which the episode payment applies should be broad.

Ideally, focusing on a broad population within the context of elective joint replacement will also motivate innovations in care and care coordination that will benefit the highest-risk patients, who are also highest in resource use. **Appropriately specified risk and severity adjustment algorithms applied to the episode price** are critical to this recommendation if the episode is to gain buy-in from providers.

It may also be useful to enlist the support of the primary care provider to ensure the proposed surgery episode is integrated within the context of the patient's other health concerns. It is also valuable to engage the family in shared decision making.

If concerns arise regarding the appropriateness decision, an appeals process should be established for those patients whose circumstances or risk cannot be identified through available data and might not otherwise be eligible. It is important to acknowledge that ineligibility for the episode does not necessarily mean the person would not receive care; their care would simply not be included in the episode payment initiative. This design will support the LAN's goals, while at the same time discouraging providers from "cherry-picking" the lowest-risk patients. A flip side to "cherry-picking" is the inappropriate selection of cases where conservative management is a more appropriate alternative to surgery.

4. Services

All services needed by the patient that are related to the joint replacement procedure should be covered by the episode price.

Stakeholder views on which services should be included may vary significantly. Payers may want to define the episode more broadly to capture as much variation and, thus, potential efficiencies as possible. Providers, on the other hand, may prefer more narrowly defined episodes so that care needs—and the associated costs—that are completely unrelated to total hip or total knee replacement do not weigh into the target price or quality metric goals for the episode. For example, a patient who receives a total knee replacement and requires a coronary artery bypass graft (CABG) procedure within the 90 days post-joint replacement discharge window should not have the costs of the CABG associated with the joint replacement episode. Too narrow an episode definition, however, might make the costs of implementation as compared to the value created not worth the effort.

This paper does not include specific MS-DRG codes to guide the selection of included service because the two relevant DRG codes (469 and 470) apply to all lower extremity joint arthroplasty procedures and specify only those procedures performed in an inpatient hospital setting. Thus, using these codes to define the services included in the episode may 1) result in including patients that do not meet the patient population or episode definition in this model; and 2) exclude outpatient procedures, which is not the intent.

Included Services: The episode payment should include delivery of all services billed in the defined time period *that are related to the elective joint replacement procedure*. Most initiatives (Appendix C) include all related services that occur within the defined time frame, including, but not limited to costs involving physicians, hospital/ambulatory surgical centers, devices, labs, home health services, skilled nursing facilities, physical therapy, and sometimes pharmaceuticals. Including pharmaceuticals and devices in the episode price and definition is important because they can be an expensive portion of the bundle.

There are two approaches to determining which services are considered part of the episode:

Define the Excluded Services: One approach focuses on defining a list of excluded services. For example, exclusions from the Comprehensive Care for Joint Replacement (CJR) Model final rule include hemophilia clotting factors furnished during the inpatient hospitalization, and acute surgery for unrelated conditions, such as appendectomy (Medicare Program; Comprehensive Care for Joint Replacement Payment Model for Acute Care Hospitals Furnishing Lower Extremity Joint Replacement

Services, 2015). These excluded services are identified based on Medicare Severity Diagnosis-Related Groups (MS-DRGs) and International Classification of Diseases-Clinical Modification (ICD-CM) diagnosis codes. If an initiative focuses solely on exclusions, recognize that the list is likely to be extremely long to avoid situations whereby patients or providers delay important services until after the episode ends. For example, if preventive services cannot be delayed simply because they are due to be performed during the episode of joint replacement and they are not specifically excluded, those costs would be considered part of the episode costs.

Define the Included Services: Other models rely on very specific lists of included services and exclude anything not on that list. Defining what is included, rather than excluded, might be more effective and easier to manage. Payers and providers should look to existing resources that provide evidence-based information about service inclusions and exclusions.

Patients with Multiple Concurrent Conditions: One challenge in establishing service boundaries is how to deal with complex patients with multiple concurrent conditions. For example, a patient with diabetes and coronary artery disease who receives a joint replacement may also require additional services related to their chronic illness within the 90-day episode period. While some of those services may clearly be outside the scope of the knee or hip replacement, others (e.g., treatment for a post-op heart attack) may be less clear.

The significant rise in joint replacements among patients who are obese and have co-morbid conditions such as diabetes and heart disease makes this a significant concern for payers and providers. While risk adjustment may address this in part, it is necessary to include sufficient accountability within the episode so as to appropriately care for common complications such as myocardial infarction, infection, deep vein thrombosis, etc. These are within the purview of the accountable entity if the appropriate involvement of the providers responsible for the ongoing care of these conditions is obtained throughout the time frame of the episode. For example, the tight control of diabetes has been shown to decrease the risk of these same complications.

5. Patient Engagement

Require use of shared decision-making and patient engagement tools, transparency of performance and the payment model, shared care planning, access to full health records, care coordination, and patient-reported quality measures in patient-facing materials to maximize opportunities to engage patients and families in advancing high-value care, both for themselves and overall.

As detailed in Recommendation 1 (Episode Definition) and Recommendation 2 (Episode Timing), the episode payment must be designed in a way that adds value for patients and their families and determines the best course of care. To summarize, accountable entities must provide:

- Evidence that a provider used a standardized, validated functional status assessment tool to determine that the patient was an appropriate candidate for a total hip or knee replacement; and

- Evidence that the patient, possibly along with a family caregiver, worked through a high-quality decision aid, with a decision coach or nurse educator, as needed and desired.

In addition, patients and family caregivers should be provided the following in a non-biased and transparent manner:

Comparative Provider Quality Information: Patients and family caregivers should have access to information about the procedure-related complication rates of possible surgeons and possible acute-care facilities; outcomes such as reduction in pain, gains in functional status, and quality of life; and information on the quality of possible post-acute care facilities and home health agencies. Patients should receive help shortly after deciding to have a procedure in identifying participating surgeons, facilities, and agencies, and in finding and interpreting relevant information about them. Such help should be available through clearly designated personnel without conflicts of interest. It is optimal for the patient to learn about, visit, and assess the quality and suitability of post-acute care options, including home health, skilled nursing facilities, and inpatient rehabilitation facilities, prior to admission for surgery. In addition, the accountable entity should identify providers included in the model and provide that list to patients.

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

Meaningful shared decision making requires both high-quality decision aids and a process that supports their use. This process can be described via the following steps: These aids support providers and patients in discussing the following:

1) Acknowledging that there is a decision to be made;

2) Explaining that there are care options, and each option has a different set of issues to consider;

3) Presenting the best evidence about the pros and cons of the care options; and

4) Acknowledging 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 the care provider to get answers to any questions, decide about the optimal path forward, and initiate shared care planning.

Reimbursement Transparency: 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 co-pay and co-insurance responsibilities and other cost sharing; and the manner in which care will be delivered.

Coordination Across Care Settings: In the private sector, this may mean engaging 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 related to choice of post-acute providers, after confirming that the patients still have freedom of choice. Regardless of payer, this involves providers and patients working together to identify participating and accessible post-acute care options, understanding their quality ratings, and making a wise 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.

Supported Care Planning: Providers should incorporate shared care planning into the delivery of care, which includes collaborative provider-patient goal setting prior to the procedure and ongoing decision making and monitoring using documented individualized care plans that are accessible to both patient

and providers. Patients with comorbid conditions that may affect their outcome should be encouraged to engage their primary care provider in their decision-making process.

Access to Health Care Information: For patient engagement to occur, patients (and, as desired, family caregivers) should have full access to health records to help understand and manage their condition and care. The goal is to provide infrastructure and support for gathering, storing, and using health data. One example of a tool that is providing access to these data is the successful Open Notes project, which is providing a growing proportion of patients to full access to their electronic health records (Bell et al., 2015; Esch et al., 2016; Walker, Meltsner, & Delbanco, 2015).

6. Accountable Entity

The accountable entity should be chosen based on readiness to re-engineer change in the way care is delivered to the patient and to accept risk. In this model, the accountable entity will likely require a degree of shared accountability, given the number of clinicians working to care for a patient.

Overall Readiness: The question of readiness to both re-engineer the care delivery model for the patient, and in the process, accept the financial risk they might incur, is central to the determination of what entity or entities should be accountable. There are a number of key requirements needed for success regardless of which entity (or entities) are held accountable (Table 5). Payers should work with the accountable entity to assess their readiness, and promote collaboration to allow for multiple providers within an elective total joint replacement 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. This process can require active participation across the continuum by aligning incentives across contracts in the private sector, because the payer often has contracts directly with providers. Medicare allows for full freedom of choice of provider in FFS, and the spreading of risk may take the form of a gain-sharing relationship. This is particularly important in a relationship whereby the providers are still paid a 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.

Factors to Weigh in Determining Readiness for Episode Accountability:

- Minimum volume standards;
- Ability to deliver, or contract for, the entire bundle of services to be rendered;
- Demonstrated ability to care for total joint replacement patients;
- Effective discharge planning capacities, including systems to include rehabilitation physicians and extenders early in the discharge planning process to help in identifying the proper trajectory of patients and their care;
- Ability to manage transitions or handoffs from one setting to another when necessary (e.g. entry, transitions, and discharge);
- Ability to track quality indicators and patient outcomes across an array of services and settings;

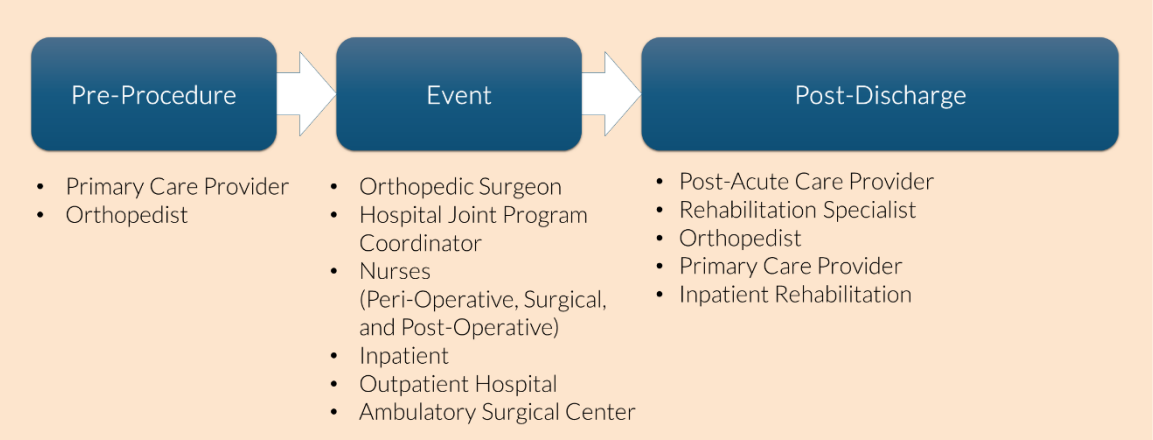
- Demonstrated dedication of the hospital, physicians, nurses, therapists, and other clinical professionals' time to the programs;
- Capacity to monitor patient clinical status and coordinate medical management and reconciliation as patients progress across acute and post-acute care settings;
- Ability to coordinate with other community services to foster the patient's independence;
- Necessary financial systems to administer payment across multiple entities; and
- Ability to tolerate financial risk, including post discharge outcomes, such as readmissions, and understand its own risk exposure.

Shared Accountability Across a Care Team: An ideal design would allow for shared accountability across multiple providers representing pre-operative, surgical, and post-acute care (Figure 5). These providers include not just orthopedic surgeons working in an inpatient setting, but also care settings such as emergency departments, ambulatory surgical centers (ASCs), outpatient hospitals, skilled nursing facilities (SNFs), inpatient rehabilitation facilities (IRFs), and other Post-Acute Care providers. They may also include other clinicians such as hospitalists and telehealth clinicians. Regardless of which entity is determined to be ultimately accountable, there must be recognition there are a number of key requirements needed for success. Payers should work with the accountable entity to assess its readiness to: 1) promote and support coordinated, collaborative care; and 2) allow for multiple providers within a joint replacement 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. It is useful to recognize that post-acute care entities may be set up to meet these criteria. [3]

In the private sector, the payer often has contracts directly with providers. Thus, this design, in which there is one accountable entity but multiple provider entities share risk and/or reward, will require active coordination across providers serving all parts of the care continuum. It will also require an alignment of incentives—by the payer or the accountable entity—across provider contracts, to all work toward a shared savings and high quality performance goal. In the public sector, with a payer such as Medicare that allows for traditional Medicare beneficiaries full freedom of choice of provider in FFS, the risk spreading may take the form of a gain-sharing relationship among providers who have received a Medicare waiver that allows them to do so. 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.

[3] The CMS Bundled Payments for Care Improvement (BPCI) Initiative includes two models (Model 2 and Model 3) that include Post-Acute Care, with Model 3 defined as having the PAC provider serve as the accountable entity.

Figure 2: Examples of Joint Replacement Accountable Entities, Based on Care Team



Ability to Engineer Change: The pre-procedure orthopedic surgeon may be most able to effect change in an elective joint replacement episode, given his or her role in determining appropriateness, and engaging the patient in care planning and post discharge PAC decision-making. However, assigning accountability to the orthopedic surgeon may not be feasible in some markets. Risk levels may vary depending on the attributes of the accountable entity. While it is important that one entity be the primary accountable party, it is also important that care is provided using a team-based approach. Payers can use their negotiations with providers and use gain-sharing 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 joint replacement episode payment initiative's goals and establish that provider as the accountable entity.

Public and private models are mixed. Sometimes the hospital is the accountable entity, but sometimes it is the physician practice (often the orthopedic surgeon or practice). In many cases, the clinician can have the greatest impact on care re-design, because establishing a physician-level champion can ease the episode's management process. The clinician can lead the design and implementation of new patient care protocols; determine the best prosthetic devices; and communicate with the patient's post discharge provider more easily than the hospital. Further, the discussions with patients regarding appropriateness and expectations on functional improvements are most effective if the physicians are fully engaged.

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 the next recommendation.

In the CJR program (Medicare Program; Comprehensive Care for Joint Replacement Payment Model for Acute Care Hospitals Furnishing Lower Extremity Joint Replacement Services, 2015), CMS determined that the hospital—in comparison to other health care facilities—is best positioned to manage the care in an effective manner. This is based on the idea that hospitals have resources to coordinate and manage care, **and** hospital staff are involved in discharge planning and PAC recommendations for recovery. The regulations allow 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. In the Acute Care Episode demonstration implemented by CMS, while the hospital was the accountable entity, it was considered critical to get the physicians involved. In that initiative, hospitals were able to utilize gain-sharing to engage physicians.

See the Chapter 6, Operational Considerations, for a discussion on two related issues. First, in the data infrastructure section is a discussion of the structures necessary to facilitate coordination and communication across members of the care team and between clinicians and patients. Second, in the regulatory environment section, is the discussion of how state laws may affect how much risk providers are allowed to incur. For example, some states' laws and regulations are supportive of hospitals to serve as the accountable entity, rather than a physician or physician practice.

7. Payment Flow

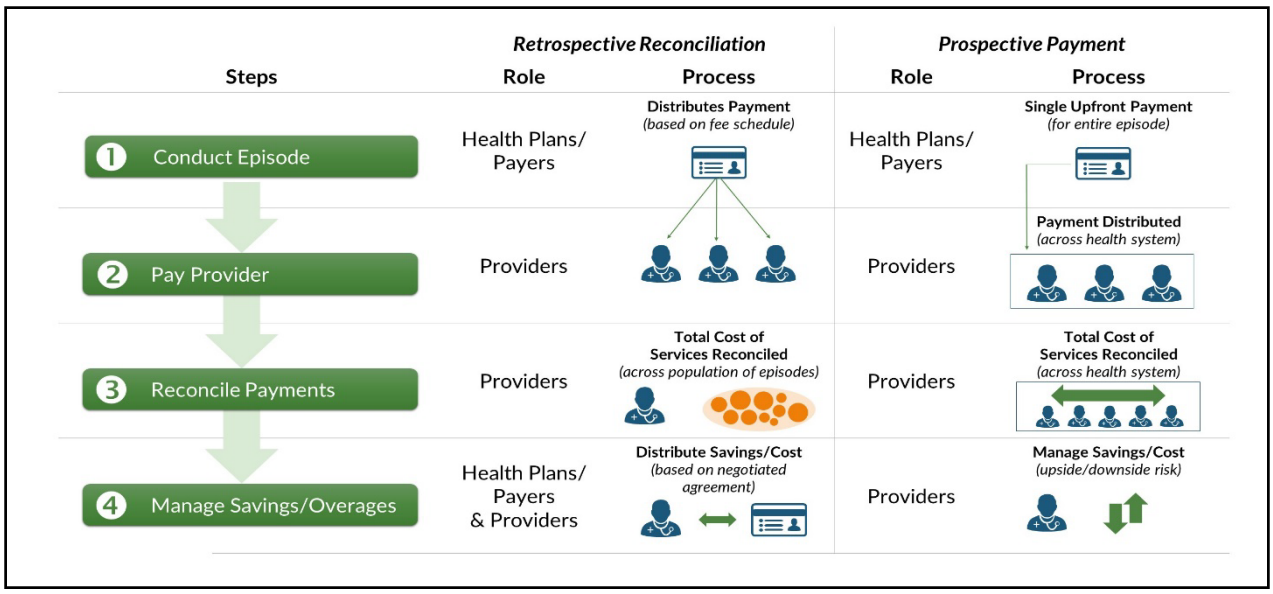
The unique circumstances of the episode initiative will determine the payment flow. The two primary options are: 1) a prospectively established price that is paid as one payment to the accountable entity; or 2) upfront FFS payment to individual providers within the episode with retrospective reconciliation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

Episode payments are typically dispersed via either prospective payment or retrospective reconciliation (Figure 6).

In **Prospective Payment**, payment is provided for the entire episode of care, 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 established prospectively based on what is deemed to be appropriate care for the episode, 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 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 and/or the patient. 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 parameters of federal laws that may impact their design. See Chapter 6, Operational Considerations.

Figure 3: Retrospective Reconciliation vs. Prospective Payment



Prospective payment is generally felt to provide a stronger stimulus for care redesign through greater coordination of care across providers and care delivery settings, but it is only an option in some circumstances. These may include 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, value-added services, or to deliver services that—while covered under traditional FFS—are underutilized, such as coordination services that link patients recovering from an elective joint replacement with community supports, transportation, and other wrap-around services that are instrumental to ensuring patients receive the post-acute care and rehabilitation therapy that they need to achieve a positive outcome.

Currently, most episode of care payment models flow through a retrospective reconciliation system due to the challenges inherent in operationalizing prospective payment in the prevailing open, non-integrated health care environment. As noted above, retrospective reconciliation is more prevalent in current episode initiatives, as it does not require providers to develop the capacity to pay claims, keeps better track of the resources used in the episode (using administrative claims), and can be built on a legacy payment system. However, the recommendation is to consider prospective payment where possible. Prospective payment is a clear break from legacy FFS payment and may serve as a foundation

for greater innovation in the quality and coordinated care delivery needed to make episode payment successful. Further, if a prospective payment is shared among providers, it negates the incentives of the FFS payment and creates important buy-in for care redesign.

Prospective payment may work best in the context of a health system that already integrates hospital and physician care, as the monetary relationship among the key providers is already established. However, even under prospective payment, it is critical to maintain a record of specific services delivered that may still involve some degree of FFS payment. This will allow for analyses of best practices that lead to greater efficiencies, including lower levels of complications and functional improvement. One caution on prospective payment in a FFS Medicaid program is that there may be regulatory barriers for one provider assigning payment to another. Legal counsel should be sought in this scenario.

8. Episode Price

The episode price should strike a balance between provider-specific and multi-provider/regional utilization history. The price should 1) acknowledge achievable efficiencies already gained by previous initiatives; 2) reflect a level that potential provider participants see as feasible to attain; and 3) include the cost of services that help achieve the goals of episode payment.

The episode price is critical. It ultimately determines the monetary rewards or penalties that a provider may experience. It can also play a role in creating the incentives that determine how care is delivered and whether the goals of the episode are prioritized. There are several key aspects that interact in the establishment of the episode price, described below.

Look-Back Period for Historical Data: The appropriate look-back period for historical data should be set according to two variables: number of cases that occurred, and the number of years. For elective joint replacement, a two-year period should yield a sufficient number of cases on which to determine a reasonable episode price. Severity adjustment (described more fully below) can be employed to explain much of the variation in costs of care that are within a reasonable distance from the average cost within that time period. It should be noted that there is no way to completely eliminate measurement error in this process, but it can be reduced by using a large enough sample size; thus, the reliance on number of cases may be prioritized over the number of look-back years.

One challenge with defining a look-back period by years and/or number of cases is that the number of years and cases will vary depending on whether the episode is broadly defined (i.e. includes a wider range of services) or more narrowly defined (i.e. includes a smaller range of services). To address this challenge, implementers may think about the look-back for historical data within the context of setting a target margin of error. This margin can be defined as a factor of the number of cases, and the underlying distribution and variability of episode costs. A more broadly defined episode will require more cases in order to achieve a reasonable margin of error, while a more narrowly defined episode will be able to fall within that margin by using fewer cases.

Balancing Regional and Provider-Specific Data: Once the look-back period is determined, the cost data should reflect a mix of provider and regional claims experience. The goal of including regional, rather

than market-level data is to ensure that there is enough variation in episode cost. This mix will also ensure that the established episode price takes into consideration the unique experience of the specific provider, and that the goals are set based on what is feasible in the region. Risk adjustment will be needed during this process to adjust for the unique characteristics of the population the provider serves. If the payer is a national payer, it may be more difficult to address specific provider issues and will require consideration of the use of national claims experience to ensure equity across regions. Over time, as performance becomes less variable, it may be useful to lessen the proportion of the episode look-back period that is based on the organization's specific experience.

Regional Costs: As noted above, using regional-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 fully representative of what is possible in that region. It also addresses the variability that may exist for a provider with a low volume of cases. 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 or will achieve lower savings. In essence, these regions (or the providers in them) will argue that an efficient region will be "punished" for their 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. In situations where a region is not large enough to reflect sufficient variation across providers, a larger region may need to be defined.

Provider Costs: Provider-specific costs are the actual costs for the previous patients of the provider now responsible for the patient episode. For example, if a hospital is accountable, the analysis would be conducted using the current episode definition and applying it to patients who received joint replacements over the last two years. The challenge is that while these costs may be accurate for a given institution, they may build in already gained efficiencies that make it more difficult for an already-efficient group of providers to achieve savings or build in inefficiencies that limit the savings for the payer. Another challenge is in using provider costs in a way that does not inhibit traditionally high performers from continuing to strive for excellence and improvement. One way to address this is to use multi-provider cost averages, which can create a "pay for performance" model, versus a "pay for improvement" model which can benefit poor performers disproportionately.

Incentivize More Efficient Levels of Practice: In addition to historical provider and region-level data, the episode price should be based on the performance of the better performers in a particular market, such that all providers can see that the episode price and the quality metric performance thresholds are feasible to achieve. If a provider's performance is already at a relatively efficient level, it will need to see some reward for that achievement at the same time that low performers will have an incentive to improve.

The episode price can be revised over time to ensure continual improvement by both the more and less efficient providers. In this way, the episode price automatically integrates savings and simultaneously incentivizes a compression of variation in cost and quality across all providers. Finally, the episode price should take into account services that are historically under reimbursed, and thus, underused, but are of high value to the patient. Care coordination, patient engagement, shared decision-making, and assessment of patient-reported pain and function are examples of services that could fall under this category.

Other Factors Impacting Episode Price

There are many other factors that should be used in developing the episode price, though the ability to do so will depend on the availability of data and analytic tools. For further discussion on this topic, please read the paper on Financial Benchmarking, click here.

Factors impacting price include:

Socio-Economic Status of the Patient Population: There are a number of socio-economic factors that have a significant impact on a patient's health status prior to the joint replacement procedure, access to care, and post-procedure rehabilitation and follow-up care. These include income, health literacy, living status (living alone, living in a community without family or other supports nearby), availability of transportation (both in general, and to care settings), and others. Certain socio-economic factors may align with a specific payer category, whether it be Medicare or commercial payers.

Public vs. Private Payers: There are differences between public and private payers that should be acknowledged and reflected in the episode pricing. In addition to the socio-economic status of the patient population, as described above, there is also a difference in how overall pricing is set. For private commercial payers, pricing is an element of negotiation; in the public payer realm, prices are set by the public payer. Either way, this will impact the level at which the episode price is set, as will the market in which the payer operates. Most private sector payers will need to negotiate with providers on the episode price, particularly if participation is voluntary. If the initiative requires participation, it may be easier to establish an episode price, as is the case for the CJR.

Trusted Empirical Data: One challenge is the ability for payers and providers to understand the variation in the costs of the episode across their region. Determining the appropriate price requires empirical data from a trusted source. The availability of these data to identify the opportunities for efficiencies is critical to the success of these initiatives.

Episode Payment Flow: The episode price can be set retrospectively in an episode model for which retrospective reconciliation is the selected payment flow. Similarly, the price can be set prospectively in a model designed around prospective payment. Thus, setting the episode price and the payment flow should be part of an integrated process.

Patient and Family Definitions of Value: Information on the types of services that are most valued by patients and their families should be considered in determining the episode price. This information would not typically be captured via historical data, but rather via engagement between providers and their patients, as well as between purchasers and their employees.

Multiple Ways to Build in Savings for EJR Episodes: One commercial bundled payment model, the PROMETHEUS payment model, builds in an assumption of a lower level of costs for complications and readmissions and adjusts the episode price accordingly. On the other hand, the original Geisinger model's ProvenCare™ warranty strategy built in an assumed 50% decrease in complications into its warranty price. Meanwhile, other payers build in savings, regardless of whether the calculation is based on provider or region-specific estimates or decreases in readmissions or complications. CMS built in a set discount factor of three percent and allowed for the episode price for the CJR to be set using a mix of hospital specific and regional data, shifting to a more regional approach over a five-year period. The provider's performance on key quality metrics can be utilized to lower the discount factor if its performance is high enough.

9. Type and Level of Risk

The goal should be to utilize both upside reward and downside risk. Transition periods and risk mitigation strategies should be used to encourage broad provider participation and support inclusion of as broad a patient population as possible.

The goal when setting an episode price should be to incorporate both upside reward and downside risk. Absent downside risk (where the actual costs of care exceed the target episode price), the accountable entity and other providers involved have less incentive to make the necessary changes in how care is delivered to create efficiencies and improve patient outcomes. Further, increases in the cost of care from year to year often negate the benefits of upside sharing of savings, particularly when the episode price is based on historic data. However, taking on downside risk may be difficult for smaller providers, including many physician practices, that are also the most able to make the necessary changes in a joint replacement episode of care.

To address these concerns, payers can utilize strategies to limit that risk or to transition (phase in) the downside risk over time. This is particularly important if the initiative is voluntary and participation would be limited absent the option for upside reward only. Decisions about type, level, and timing of upside reward and downside risk illustrate tensions between payers and providers: certain risk arrangements may be more acceptable to payers than to providers, and vice versa. Consequently, in the private market, these factors become part of the ongoing negotiations among network participants and payers. Regardless of the mechanism used to limit risk, it is critical that the methodology for developing that mechanism be transparent, as well as modifiable, depending on the timing of the procedure.

Safety Net Providers and Risk

A primary goal in designing any alternative payment model arrangement is guarding against unintended consequences. In episode payment for elective joint replacement, the unintended consequence that concerns all providers – but perhaps safety net providers most of all – is the potential for decreased access to care for patients with poor health status, which puts them at increased risk for poor outcomes. This may be correlated with lower socio-economic status if the provider feels that it will not be possible to provide the full continuum of care and achieve positive outcomes within the episode price. Safety net providers in particular may need time to develop adequate reporting and staffing infrastructure; and build relationships across historically siloed organizations in order to feel prepared to take on the risk in an episode payment model.

Mechanisms for Limiting Risk: The level at which those risk limits are set is a critical design element. There are a number of issues to consider, such as whether the accountable entity will be required to pay the *full* difference back to the payer between the established episode price and the actual episode costs or whether limits will be established. Limits are especially important considering that a provider is often also accountable for care provided by several other providers across the episode. What the accountable entity is paid through FFS payment is typically not sufficient for them to pay back a payer if the costs over the episode price are due to higher-than-

expected utilization of other providers' services across the episode. Therefore, following are strategies used by various initiatives to limit risk in an episode payment:

Risk Adjustment: Risk adjusting the episode price, based on the severity within the population in the elective joint replacement bundle, is one risk-mitigation strategy. There are a variety of approaches to capturing patient characteristics, disease status, and other parameters that predict episode expenditures. For example, the Health Care Incentives Improvement Institute's (HCI3) evidence-based case rates (Health Care Incentives Improvement Institute, [n.d.]) create a variety of patient-specific episodes that re-calibrate based on various patient-specific severity factors. Another example, the Medicare Payment Advisory Commission, in its analysis of bundling, utilized various risk adjustment tools,[4] including markers of functional status and co-morbidities, to adjust the underlying episode for their analysis. For further discussion on this topic, please read the paper on Financial Benchmarking, click here.

Stop-Loss Caps, Risk Corridors, and Capital Requirements: Other options for limiting the level of risk include: Limits at both the individual and aggregate levels that could be included as stop-loss insurance; risk corridors that limit exposure and gains (CJR includes a ramp up of the exposure from an upper limit of 5% of the target price to 20% of the target price by year five (5) of the model); and some level of capital requirements to cover the losses. Another consideration may be to limit the risk for any entity to some portion of the overall costs of the episode based on the accountable entity's role in the episode.

Interaction Between Risk Mitigation Strategies: Illustrating the interaction between risk adjusting the episode price and other risk mitigation strategies, for one existing joint replacement episode payment initiative, a payer decided not to risk adjust the price, but, instead, established a risk corridor that capped exposure at 115% of the episode price. This method limits provider exposure, avoids the complexity of risk adjusting, and provides a set target.

10. Quality Metrics

Prioritize use of metrics that capture the goals of the episode, including outcome metrics, particularly patient-reported outcome and functional status measures; use quality scorecards to track performance on quality and inform decisions related to payment; and use quality information and other supports to communicate with, and engage patients and other stakeholders.

Episode payment encourages better communication and coordination of care across providers. This puts the patient at the center of the care across settings and helps achieve the goal of improving quality, providing positive patient experiences and patient outcomes, and doing it all within a defined price to reduce unnecessary care.

[4] http://www.medpac.gov/documents/contractor-reports/sept13_episodebundle_contractor.pdf?sfvrsn=0

Quality measurement is critical to achieving all of these goals. Quality measures may be used to hold providers accountable for the quality of care being given, the level of resource use, and a patient's experience with the care. Accountability requires the use of process measures as well as outcome measures (clinical and patient-reported). It also requires measures that reflect care across settings as well as within individual provider settings. Patients need provider-specific performance scores to assist them with selecting individual providers, and providers need to know that patients are experiencing positive outcomes across all settings within the episode.

The CEP Work Group recommends using Patient-Reported Outcome Measures (PROMs) and measures of functional status pre- and post-procedure for accountability purposes, and additional clinical outcome measures should be considered for both accountability and payment.

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 CEP Work Group supports these principles whenever they can be met with measures that incent priority opportunities for improving elective joint replacement care. A measure that meets these criteria without the potential for clear benefits for patients would not be fit for this purpose and is not recommended. The Work Group is not including recommendations for specific quality metrics at this time.

Measuring and tracking performance on quality are critical for the success of clinical episode payment. Measures of quality must be identified, and the manner in which information on the performance on quality will be used must be defined. To do so requires:

- Selecting **clinical and patient-reported outcome measures, and functional status measures** to track provider performance for services delivered within the episode to ensure that the fiscal savings incentives do not incentivize lower quality care but improve quality;
- Creating a **quality scorecard** with performance thresholds or benchmarks against which performance is assessed and used to inform payment; and
- Using quality metrics for **communicating information to consumers and patients** in a way that is meaningful and supports patient engagement.

Prioritize Use of Outcome Measures (Clinical and Patient-Reported), and Functional Status Measures

Defining quality metrics for episodes can be challenging. Many quality measurement metrics are designed for measuring the quality of care in a single setting of care and not for observing quality over multiple settings. For example, with hip and knee replacement, complications in a hospital do not measure what may have happened in a post-acute setting where the improvement in functioning is a primary goal. Another issue is that some metrics were designed for broader topics, such as patient experience surveys of a hospital experience, and may not be designed to capture key attributes of the patient experience specific to joint replacement episodes that occur over time and over multiple settings and providers.

There are metrics available today for measuring the quality of the surgery, aspects of the patient experience, and to assess pain and functioning pre- and post-procedure (as described in Recommendation 1, Episode Definition). Patient experience survey measures should include questions about patients' experience with pain and pain management; functional status assessments should include measures of ambulatory function, and should be conducted immediately post-procedure and at six-month intervals through the duration of the 12-month quality measurement cycle.

There is not a standard number of measures that should or must be used to support elective joint replacement episode payment. The prevailing wisdom is to seek to use less measures, but make those measures more powerful in terms of how much information they impart about the care delivered. Examples include standardized and consensus-based measures of complication rates and hospital readmissions, which can provide information about the relationship between reducing costs of care and the effects on quality. Standardized measures of complications and readmissions are aligned with the goals for lower costs as the lower the rates of complications and readmissions, the lower the costs of the episode.

Finally, all outcome measures used to determine payment or reported to patients must be accurately risk adjusted to account for a range of complexity in the patient mix. In considering which measures to implement, one resource is the Orthopedic Measures Core Set, Version 1.0 (Table 5), developed by the Core Quality Measures Collaborative (CQMC) is not meant to be an exhaustive list of what is available. Rather, it is a core set of measures developed by a multi-stakeholder effort aligned at implementation by private and public payers.

Table 2: CQMC Consensus Core Set: Orthopedic Measures, Version 1.0

Consensus Core Set: Orthopedic Measures, Version 1.0[5]

• Hospital-level risk-standardized complication rate (RSCR) following elective primary total hip arthroplasty (THA) and/or total knee arthroplasty (TKA)
• Hospital-level 30-day, all-cause risk-standardized readmission rate (RSRR) following elective primary THA
• Surgical Care Consumer Assessment of Healthcare Providers and Systems (CAHPS):
  • Information to help you prepare for surgery;
  • How well surgeon communicates with patients before surgery;
  • Surgeon's attentiveness on day of surgery;
  • Information to help you recover from surgery;
  • How well surgeon communicates with patients after surgery;
  • Helpful, courteous, and respectful staff at surgeon's office; and
  • Rating of surgeon.

Source: Core Quality Measures Collaborative; https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/QualityMeasures/Core-Measures.html.

Patient Experience of Care: Given the central role of care coordination to episode payment, payers use patient experience surveys to assess whether patient-provider interactions are supporting the goals of the payment initiative. For example, the CJR initiative plans to utilize the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) (Centers for Medicare & Medicaid Services, 2014)

[5] The CQMC is currently overseeing a work group on Patient Reported Outcome and Patient Experience measures, which is reviewing the following measures related to hip and knee replacement.

patient experience survey for this purpose. Surgical-CAHPS (S-CAHPS), which is designed for surgical episodes, is more specific to the present context and is included in the CQMC's orthopedic core set (Centers for Medicare & Medicaid Services, 2016).

PROMs: Patient-reported outcomes, particularly those related to functioning and pain, are critical in elective joint replacement episodes because these are the two key problems the procedures are designed to solve. Functioning and pain should be measured both pre- and post-procedure. Given that a patient assessment should be done as a requirement for a patient to be included in an episode payment initiative, the same tool should be used prior to the procedure and at defined intervals after the procedure to ensure standardization and measure improvement. Several assessment instruments are utilized in post-acute settings that include these types of items and can be evaluated to determine their utility in joint replacement episode payment. At this time, the CEP Work Group recommends that a patient's change in functional status should not affect payment, rather payment should be based on the use of these pre- and post-procedure assessment tool).

As part of this work, the CQMC is reviewing NQF measures 0422 (Functional status: knee impairments, using Focus on Therapeutic Outcomes knee PROM) and 0423 (Functional status: hip impairments, using Focus on Therapeutic Outcomes hip PROM). The CQMC work group is also reviewing NQF 2653: Average change in functional status following total knee replacement surgery, using the Oxford Knee Score.

Quality Scorecards

Most episode payment initiatives use a quality scorecard with defined thresholds that a provider must meet or exceed in order to receive either the full reimbursement for an episode or the full shared savings possible. However, decisions on where those thresholds are set or how they are used should be up to the payer and provider to negotiate (this applies to the commercial market; see below for comparison with the public sector). Some initiatives vary the level of shared savings based on performance on the metrics, while others also use minimum performance levels as a threshold for receiving any portion of the savings. Issues that must be considered when developing quality scorecard thresholds include:

Collecting Sufficient Data: It is important to collect sufficient data to inform the threshold levels. This is of particular concern when it comes to using measures such as a functional status tool. Since use of these tools is relatively recent, there may not be enough information on where the threshold should be set.

Driving Quality and Patient Safety Improvement: While in the initial years of episode payment the thresholds may be set to allow for the greatest opportunity for sharing savings, the goal should be to set thresholds at a point that incentivizes innovation in care improvement over time, which ultimately will drive quality and patient safety improvement.

Lack of Alignment: There may not be alignment between public sector and commercial sector episode payment models when it comes to a quality scorecard design. Commercial payers have a different ability to negotiate payment related to performance with their providers than CMS or the states. In addition, the threshold levels may vary given the difference in their populations, which may make alignment across sectors challenging. However, efforts such as the CQMC, which represents collaboration among CMS, AHIP, and the National Quality Forum, are seeking to address this issue.

Note that quality measures are needed for use in payment and for consumer information; however, one concern is that providers may not be as willing to take on patients at risk for poor outcomes if these

types of outcome measures are used in tandem with payment. Another concern is whether stakeholders have confidence in the quality of the metric itself.

Quality Information to Communicate and Engage with Patients

In addition to using information on quality to determine payment, it is important for other stakeholders to have access to data on quality. To be informed on the outcomes across settings, patients need quality data (ideally prior to making the joint replacement procedure decision) about the physicians, surgeons, hospital, and post-acute care providers, particularly if they have a choice of provider teams and/or settings in which to receive care. Currently, there are gaps in the availability of such data, as well as a lack of research on the extent to which consumers (or payers) find such information useful.

To make optimal use of available comparative quality information, consumers should have access to personnel who can help them identify and interpret information relevant to their circumstances, and who are not unduly conflicted, allowing them to provide helpful, disinterested advice and recommendations to the patient.

Employers and purchasers need to make data on quality available to employees to support their use of providers that offer bundled payment for joint replacement. Specifically, employees need to understand the bundle and what their role is in receiving high-quality care.

Primary care providers hoping to enter into bundled payment contracts will want data about specialty physician quality performance in order to determine which bundled arrangements would be most beneficial to their patient population.

Finally, episode payment design must build in the capacity to collect, analyze, and provide data and support patients in identifying and interpreting this information. It is important, therefore, to establish cross-cutting efforts to define metrics and systems for data collection and analysis. But it is a significant burden for each initiative to define its own metrics, collection system, and scorecard. Consequently, one place to look would be the CQMC process for defining metrics and the use of existing reporting mechanisms, such as Hospital Compare, Physician Compare, Nursing Home Compare, and Home Health Compare, which provide relevant information on the quality of their care on hip and knee replacements and rehabilitative services. Clinical registries also have experience with collecting and analyzing rich data on complications and other outcomes for joint replacement. Broader efforts are needed to build the necessary infrastructure for meaningful development and use of quality performance information, and building these systems is one of the key challenges discussed in the Operational Considerations section of this White Paper.

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Health Care Payment Learning & Action Network

CLINICAL EPISODE PAYMENT MODELS

MATERNITY CARE

Chapter 4: Maternity Care

Background

Pregnancy and childbirth are pivotal events in a woman's life, framed by both the overall care experience and the actual birth event. During pregnancy, women are concerned with many things, including the healthy development of the baby, the labor and birth experience, and how they will take care of themselves and their newborns postpartum. Interactions with the health care system during this time create opportunities to address and allay these concerns by laying a strong foundation for the ongoing health of the woman, her baby, and her family as a whole. Often prenatal care, labor and birth, and postpartum care are viewed and delivered as three distinct periods. However, by viewing them as three phases within one episode, there is a potential for incentivizing the types of interactions and care delivery that support positive outcomes.

Positive outcomes for maternity care can be defined and achieved in a variety of ways, such as:

- A greater percentage of appropriate vaginal births;
- A greater percentage of full-term babies born at healthy weights;
- Strong recoveries for women; and
- Healthy starts for the babies.

Thoughtful episode payment seeks to achieve these outcomes at a lower overall cost to the system, and at a lower cost to women and families. The Work Group's recommendations provide guidance on how to achieve this goal without becoming overly prescriptive about the exact mechanisms for doing so.

In maternity care today, there are a variety of payment mechanisms. Payment often includes a global fee for professional services for prenatal care, and the management of the labor and birth. It will sometimes also include postpartum care. Facility fees for the actual birth are typically paid separately, with higher fees in the event of a birth by cesarean section. There are also separate facility and professional fees for the newborn. These different payment mechanisms are often associated with overuse of high-cost interventions and underuse of low-cost interventions, which leads to less-than-desirable outcomes for women and their babies, despite the fact that the maternity population is generally healthy. It is also important to note that maternal mortality in the United States has risen over the past 30 years (Centers for Disease Control and Prevention, 2016). By providing incentives for the provision of higher-value practices, and for care coordination across the continuum of services and providers, episode payment can potentially have a significant impact on both the short and long-term health of a woman and her baby, and on the health of American society.

Childbirth is the most common reason for hospitalization in the United States. In 2009, combined maternal and newborn stays represented 23% of all hospital stays (Agency for Healthcare Research and Quality, 2011). According to Healthcare Cost and Utilization Project (HCUP) data, while charges billed by hospitals represent a significant over-estimate of actual payment, such charges totaled $127 billion in 2013 (actual payments are roughly half of billed charges). These charges do not include professional fees or other settings of care across the episode. In addition, hospital-billed charges increased more than 90% between 2003 and 2013 (Agency for Healthcare Research and Quality, 2003; Agency for Healthcare Research and Quality, 2013).

A study by Truven Analytics shows the cost of birth varies significantly by payer, type of birth (vaginal or cesarean section), and setting where the birth occurs (see Table 6). In 2013, the average total maternal-newborn payments for cesarean births, including all facility and provider fees for prenatal, labor and delivery, and postpartum/newborn care, was $27,866 for a commercial payer and $13,590 for Medicaid. For both payer types, total payments for cesarean births were roughly 50% higher than for vaginal births. One of the reasons that cesarean birth costs more is that there are 50% higher neonatal intensive care unit (NICU) payments associated with these surgeries, compared to the percentage of vaginal births requiring NICU stays. Further, the fact that women who experience a cesarean once often have repeat additional cesareans adding to system costs.

Table 1: Costs and Disparities in Maternity Care

	Commercial Market	Medicaid
Volume (HCUP 2013) * Medicare, Other, or Uninsured Accounted for the Remainder	2,012,584 births (48.99%)	1,811,759 births (44.10%)
Payment Variation by Payer and Type of Birth (Truven, 2010)	Vaginal: $18,329 Cesarean: $27,866	Vaginal: $9,131 Cesarean: $13,590
Significant Opportunities for Improved Outcomes	• Reduce cesarean rates: Current average of cesarean is 32.2%, up 60% from the most recent low of 20.7% in 1996 (Osterman & Martin, 2013). WHO data find that cesarean rates higher than 10% are not associated with further reductions in infant or maternal mortality (World Health Organization, 2015). • Reduce pre-term rates: 9.57% of births are pre-term. The American College of Obstetricians and Gynecologists (ACOG) recommends no early births unless medically indicated (Hamilton et al., 2015). • Increase in births occurring in the highest value setting: Vaginal births are 50% less costly in birth centers than in hospitals (Hamilton et al., 2015). • Reduce infant mortality rates: Infant mortality is higher in the United States than in 38 other countries (World Health Organization, 2014). • Reduce maternal mortality rate in the United States, which has doubled since 1987 (World Health Organization, 2014). • Reduce racial/ethnic disparities: The prevalence of pre-term births for non-Hispanic white is 8.91%, non-Hispanic black is 13.23%, and Hispanics is 9.03%, with additional significant disparities in infant mortality and low-birth weight babies (Matthews & MacDorman, 2013).	

The setting in which a woman gives birth also affects the cost, as well as the type of delivery. The average national cesarean rate in the United States is currently 32.2% (Matthews & MacDorman, 2013; World Health Organization, 2015). Just as with other surgical procedures, there is significant, non-

clinically supported variation in cesarean rates across hospitals. Even hospitals in the same city show wide variation. For example, Jersey City Medical Center, near Newark, N.J., reported a 35% cesarean section rate for low-risk women, compared to a 19% rate at Trinitas Regional Medical Center in nearby Elizabeth, N.J. (Haelle, 2016). In California, rates varied from 18% in one hospital to more than 50% in another, according to a recent study (Main et al., 2011). Healthy People 2020 calls for a reduction in nationwide cesarean rates for low-risk women to 23.9% by 2020.

For women who choose a midwife and/or a birth center for their primary care provider and birth setting, respectively, the costs are significantly less than in a hospital. Of course, part of this is due to the fact that birth centers do not provide cesarean section procedures. There are occasions when a woman chooses a midwife to manage prenatal care and a birth center for labor and birth, but ultimately delivers in a hospital due to complications. The costs in this scenario are still lower for vaginal birth if a midwife managed the prenatal care and subsequently manages the hospital birth (Howell et al., 2014). The use of community-based settings, such as birth centers and home births is growing. In 2014, 18,219 babies were born in birth centers while another 38,094 babies were born at home (MacDorman, Matthews, & Declercq, 2014). However, the vast majority of births in the U.S.—98.6%—still take place in a hospital setting (Hamilton et al., 2015).

These data demonstrate that too often the resources spent on maternity care services are not leading to the highest value birth care. The fact that the United States has a higher rate of infant mortality than 38 other countries and a lower successful breastfeeding rate than 98 other countries reflects this (World Health organization, 2014). It is also reflected in the 9.57% pre-term birth rate in 2014. Finally, there are significant racial and ethnic disparities in birth outcomes. Non-Hispanic black babies are at more than twice the risk of dying at birth compared to non-Hispanic white babies (Centers for Disease Control and Prevention & Health Resources and Services Administration, 2012).

The good news is that evidence-based care practices can deliver higher quality care at a lower cost. For the majority of low-risk births, lower resource-intensive births correlate with positive outcomes. There is no single definition of low-risk birth. However, Healthy People 2020 used this definition to define low-risk for cesarean sections: Full-term, singleton, and head-first presentation. Data from the National Center for Health Statistics show that as many as 80% of births meet this definition. If the percentage of safely achievable vaginal births for these lower risk pregnancies were to increase, resulting in a decrease in cesareans, overall birth costs would decrease. Outcomes should improve as well because vaginal births have fewer complications. Further, with a decrease in the rate of early elective and pre-term births, fewer babies would need high-cost NICU care, and babies would have higher survival rates and a healthier start to life. At the same time, those at elevated risk from such conditions as gestational diabetes, obesity, or twin pregnancy can benefit from personalized care fostering healthy outcomes.

Although the relationship between quality of care and better health outcomes is recognized by the field, this relationship is not always reflected in the current U.S. payment system, which is characterized by a tendency to incentivize higher cost and lower quality care. In the maternity care context, vaginal births cost less, have fewer complications, and involve shorter stays, thus providing less reimbursement to hospitals; but they also require patience and often several hours of hard work by the women, as well as support from the care team. In contrast, cesareans are sometimes considered more convenient by women, practitioners, and facilities because of the shorter duration of labor and the ability to schedule in advance (Truven Health Analytics, 2013). In part, the rate of cesareans has increased 60% from the most recent low of 20.7% in 1996 because of this (Agency for Healthcare Research and Quality, 2011). This is despite the fact that they are considered riskier for both the mother and baby. ACOG and the

Society for Maternal-Fetal Medicine have both stated that this increase has not been accompanied by discernable gains in maternal or newborn health (American College of Obstetricians and Gynecologists, 2014).

Role of Episode Payment in Maternity Care

The goal of using clinical episode payments is to improve the value of maternity care by improving the outcomes and experience of care for the woman and her baby while reducing costs. Although the payment incentives in episode payment provide significant support for this goal, the design and implementation of the episode's care pathway(s) and delivery model(s) are also critical—for example, rates of cesarean births or early elective inductions could be impacted by changing protocols within a hospital. The CEP Work Group believes that the goal of episode payment should go beyond lowering costs, and that it should be designed such that it supports a more patient-centered approach to care. Specific goals of maternity episode payment include:

- Increasing the percentage of vaginal births and decreasing unnecessary cesarean births;
- Increasing the percentage of births that are full-term and decreasing preterm and early elective births;
- Decreasing complications and mortality, including readmissions and neonatal intensive-care unit (NICU) use;
- Providing support for childbearing women and their families in making critical decisions regarding the prenatal, labor and birth, and postpartum phases of maternity care and respecting those choices;
- Increasing the level of coordination across providers and settings of maternity care; and
- Consistently providing a woman- and family-centered experience.

Care improvements must occur across the continuum of prenatal, labor and birth, and postpartum care in order to support a more patient-centered approach to care. Episode payment can address the need for appropriate, high-quality, prenatal and postpartum care. Testing for potential problems (such as gestational diabetes or birth defects); monitoring the growth and health of the growing fetus and the woman; providing education to the woman on what to expect during and after birth; and supporting her in making decisions about her preferences for interventions, settings, and provider types can all lead to a more engaged and healthier mother. Postpartum care that supports the new mother in breastfeeding, baby care, contraceptive care, mental health, and self-recovery can have a lifelong impact on the health of both the woman and her baby. Yet these and other high-value services are not always effectively provided because the bulk of payment is focused on hospital-based labor/delivery services. Therefore, the goal of episode payment design in this realm is both to incentivize the delivery of the full continuum of services by holding providers accountable for their quality and coordination, and to decrease costs while improving the value of maternity care overall.

Fortunately, Medicaid (which pays for approximately 45% of births annually), commercial payers, and large purchasers have begun to develop episode payment initiatives for maternity care in recognition of the ways in which episode payment can drive higher quality, lower-cost care (Kaiser Family Foundation, n.d.).

There are three general types of models in the market today that bundle all or some of the services for maternity care into an episode payment. See Appendix D for a table summarizing various initiatives. Examples of each model are below.

Comprehensive Bundle: Several initiatives, led by both Medicaid and commercial payers, define the episode as the prenatal, labor and birth, and postpartum time frame and include care for the woman and sometimes the newborn. This strategy acknowledges the importance of support throughout the entire maternity care experience to ensure the best outcomes for the woman and her baby. It is agnostic as to both the birth site and who manages the birth, and as to whether the birth is vaginal or a cesarean, but it is typically priced assuming a hospital birth.

Comprehensive Birth Center/Midwife Bundle: This provider-driven episode model includes the full continuum of services, much like the comprehensive bundles, but is priced based on midwife management, and thus reflects the cost of a birth center birth. In this model, if a woman is referred to a hospital, then the hospital is paid a separate fee; the bundle is only for the midwife services and the fee for a birth center. In some cases, the midwife still manages the birth even if it is in the hospital, but the facility fee for the hospital is paid separately.

Blended Rate for Hospital Labor and Birth (Regardless of Delivery Type): Several purchasers and providers are implementing episodes framed specifically around hospital-based labor and birth, and which do not include costs for prenatal or postpartum care or care for the baby. This model blends cesarean and vaginal birth reimbursement rates into a blended case rate for hospitals. The primary goal is to decrease cesarean rates. Hospital payments and the clinical professional fees are the same in this model, regardless of the delivery method. The episode price also includes the costs of postpartum complications, but no other postpartum costs are included.

As described in more detail in Appendix D, maternity episode payment has been associated with increased use of preventive services, lower cesarean rates, lower readmission and complication rates, and lower early elective birth rates.

Recommendations: Maternity Care

Design Elements

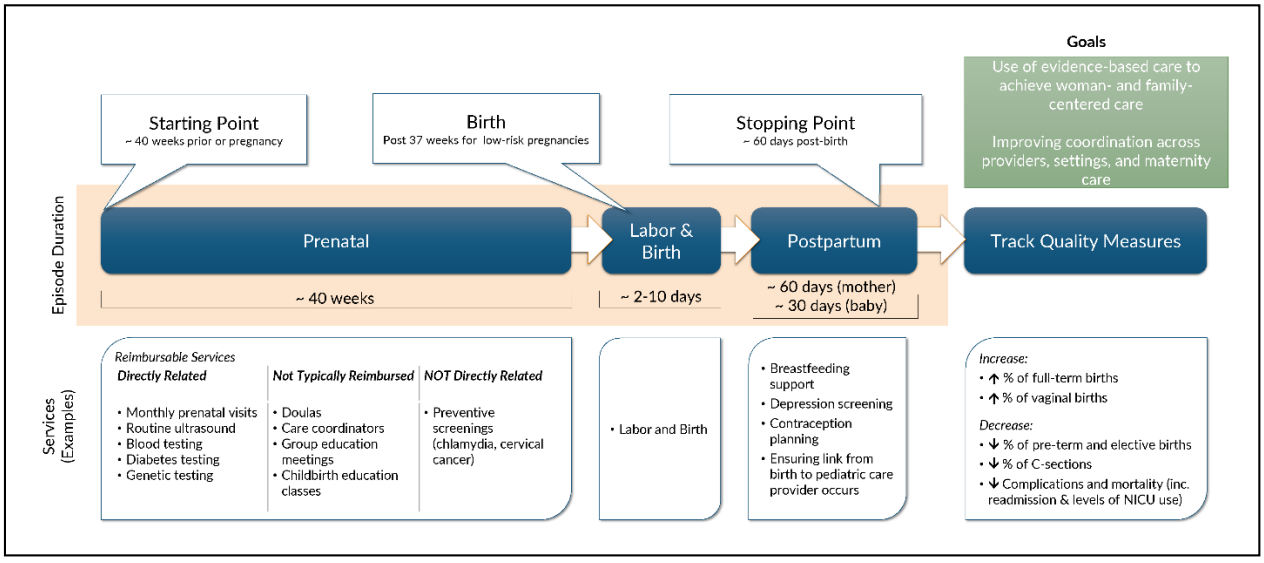
The design element recommendations reflect the CEP Work Group's research and analysis on a range of existing episode payment initiatives for joint replacement (see Appendix C). See Chapter 2, Episode Payment Design Elements, for a summary of the recommendations described in more detail below.

1. Episode Definition

The episode is defined to include the large majority of births, including the newborn care, that are lower-risk. While not necessarily lower risk, episode payment may also be considered appropriate for women who may be at elevated risk due to conditions that have defined and predictable care trajectories, such as gestational diabetes. As the CEP model matures, some groups with significant high-risk pregnancy experience and capacity may seek to manage the entire continuum of risk.

The CEP Work Group recommends defining the episode to include all services and care delivered during three phases of maternity: prenatal, labor and birth, and postpartum (Figure 7). Including these three phases within the episode, as opposed to narrowly defining the episode around labor and birth, which are arguably the costliest aspects of maternity care, is key to achieving the goals of episode payment. A focus on lower risk births will have significant impact as the large majority of births are considered low-risk. However, women with conditions that develop over the course of the pregnancy or which have defined trajectories can also benefit. Over time, some providers who are experienced with higher-risk pregnancies may also seek to manage the continuum of risk underneath a CEP.

Figure 1: Maternity Episode Definition and Timeline



2. Episode Timing

The episode should begin 40 weeks before the birth and end 60 days postpartum for the woman, and 30 days post-birth for the baby

Including the entire pregnancy, the labor and birth, and the postpartum/newborn period within one payment recognizes the importance of prenatal and postpartum/newborn support for the health of the woman and her baby. However, some episode payment initiatives limit the time period for the episode to hospital care only, and use a blended hospital case rate (blending payment for vaginal births with cesareans) for labor and birth. While this approach has been shown to decrease the rate of cesareans, the potential for improving on a broader set of outcomes encourages a more woman/patient-centered, coordinated approach across settings, and could be increased by including prenatal and postpartum care in the episode.

The 60 days postpartum recommendation will allow for post-natal follow-up to occur and will ensure the woman receives needed physical and mental health care in a sufficient time period to be able to take care of her baby. A lesser amount of time is recommended for the baby to ensure that accountability was limited to newborn care.

Consistent prenatal care, in addition to providing continuous care for the woman, can identify high-risk markers, such as gestational diabetes. Prenatal care can also include childbirth education to support a woman through the mental and physical challenges of vaginal delivery and provide other supports during pregnancy, giving birth, and the transition to new parenthood. High quality postpartum support can lower readmission rates, increase rates of breastfeeding, reduce postpartum depression, and provide a strong foundation for the woman as a caregiver to her baby and her family.

There may be concerns among stakeholders that including prenatal and postpartum care in the episode can lead to decreased access to or limited delivery of those services by a provider trying to utilize fewer resources to maximize potential savings. Another concern regarding postpartum care is whether the clinician who manages the birth should also be accountable for the postpartum period, particularly when the postpartum period may include some pediatric care. The Work Group believes these concerns, although valid, are manageable. For example, some initiatives require the collection and monitoring of certain performance metrics, such as number of visits and delivery of certain prenatal tests and screening before the birth and the provision of breastfeeding support or contraceptive advice afterwards to ensure their delivery. Concerns have also been raised about whether to include women who do not opt to access prenatal care or who access prenatal care later in their pregnancy. To address these concerns, one bundling initiative adjusts the episode definition and price based on differing numbers of prenatal visits. Another option is to exclude women who do not have a minimum number of visits from the episode design.

Recognizing these concerns, it is nevertheless optimal for maternity care episode payment to include prenatal and postpartum care in addition to labor and birth, in order to fully leverage the opportunity to improve value and outcomes across all three phases of maternity care.

3. Patient Population

The episode should primarily include the large majority of births, including newborn care, that are lower-risk. While not necessarily lower risk, episode payment may also be considered appropriate for women who may be at elevated risk due to conditions that have defined and predictable care trajectories, such as gestational diabetes. As the CEP model matures, some groups with significant high-risk pregnancy experience and capacity may seek to manage the entire continuum of risk.

There are two issues of particular importance in defining the population in the episode: whether to include newborn care and whether to include all pregnant women, or a subset of less risky women.

Including the Baby: Some current maternity episode payment initiatives include the baby, while others include only care for the woman. The Work Group recommends including the baby in the episode population, given that the primary focus of the episode is the birth and the primary goal is both a healthy woman **and** a healthy baby. Stakeholder readiness to implement maternity care episode payment can be a factor in determining whether to include the baby in the population. In the beginning of these initiatives, even limiting the episode to the childbearing woman can yield improvements in value and may be less complex for the provider to implement. However, the Work Group recommends transitioning to a design that includes both the woman and baby as soon as possible.

The inclusion of the baby in the episode population raises issues related to assigning an accountable entity (e.g., when managing the pregnancy requires a neonatology specialist in addition to or instead of the OB/GYN or the midwife). Although these cases are relatively rare, such instances highlight the need for cooperation among all providers across the episode, as well as the need for clear policies on the level of risk when the provider identified as the accountable entity has limited ability to manage care across providers.

Defining the Pregnancy Level of Risk: The Work Group recommends that, at least in the beginning of the implementation of CEP models, the episode should primarily include the large majority of births, including newborn care, that are lower-risk. The Work Group also supports CEP for women who may be at elevated risk because of predictable risk factors that have defined care trajectories, such as gestational diabetes. For both lower and elevated risk pregnancies, CEP may offer opportunities for better, safer care at lower cost. As the CEP model matures, some groups with significant high-risk pregnancy experience and capacity may seek to manage the entire continuum of risk.

There is ample opportunity in this group of women for CEP to provide incentives to discourage the use of unnecessary services and increase the use of services that are shown to be effective but underused. Beginning with lower risk pregnancies also ensures less variation in the complexity and the risk that providers will absorb. However, the Work Group also believes that women at higher levels of risk could benefit.

Some high-risk pregnancies introduce a level of variability and potential risk for the accountable entity that could be difficult to manage, particularly for small practices. In the event that a pregnancy results in

a baby who requires intensive care, stop-loss policies should be established to mitigate potential unanticipated risks of true outliers. Critical to the episode population design element is defining the exclusions. Definitions vary, depending on when during the maternity period the determination is made and by whom.

Defining risk levels can be difficult because they can change over the course of the episode and can be influenced by the care delivered. Initial determination of whether a woman is "low risk" can be made at the first prenatal visit, but it may change over time. Healthy People 2020 uses a definition for calculating low risk for cesarean rates that is based on factors present immediately prior to birth—full-term, single, head-first presentation (Office of Disease Prevention and Health Promotion, 2016; Stapleton, Osborne, & Illuzzi, 2013). A higher-risk pregnancy is one which puts the mother, the developing fetus, or both at an increased risk for complications during or after pregnancy and birth. Clinical parameters for identifying a high-risk pregnancy can include:

- Pre-existing health conditions, such as diabetes, hypertension, epilepsy, cancer, renal disease, obesity, advanced maternal age, and mental health conditions;
- Lifestyle choices: Cigarette smoking, alcohol use and illegal drug use;
- Previous pregnancy complications, such as genetic or congenital disorder, stillborn, preterm delivery; and
- Pregnancy complications, which can also arise during the pregnancy and birth, such as: Multiple gestation, fetal growth restriction, prolonged premature rupture of membranes, or placenta abnormalities.

As evidenced by the list above, some of the excluded cases may not be clear until after the birth. CEP may be helpful in effectively managing complications as they arise. The Work Group advises those designing initiatives to consider the different levels of risk and develop exclusionary criteria exclusions of importance to their populations. If there is concern over the ability for providers to accept the risk of a higher-risk population, there are ways to limit risk through risk adjustment, including factors that might arise during pregnancy. Stop/loss limits will be discussed in the discussion on the Level and Type of Risk below. See Appendix K for links to resources that provide lists of exclusions.

4. Services

Covered services include all services provided during pregnancy, labor and birth, and the postpartum period (for women) and newborn care for the baby. Exclusions should be limited. Initiatives should also consider including high-value support services, such as doula care and prenatal and parenting education.

All services currently covered during prenatal care visits, labor and birth, postpartum care, and newborn care should be included as part of the episode services. This includes services such as genetic testing, imaging, and anesthesia that are typically provided to pregnant women. We note the time frame for newborn care is shorter than for woman's care; this is intentional to limit the services included in the

price to those needed to address neo-natal care needs. The Work Group considered excluding specific newborn services, but determined that limiting the time frame to 30 days post discharge would ensure that the bulk of ongoing healthy baby pediatric care, such as immunizations, would be delivered outside that time frame.

Central to the recommendation of included services is the issue of currently underused services. Some underused services are typically covered in today's delivery systems, but others are not. Each set of services creates opportunities for effective implementation of a maternity care episode payment strategy.

Currently Covered but Underused Services Not Directly Related to Pregnancy and Birth: Some initiatives see the OB/GYN, midwife, or family physician, as the primary care provider during the pregnancy, birth, and postpartum periods, and view the prenatal care period as an opportunity to perform preventive screenings, such as for screenings for chlamydia or cervical cancer. These screenings are not typically related to pregnancy, but it may be important to include them in the episode price, as they are commonly provided to women as part of their prenatal care and, if present, could impact care during the pregnancy (American Academy of Pediatrics, 2013). Another option might be to pay separately for them through FFS, but include them in episode quality metrics, perhaps with a pay for performance incentive in addition to the bundled payment incentives.

Commonly Uncovered (and Underused) High-Value Services Directly Related to Pregnancy and Birth: A variety of services that have been shown to improve a woman's birth experience and potentially improve outcomes are not commonly part of typical benefit packages. One important service that clinical episode payment is designed to encourage is greater care coordination across providers by the providers themselves. Typically, providers are expected to provide some level of this coordination without additional reimbursement. Other services not typically covered are those provided by doulas, care coordinators (e.g., for shared decision-making, shared care planning, community referrals, and follow up on such matters as smoking cessation, mental health referrals, and completion of postpartum visits), group prenatal visits, and breastfeeding support. The use of doulas alone—or continuous support for women during childbirth---has been associated with a 28% reduction in cesarean birth (Hodnett et al., 2013).

Although bundling currently covered services could result in efficiencies and improved outcomes, providing incentives to increase the use of the enhanced services described above may lead to even higher-value care. Prospective payment (as described in the Payment Flow Recommendation below) may allow for greater provider flexibility to deliver these services, as it does not rely on a direct payment from the payer for individual covered services. Evaluation of the enhanced prenatal care models—through maternity care homes, group prenatal care, and birth centers—being tested within the CMS Center for Medicare and Medicaid Innovation's Strong Start initiative provides lessons for the types of services that support maternity care episode payment models (see Patient Engagement recommendation). Regardless, it is important to monitor the shift in service patterns to ensure that the initiative results in the highest value care feasible and does not lead to unintended consequences, such as restricting the use of important services because of the risk involved in the episode payment.

5. Patient Engagement

Engaging women and their families is critical in all three phases of the episode—prenatal, labor and birth, and postpartum/newborn—to contribute to the foundation for healthy women and babies.

Engaging the patient across the full episode of maternity care provides important opportunities to contribute to maternity care episode payment success. It is not uncommon for pregnant women to want to understand the changes they are experiencing and to learn about care options. Many prioritize being involved in making decisions about their care. They are motivated to contribute to healthy outcomes for themselves and their babies. Moreover, given that most are embarking on a long period of having disproportionate responsibility for managing health care across generations, the entire maternity care episode is an optimal time to help women become effective users of health care.

It should be stressed as early as possible in the maternity experience that the woman's choice of a care provider and birth setting are interrelated. Given the extent of practice variation, understanding these choices could greatly impact their care options, experiences, and outcomes. With the growth of meaningful public reporting of performance results, and evidence of women's considerable interest in finding and using such information, many women would benefit from being directed to relevant resources and having access to guidance from someone who could help them identify and interpret available and relevant comparative quality information (Declercq et al., 2013). Health plans are well positioned to support women in this way and, as a pregnancy proceeds, to encourage them to assess whether their chosen care arrangements prove to be a good match with their values and preferences. However, it is also important that providers understand the choices a woman faces in her area and are willing to help her make them, because not all health plans will be set up to support these discussions, and the woman may go first to the provider. It may also be helpful for a primary care provider to assist a woman in these decisions. This level of involvement can help a woman obtain the type of high-quality care she prefers and foster quality-based competition in the marketplace.

After a maternity care provider is selected, shared-care planning should be integrated throughout the episode, including goal setting, shared decision-making, and documenting preferences and decisions, with the understanding that circumstances can change over time. Optimally, information technology makes the care plan available across the episode at all sites of care and to all members of the care team, including women and families.

Some patient engagement efforts involve enhanced services, such as the maternity home and group prenatal visits being studied in the CMS-sponsored Strong Start demonstration (Centering Healthcare Institute, n.d.; Hill et al., 2016). In the maternity care home model, clinical or community health worker care coordinators are assigned to work with pregnant women to support their goals, provide referrals to community resources (such as smoking cessation programs, childbirth education, mental health services, breastfeeding support), foster successful care transitions, and ensure that women attend postpartum visits. The Year 2 Strong Start evaluation suggests that these enhanced services are associated with a decrease in interventions that are not medically indicated and that women are pleased with this type of care. Strong Start participants experiencing enhanced prenatal care in birth

centers had a reduction in cesareans and other interventions, had strong breastfeeding results, and were especially happy with their experiences (Hill et al., 2016). In the context of this clinical episode payment model, a care coordinator is also well positioned to ensure that childbearing women complete self-reported surveys of experience and outcome. In addition, women who have access to doula services, including prenatal and postpartum support, experience lower frequency of cesarean sections and increased breastfeeding (National Partnership for Women & Families, 2016).

High-quality childbirth education classes are another important way to engage women in learning about options and making informed decisions about their care. Benefit policies vary, but many Medicaid programs include childbirth education as a covered benefit. Healthy People 2020 includes a goal to increase the number of women who attend childbirth classes (Office of Disease Prevention and Health Promotion, 2016). These classes can decrease a woman's fears about labor and birth and are shown to be a critical factor in reducing early elective births.

Other examples of tools for patient engagement include shared decision-making aids, such as the decision aids developed by the Informed Medical Decisions Foundation and Childbirth Connection (now available through Healthwise) and the use of mobile devices, including Text4baby, to access health information and services that provide individualized information based on the pregnancy stage and individual needs. An online inventory identifies decision aids by topic rated according to international standards (Ottawa Hospital Research Institute, 2016).

Further, based on the success of the Open Notes project, a growing proportion of patients are gaining full access to their electronic health records (Bell et al., 2015; Esch et al., 2016; Walker, Meltsner, & Delbanco, 2015). Another initiative—Maternity Neighborhood—helps clinicians and women communicate and query each other, track women's progress, schedule appointments, and share educational resources (Maternity Neighborhood, n.d.). Meanwhile, the initiative enables women to review, discuss, and contribute to their health record. Existing experience suggests that full and interactive access to health records may contribute to the success of episode payment models. Patient portals can deliver a broad range of user friendly, evidence-based tools and educational resources. While not yet standard practice, a wide variety of patient engagement support is now available (see Appendix G for a list of resources, including patient engagement tools).

The maternity care episode should support the standardized use of patient engagement strategies and models, particularly given that these strategies are typically underutilized. In fact, it may be feasible to encourage some reinvestment of a portion of overall episode savings into services that support such engagement. One provider-driven initiative specifically included additional services such as doulas and patient navigators and found them to be of significant value in engaging patients and improving outcomes.[1]

Further, to consistently improve upon patient-engagement activities, it will be important to use patient-activation metrics to track overall patient engagement. A change score for the Patient Activation Measure (a healthy person version recently endorsed by the National Quality Forum [NQF]) administered near the beginning and end of pregnancy would incentivize those participating in the episode payment to build women's skills, knowledge, and confidence as they approach giving birth and new parenthood.

[1] Providence Health and Services initiative, article and e-mail conversation. April 2016. See Appendix D for more detail.

A final approach to engaging women is to communicate, in plain language, that they are receiving their maternity care within an episode payment model and to explain the implications in terms of their participation and how the model affects cost sharing, health care quality, and health care outcome.

6. Accountable Entity

The accountable entity should be chosen based on readiness to re-engineer change in the way care is delivered to the patient and to accept risk. In this model, the accountable entity will likely require a degree of shared accountability, given the number of clinicians working to care for a patient.

Overall Readiness: The question of readiness to both re-engineer the care delivery model for the patient, and in the process, accept the financial risk they might incur, is central to the determination of what entity or entities should be accountable. Payers should work with the accountable entity to assess their readiness, and promote collaboration to allow for multiple providers within a maternity 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. This process can require active participation across the continuum by aligning incentives across contracts in the private sector, because the payer often has contracts directly with providers.

While local situations will vary, the CEP Work Group favors clinicians as the preferred accountable entity. The accountable clinicians are more likely to be involved throughout the entire pregnancy. In addition, if FFS represents the payment methodology with retrospective reconciliation, hospitals may have less of an incentive to decrease practices that provide higher reimbursement because the bulk of the costs for this episode lie in the labor and birth facility fees.

Optimally, accountability would be shared among all involved providers, if incentives are aligned. However, it can be difficult from a legal and financial perspective to create the necessary structures to share accountability. In circumstances where the provider is a health system encompassing both the facility and the clinicians, accountability could more easily be shared between the clinicians and the facility. Some hospitals own birth centers, and this may be an ideal situation. One initiative brought together the facility and the providers through a birth center as the accountable entity. In this example, if the woman needs to go to the hospital for the actual birth, the hospital facility fee is paid outside the bundle. Others use a blended (vaginal and cesarean) case rate with a discount built in to encourage lower cesarean rates, and, in these cases, hold the hospital and clinicians accountable separately for the part of the episode price that is allocated for each. In Medicaid, the process of sharing accountability may be affected in states that have regulatory barriers against one provider assigning payment to another. This is discussed below as well, in Recommendation 7, Payment Flow.

Another challenge related to assigning the accountable entity relates to situations in which the newborn needs intensive care. In such an instance, the newborn specialist will take over as the care manager. While we anticipate that limiting the population to lower-risk pregnancies, stop/loss limits and risk adjustment may limit the risk of the assigned accountable entity. It will be important for the team that managed the birth to incorporate the newborn specialist into the process.

In some cases, the practice responsible for the woman's care before the birth may not be available to manage the actual labor and birth or the hospital may use a "laborist" to manage the birth. Regardless, the determination of the accountable entity and alignment and coordination across the entire episode of care must take into consideration the specific context in which the care is delivered.

One question that arises in considering alternatives to hospital births is how widespread the availability is of birth centers or home births. According to the American Association of Birth Centers, there are 325 birth centers in the nation in 38 states. There are 11,114 certified nurse midwives, who practice primarily in hospitals, but also in birth centers and home births, with 1,904 certified professional midwives, who manage both birth center and home births. In contrast, there were 33,624 OB/GYNs in 2010. While not present in all regions, many women have access to these lower cost birth options, which also result in good birth outcomes (Cheyney et al., 2014; Health Management Associates, 2007).

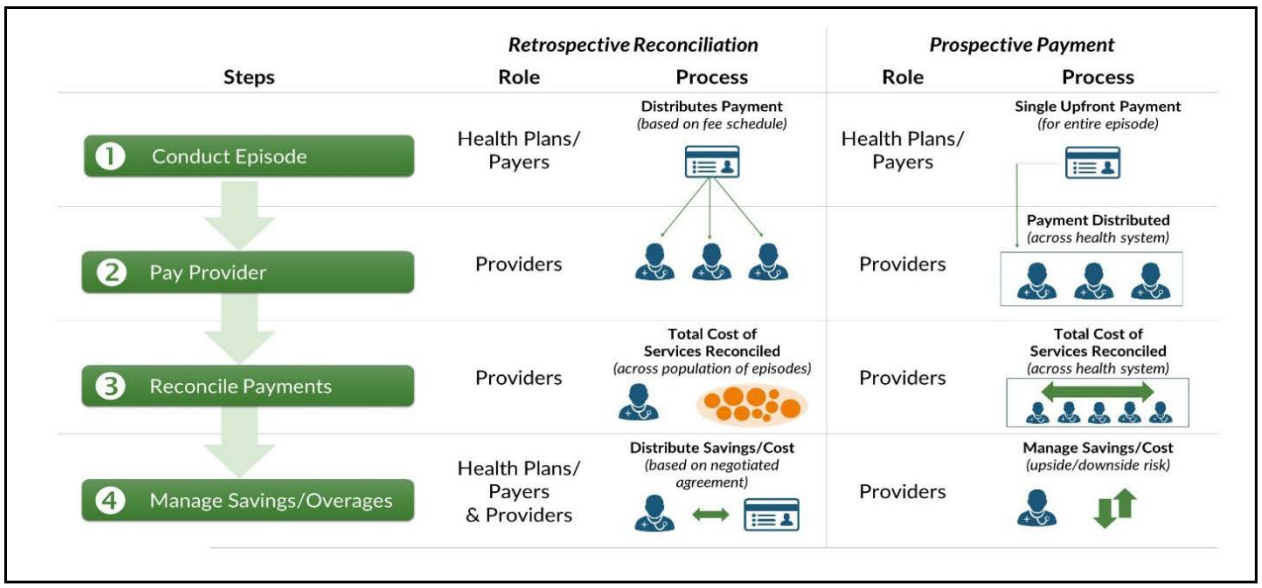
7. Payment Flow

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 via either prospective payment or retrospective reconciliation (Figure 8).

In **Prospective Payment**, payment is provided for the whole episode, including all services and providers, and paid to the accountable entity, who subsequently pays 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) manages 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. Based on a specific formula, which is 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, in order to encourage collaboration and coordination across settings. These types of gain-sharing arrangements need to be considered within the parameters of federal laws that may impact their design, which is discussed in further detail in the regulatory infrastructure section of the Operational Considerations section of this White Paper.

Figure 2: Retrospective Reconciliation vs. Prospective Payment



Prospective payment is an option in some circumstances— particularly when the accountable entity is a health system that already integrates the clinician and facility payment. 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. One caution on prospective payment in a FFS Medicaid program is that there may be regulatory barriers for one provider assigning payment to another. Legal counsel should be sought in this scenario. However, retrospective reconciliation is easier to administer within our current FFS environment because 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. It does not require providers to develop the capacity to pay claims, and allows for better tracking of the resources used in the episode. It also can be built on an existing payment system.

Nevertheless, prospective payment has advantages in that it is a clear break from the legacy of FFS payment and may encourage greater coordination and innovation in episode payment. For example, in a prospective payment initiative, it may be easier to be flexible in delivering otherwise uncovered services, such as childbirth education or care coordination, which assist providers in achieving the goals of fewer pre-term deliveries and a higher level of vaginal births. Overall, it will be important for payers in specific regions to coordinate their strategies on payment flow, as it is easier to administer for providers if they are paid the same way.

8. Episode Price

The episode price should strike a balance between provider-specific and multi-provider/regional utilization history. The price should: 1) acknowledge achievable efficiencies already gained by previous initiatives; 2) reflect a level that potential provider participants see as feasible to attain; and 3) include the cost of services that help achieve the goals of episode payment.

Pricing episodes involves significant complexity, both to assure the accuracy of estimates, and to develop a pricing structure that is fair to providers while encouraging innovation. The goal should be to establish a price that encourages competition among providers to achieve the best outcomes for the lowest cost. However, certain issues need to be taken into consideration, including accounting for variation in the risk of the population, 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.

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 determined. 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 historically underused services, as discussed in Recommendation 4, and additional services, such as a patient navigator/care coordinator, group visits, a doula, or breastfeeding support. Further, whether to build in savings for improvements, such as lower cesarean rates, is also a consideration.

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 quality improvements, such as lower cesarean rates or less need for NICU care. The Work Group recommends balancing regional-/multi-provider[2] and provider-specific cost data:

Balancing Regional- and Provider-Specific Data: Cost data should reflect a mix of provider and regional claims experience. The goal of including regional, rather than market-level data, is to ensure that there is enough variation in episode cost. This mix will also ensure that the established episode price takes into consideration the unique experience of the specific provider, and that the goals are set based on what is feasible in the region. Risk adjustment will be needed during this process to adjust for the unique characteristics of the population the provider serves. If the payer is a national payer, it may be more difficult to address specific provider issues and will require consideration of the use of national claims experience to ensure equity across regions. Over time, as performance becomes less variable, it may be

[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.

useful to lessen the proportion of the episode look-back period that is based on the organization's specific experience.

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. 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. While basing some part of the price on region, it is also important to note variation across regions and to consider whether variation across the regions is warranted or not. It is important to look at this closely, and not just "bake in" regional variation if there is not objective reason for doing so.

Provider Costs: Provider-specific costs are the actual costs for the provider's previous patients. For example, if the OB/GYN practice is the accountable entity, the payer would conduct the analysis using the current episode definition and apply it to its pregnant 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 existing efficiencies that make it more difficult to achieve savings or leave in place built-in inefficiencies that limit the savings for the payer.

One challenge in maternity care is that different providers may have different episode costs. Consequently, payers may take various approaches to episode pricing as a function of other factors, including network configuration, benefit incentives, and preferred mechanisms for coming to agreement on pricing. For example, because there is significant variation in cesarean section rates across providers, as well as varying prices, payers will need to determine with which providers they want to base the episode. Determining what level of cesarean rate to build into the price will vary based on the payer's network and negotiating power, or it may impact the decisions the payer makes regarding with which hospitals to contract. It is also the case that services delivered at one hospital may be more or less expensive based on the fees they have negotiated with payers. Another example of a challenge specific to maternity is the absence of uniform billing codes for birth centers across payers. This may require a benchmarking process that utilizes different, or proxy, billing codes.

Significant variation in costs between hospitals and birth centers can also greatly impact episode cost. Research increasingly reveals that births managed by midwives and births in birth centers are not only less expensive than hospital births but also often lead to the same, if not better, outcomes (Howell, et al., 2014; Johantgen et al., 2012). If a woman chooses to go to a birth center, the cost structure is significantly lower than if she chooses to give birth in a hospital. A strategy might be one where the payer builds a network either with hospitals that have lower cesarean rates or with incentives for women to more fully utilize and expand access to birth centers in their region. The bundled price could be based on that lower intensity birth model, but may only apply in that setting.

Incentivize More Efficient Levels of Practice: In addition to historical provider and region-level data, the episode price should be based on the performance of the better performers in a particular market, such that all providers can see that the episode price and the quality metric performance thresholds are feasible to achieve. If a provider's performance is already at a relatively efficient level, it will need to see

some reward for that achievement at the same time that low performers will have an incentive to improve.

The episode price can be revised over time to ensure continual improvement by both the more and less efficient providers. In this way, the episode price automatically integrates savings and simultaneously incentivizes a compression of variation in cost and quality across all providers. Finally, the episode price should take into account services that are historically under reimbursed, and thus, underused, but are of high value to the patient. Care coordination, patient engagement, shared decision-making, and assessment of patient-reported pain and function are examples of services that could fall under this category.

Other Factors Impacting Episode Price

There are many other factors that should be used in developing the episode price, though the ability to do so will depend on the availability of data and analytic tools. These include:

Socio-Economic Status of the Patient Population: There are a number of socio-economic factors that have a significant impact on a patient's health status prior to pregnancy, access to care, and post-partum outcomes for the woman and the baby. These include income, literacy status, living status (living alone, living in a community without family or other supports nearby), and availability of transportation (both in general, and to care settings), among others. Certain socio-economic factors may align with a specific payer category, whether it be Medicaid or commercial payers.

Public vs. Private Payers: There are differences between public and private payers that should be acknowledged and reflected in the episode pricing. In addition to the socio-economic status of the patient population, as described above, there is also a difference in how overall pricing is set. For private commercial payers, pricing is an element of negotiation; in the public payer realm, prices are set by the public payer, if paid on a FFS basis. Managed care plans in Medicaid and Medicare will negotiate with providers, as they do in the commercial market. Either way, this will impact the level at which the episode price is set, as will the market in which the payer operates. If participation is voluntary, some form of negotiation will be necessary—whether through direct discussion, or through the public process of rulemaking. If the initiative requires participation, it may be easier to determine an episode price. However, the price will need to be one which is realistic for providers.

Trusted Empirical Data: One challenge is the ability for payers and providers to understand the variation in the costs of the episode across their region. Determining the appropriate price requires empirical data from a trusted source. The availability of these data to identify the opportunities for efficiency is critical to the success of these initiatives.

Episode Payment Flow: The episode price can be set retrospectively in an episode model for which retrospective reconciliation is the selected payment flow. Similarly, the price can be set prospectively in a model designed around prospective payment. Thus, setting the episode price and the payment flow should be part of an integrated process.

Patient and Family Definitions of Value: Information on the types of services that are most valued by patients and their families should be considered in determining the episode price. This information would not typically be captured via historical data, but rather via engagement between providers and their patients, as well as between purchasers and their employees. For further discussion on this topic, please read the paper on Financial Benchmarking, click here.

9. Type and Level of Risk

The goal should be to utilize both upside reward and downside risk. Transition periods and risk mitigation strategies should be used to encourage broad provider participation and support inclusion of as broad a patient population as possible.

The goal when setting an episode price should be to incorporate both upside reward and downside risk. Without downside risk (where the actual costs exceed the target episode price), the accountable entity and other involved providers have less incentive to make the necessary care redesign changes to create efficiencies and improve patient care. Further, increases in the cost of care delivery from year to year can 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 reward) or to share in losses (downside risk). In some cases, payers will begin with upside reward sharing to allow for the provider to establish the infrastructure and reengineer care practices to become capable of managing downside risk in the future.

However, taking on downside risk may be difficult for smaller providers, including many OB/GYN, family physician, and midwife practices that are the providers best able to support a new model of maternity care. Further, inclusion of downside risk may be a barrier to provider participation when the initiative is voluntary. It is important to acknowledge that several of the primary goals of the maternity care episode (for example, decreasing cesarean and NICU use) will result in lower per patient reimbursement for the hospital. This means that if the clinician practice is the accountable entity, and there is no upside reward or downside risk to the hospital where the majority of births will occur, then the providers—the clinicians and the facilities—will have very different incentive structures. This source of tension will need to be explicitly addressed, possibly through some type of shared accountability, which includes the ability to share in the savings or risk for any potential loses.

Safety Net Providers and Risk

A primary goal in designing any alternative payment model arrangement is guarding against unintended consequences. In episode payment for maternity care, the unintended consequence that concerns all providers—but perhaps safety net providers most of all—is the potential for decreased access to care for patients with poor health status, which puts them at increased risk for poor outcomes. This may be correlated with lower socio-economic status if the provider feels that it will not be possible to provide the full continuum of care and achieve positive outcomes within the episode price. Safety net providers in particular may need time to develop adequate reporting and staffing infrastructure; and build relationships across historically siloed organizations in order to feel prepared to take on the risk in an episode payment model.

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 without the option for upside shared savings 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 will become part of the ongoing negotiations among network participants and payers. In public programs, these negotiations will happen through the political and policy process of rulemaking.

Mechanisms for Limiting Risk

The level at which those risk limits are set is a critical design element. There are several issues to consider, such as whether 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 whether limits will be established. Limits are especially important considering that an accountable entity is accountable for care provided by other providers. In the case of maternity care, the facility 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 of included births.

One risk-mitigation strategy already addressed is limiting high-risk cases through exclusions. Following are additional strategies used by various initiatives to limit risk in an episode payment while still maintaining as broad an episode population as is feasible. These are often, but not always, used in tandem.

Risk Adjustment: Risk adjusting the episode price, based on the severity within the population in the maternity bundle, is one risk-mitigation strategy. Most initiatives will include a list of included and excluded women 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 maternity care episode expenditures. For example, the Health Care Incentives Improvement Institute's (HCI3) evidence-based case rates create a variety of patient-specific episodes that re-calibrate based on various patient-specific severity factors. The maternity bundles in Tennessee are also adjusted based on a variety of factors, including risk and/or severity factors captured in recent claims data, such as early labor, preeclampsia/eclampsia, and behavioral health conditions. Although 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. For example, a provider may adopt more intensive coding to either increase the reimbursement, or to ensure the patient is not included in episode population. Or a provider may refer more difficult patients to other practices to limit their own panel to only the lowest-risk women. 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 pregnancy. For further discussion on this topic, please read the paper on Financial Benchmarking, click here.

Stop-Loss Caps, Risk Corridors, 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 newborns at an individual patient level. Stop-loss caps also can 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 reward, such that the incentives to limit care are not as great as they would be otherwise. Another risk-mitigation strategy is to require the accountable entity to maintain a certain level of capital, so that it can cover

losses and invest in necessary infrastructure. 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, including outcome metrics, particularly patient-reported outcome and functional status measures; use quality scorecards to track performance on quality and inform decisions related to payment; and use quality information and other supports to communicate with, and engage patients and other stakeholders.

A wide variety of measures are in use for maternity care that could be used to support the goals and operation of clinical episode payment. At this time, the Work Group does not have specific recommendations for the most effective measures, but rather provides examples of the types of measures of maternity and newborn care quality. The Work Group also notes the importance of the development of patient-reported outcomes and functional status (particularly postpartum) measures.

Those already implementing maternity bundles use a variety of metrics, but there seems to be two primary categories or strategies. First, there are measures of whether certain processes or services were provided due to concerns that they might be underutilized absent some mechanism for accountability and because they are practices known to improve outcomes. These include measures such as the number of prenatal visits, screening tests, breastfeeding support, and depression screening. Second are measures of outcomes, which can correlate to changes in care delivery. These include rates of vaginal births/cesareans, pre-term and early elective births, rates of episiotomy, exclusive breastfeeding in the hospital, and patient complications. These two categories together can capture the quality of care delivered in the prenatal, labor and birth, and postpartum time frame.

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 maternity care. A measure that meets these criteria without the potential for high impact among childbearing women and newborns would not be useful for this purpose.

Potential Measures: In the spirit of building on existing measurement consensus processes, the Work Group recommends consideration of the applicable measures recently released from the Core Quality Measures Collaborative (CQMC) that could be used in the maternity bundle (Centers for Medicare and Medicaid, 2015a). Measures in the CQMC OB/GYN Core Set that are only applicable to gynecological care and not obstetric care are not included here. However, measures in the core set that may not be considered directly related to maternity care but are often delivered either during the prenatal or postpartum period are included. The CQMC divided the set into accountability for the OB/GYN and for the hospital/acute care setting, but they could also be used for quality measurement of an episode of care.

CQMC measures related to the ambulatory OB/GYN setting include:

- Frequency of ongoing prenatal care;[3]
- Cervical cancer screening; and
- Chlamydia screening and follow up.

CQMC measures identified for the hospital/acute care settings include:

- Incidence of episiotomy;
- Elective delivery for vaginal or cesarean at > =37 and < 39 weeks of gestation completed (PC-01);
- Cesarean (nulliparous women with a term, singleton baby in a vertex position delivery by cesarean section, PC-02);
- Antenatal steroids under certain conditions (PC-03); and
- Exclusive breast milk (PC-05).

CMS Medicaid and CHIP Child and Adult Core Measures for Maternity Care: As illustrated in Table 7, CMS worked with state Medicaid agencies to develop a core set of child and adult measures that include some maternity metrics of importance to that community.

Table 2: Medicaid and CHIP Child and Adult Core Measures for Maternity Care[4]

	Source	Adult Core	Child Core	CQMC
PC-01: Elective delivery	NQF 0469	X		X
PC-03: Antenatal steroids	NQF 0476	X		X
Timeliness of Prenatal Care	NQF 1517	X	X	
PC-02: Cesarean Section	NQF 0471		X	X
Live births less than 2500 grams	NQF 1382		X	
Frequency of ongoing prenatal care	NQF 1391		X	X
Behavioral health risk assessment for pregnant women	AMA-PCPI		X	
Pediatric Central Linked Associated Bloodstream infections: neonatal ICU and pediatric ICU (CLABSI)	NQF 0139		X	

[3] Status: This measure was recently recommended for removal of NQF endorsed measures and the Medicaid core set by The NQF Perinatal and Reproductive Health Standing Committee and the NQF MAP Medicaid Child and Adult Task Forces

[4] The NQF MAP Medicaid Child Task Force voted to recommend inclusion of PC-05 Exclusive Breast Milk Feeding (NQF 0480) and the equivalent PC-05 eMeasure (NQF2830) in the Child Core Set.

	Source	Adult Core	Child Core	CQMC
Postpartum contraceptive use among women ages 15-44	Developmental measure (OPA/CDC)-NQF-2902[5]	Likely to be included in future sets		

Other Potential Measures:

The generic Consumer Assessment of Healthcare Providers and Systems (CAHPS) patient experiences of care facility, clinician, and health plan measures do not map well to antenatal through postpartum and newborn care and this population. However, there may be specific CAHPS supplemental items that could be of use to measure patient experience (Agency for Healthcare Research and Quality, 2016).

To measure experience of care within its episode payment model, Community Health Choice, a maternity clinical episode payment initiative in Texas Medicaid, developed a survey by selecting items primarily used in previous national *Listening to Mothers* surveys. Topics included the timing and communication experience in prenatal care, planning for the birth, and the mother's experience after the birth, which includes caregiver follow up and her overall satisfaction with the experience.

Functional status, particularly after birth, when used to capture such self-reported outcomes as pain, ability to perform activities, and depression also needs more focus. It is a time period that sets the stage for the health of the recovering woman and her newborn. Functional status instruments are not routinely used in the initiatives we have reviewed, but have been used for postpartum research, and could be developed into survey instruments for this context. Research on these functional status surveys demonstrate their ability to measure postpartum health.

A measure of patient skills, knowledge and confidence in managing one's health—the Patient Activation Measure (*NQF #2483: Gains in Patient Activation (PAM) Scores from 6-12 months*)—would demonstrate whether the health system has provided opportunities to increase activation from early to late pregnancy.

Several other measures are also of interest, including rates of unexpected newborn complications and rates of vaginal birth after cesarean. Rates of newborn complications, particularly unexpected complications (e.g. NQF 0716), measure the ultimate outcome of the birth—the baby's health. A measure of the vaginal birth after cesarean (VBAC) rate (e.g. AHRQ IQI 134) could address an important opportunity for improvement that would be complementary to the above-mentioned cesarean rate. Further, provision of influenza vaccines prenatally also has been shown to decrease complications. These measures are not the only ones that various initiatives have used, and each initiative may want to customize its quality metrics to some extent, depending on the needs of its population.

Quality Scorecard: A core feature of any episode payment initiative is using performance metrics to create scorecards to ensure high-quality care delivery; inform the decisions of the woman, her family, and her providers; and determine payment levels.

Most episode payment initiatives use a quality scorecard with defined thresholds that a provider must meet or exceed in order to receive the full reimbursement for an episode or the full shared savings.

[5] Status: NQF Reproductive Health Standing Committee recommended endorsement of this measure in May 2016 and is currently going through consensus development process.

However, the decision on where those thresholds are set—or how they are used—should be left for 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 performance on the quality scorecard.

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 Patient Engagement, women need quality data on the performance of different facilities and on maternity care providers to inform their choices. Currently, data on maternity care provider performance are not routinely available and development is needed to support more widespread and routine data collection.

Comparative quality information is also important for providers to use to improve their performance. A provider portal, separate from electronic health records (EHRs), where providers can access individual average quality, costs, and utilization across episodes, is one way to provide this information. The Arkansas initiative found this type of portal to be important for providers.

Employers, purchasers, and payers also need these data to develop provider networks and to help employees make these important choices, both before and during pregnancy. Specifically, employees need to understand the bundle and what their role is in receiving high-quality care. Primary care providers hoping to enter into bundled payment contracts will want data about specialty physician quality performance in order to determine which bundled arrangements would be most beneficial to their patient population.

Finally, episode payment design must build in the capacity to collect, analyze, and provide data and support patients in identifying and interpreting this information. The use of patient navigators—for whom some existing initiatives have substituted community health workers—can be helpful in providing this support. First, however, the information itself must be available. It is important, therefore, to establish cross-cutting efforts to define metrics and systems for data collection and analysis. It is a significant burden, however, for each initiative to define its own metrics, collection system, and scorecard. Broader efforts are needed to build the necessary infrastructure for meaningful development and use of quality performance information, and building these systems is one of the key challenges discussed in the Operational Considerations section of this White Paper. To read more about Performance Measurement, click here.

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CLINICAL EPISODE PAYMENT MODELS

CORONARY ARTERY DISEASE

Chapter 5: Coronary Artery Disease

Background

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 America. 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 about 7% of the population who are between the ages of 45 and 64. Patients with CAD often experience comorbidities such as diabetes and obesity. The two procedures most commonly used to treat CAD patients—PCI and CABG—account for more than one million procedures done annually in the United States. This amounted to a cost of more than $15 billion of 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 a total of $6.4 billion (Centers for Disease Control and Prevention, 2014).

Patients with CAD experience their illness in many different ways. Some patients are diagnosed due to a "triggering" event, such as an acute myocardial infarction (AMI)—or heart attack. Others are diagnosed following either acute or routine diagnostic testing that results in either the need for medical management or a procedure like PCI or CABG surgery. While CAD has a variety of manifestations and acuities, a common thread that ties almost all CAD patients together is the fact that CAD is a chronic condition; those who are diagnosed with it will likely have to live with it for the remainder of their lives.

The way in which a patient is first diagnosed, as well as the setting in which care is delivered, can have an impact on the cost and intensity of treatment. 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 relatively high 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 seeking 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 8).

Table 1: Available Levers for Achieving Outcome Goals

	Goals	Levers
System-Level	• Increasing the rate of provision of the right care at the right time in the right setting • Reducing avoidable complications • Reducing unwarranted and unjustifiable variation in care	• 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	• Improving quality of life for patients – 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	• 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 both the use of expensive treatments and tests regardless of value to the patient, and 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 and 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 in order 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 first and foremost benefit the patient.

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 acute events like AMI and has the potential to reduce the need for procedures such as PCI and 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—for example, 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 9 are described in more detail in Appendix E.

Table 2: Examples of Current CAD Procedure Episode Models

PCI	CABG
• Arkansas Payment Improvement Incentives Program • Geisinger ProvenCare • Medicare Bundled Payments for Care Improvement (BPCI) • Ohio Health Transformation • PROMETHEUS Payment • Tennessee Health Care Improvement Innovations Initiative	• 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 (Figure 9). 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:

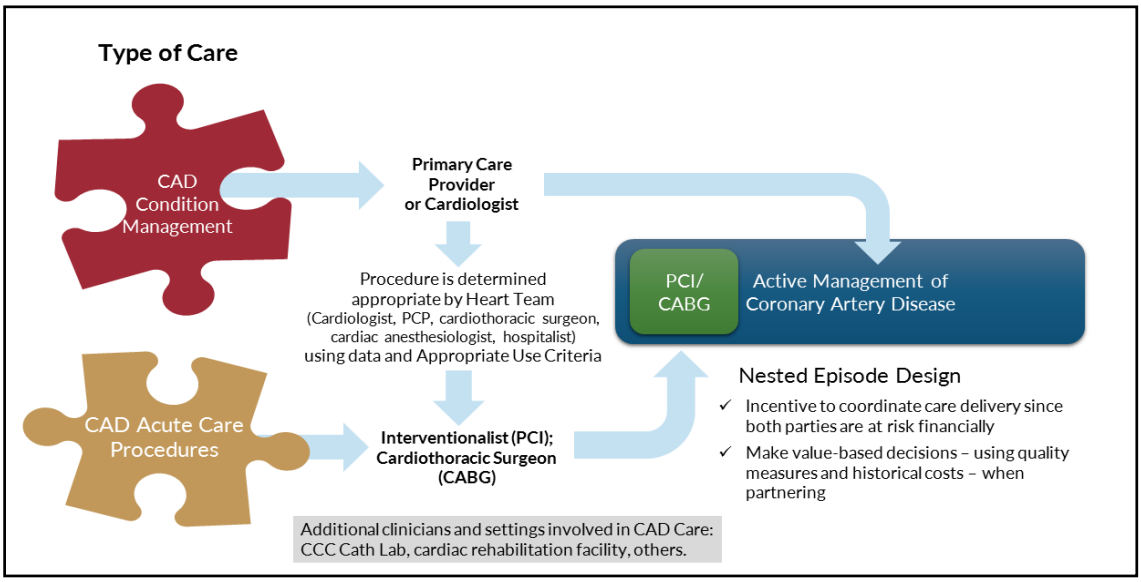
- High-quality CAD condition care and management;
- Appropriate use of CAD procedures; and
- Coordination among the all providers, including those who oversee condition management and those who perform the procedure.

Given the number of procedure-level episode examples available for reference (Appendix E), the discussion presented below focuses primarily on the condition level design recommendations and 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 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 9 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:

- 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 changes to manage the patient's condition in order to avoid 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 coordination among the PCP and/or cardiologist to coordinate surgeons and other care team members to drive improved patient outcomes when procedures are required;
- Optimize the delivery of procedures within the context of condition management to align incentives across PCPs/cardiologists and intensivists/surgeons; and
- Motivate expanded transparency of clinical quality information—for both providers and patients—to facilitate management of the condition.

Recommendations: Coronary Artery Disease

The CEP Work Group reviewed a range of existing episode payment initiatives (see Appendix E). Based on their experience and the analysis of current initiatives, the Work Group developed recommendations on the elements that reflect the decisions that payers and providers need to make prior to implementation.

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 comprehensive 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 as care for a cohort of patients with diagnosed CAD, for a 12-month period that will ultimately align with the benefit year (see Episode Timing). Once aligned with the benefit year, the episode will continue for consecutive periods of 12 months of active care management for as long as a patient is under active management for CAD. PCI and/or CABG procedures deemed necessary during any given 12-month episode period will also be delivered within an episode payment model.

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. 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 CAD condition episode includes payment for 12 months of preventive care, disease management, and any necessary procedures and follow-up care for those procedures. Recognizing that CAD is often a chronic, life-long condition, a new 12-month episode period will begin as the previous period ends, for as long as the patient is in need of active management for Coronary Artery Disease. As will be discussed in the next recommendation on Episode Timing, a patient's initial entry into the episode may last for fewer than 12 months, depending on whether model is designed to roll patients into the episode at the beginning of the month or quarter following diagnosis. However, by their second year of receiving care through this episode, every patient would be in a 12-month condition management time frame, beginning at the start of the plan benefit year.

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). Identification of patients for this episode is discussed in detail below.

2. Episode Timing

The 12-month condition episode may commence at various points post diagnosis; the procedure episode begins 30-days pre-procedure and lasts 30-90 days post discharge.

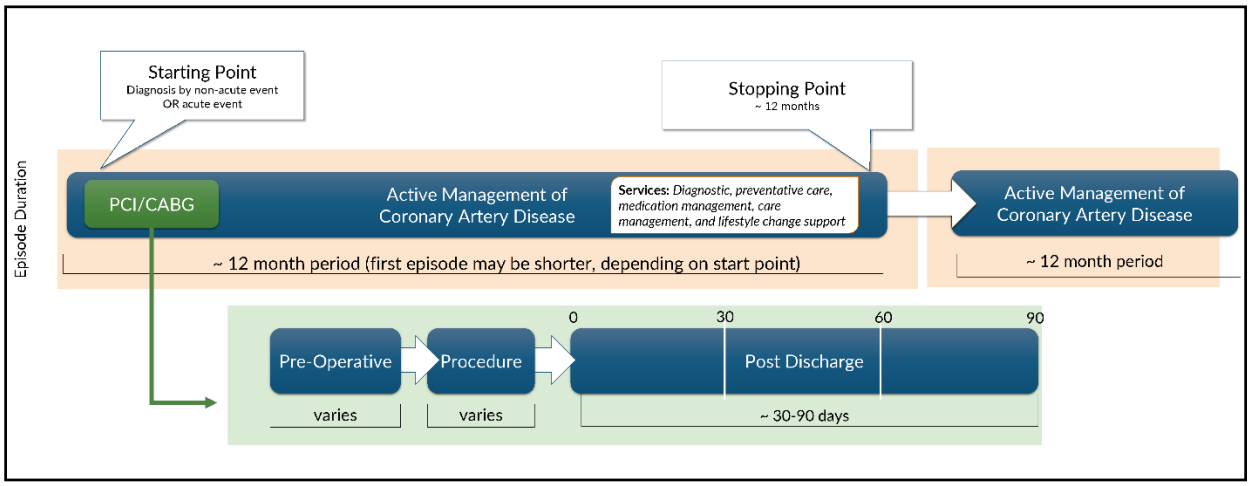
The episode period includes 12 months of care, which—by the patient's second year in the episode at the latest—will run concurrent to an individual's coverage benefit year (Figure 10). It is expected that most patients will continue to be included in a CAD episode for multiple years, given the chronic nature of the condition. There are options regarding at what point the condition episode should begin after CAD diagnosis.

1. **Begin at the Next Benefit Year:** Given that patients are diagnosed with CAD throughout a benefit year, one option is to flag these patients and include them in the episode at the beginning of the next benefit year. This simplifies operationalization of the episode, including the collection of quality measurement data, and reconciliation of payments, and 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. The concern that costly procedures that may not be necessary or appropriate for the patient will be "front loaded" in the time between diagnosis and the start of the episode is the downside to this design. One strategy to mitigate unintended consequences of this design may be to create a resource use monitoring window of several months prior to the start of the benefit.

2. **Begin on the First Day of the Next Month (or First Day of Next Quarter):** While operationally more complex, establishing the episode starting point as the beginning of either the month or the quarter following a diagnosis will address, but not completely eliminate, concerns about potential under or over use of services. In this option, the patient's first year in the episode would be only as long as the remaining number of months in the benefit year. In the following year, the episode start would align with the benefit year, and the patient would experience a full 12-month episode period. This option combines the benefit of reducing potential under or over use of certain services or procedures with the benefit of administrative ease in the patient's second year and beyond.

For payers, one important factor to consider when designing the episode start is the method by which patient settlement and reconciliation is processed. A process in which episodes are settled on a case-by-case basis will accommodate greater flexibility and allow patients to be moved in to an episodic incentive initiative on a rolling basis. If a payer settles episodes based on averages over a performance period, there may be less room for flexibility in the starting point.

Figure 2: CAD Episode Timeline



In the event of PCI or CABG, the start of the episode depends on whether it is acute or non-acute. If it is an elective PCI, the episode begins with a 30-day pre-operative period. The inclusion of 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 soon 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 (Figure 10) to which readers can refer to weigh the benefits of extending the procedure episode to 30, 60, or 90 days post discharge. It may also be useful to build in a 30-day look-back period from diagnoses to capture the costs of the work up to obtain the diagnosis. 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, to incentivize seamless transitions between each step in the care cycle: Condition management, surgical procedure, hospitalization, discharge, post-acute care, and again, 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 either the next month, quarter or benefit year depending on the design of the model.

3. Patient 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 determination of appropriateness.

The population of patients who could participate in the condition episode is broad and includes all patients flagged by a provider as diagnosed and under active management for CAD. Individuals who disenroll from their health plan prior to the end of the 12-month episode period will be removed from the episode population.

Health plans should analyze claims from at least the previous 12 months to as far back as 24 months in order 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, doing so may not add additional value. Establishing a minimum number of visits or claims to be eligible for inclusion in an episode payment could be one way to address patients with limited ongoing needed CAD management. This could also strengthen the delivery of care received through primary care models. An important issue for payers and providers to examine when designing a CAD condition episode model is how to address the variation in CAD severity across a patient population. One way to address this is to establish patient cohorts defined by whether a patient's CAD is stable or unstable, or by whether they require medical, surgical, or percutaneous treatment.

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. Providers should use such tools as the Appropriate Use Criteria for Coronary Revascularization Guidelines[1] and/or the appropriateness guidelines developed by the Society of Thoracic Surgeons (STS) to determine whether a patient should undergo a non-acute procedure (Patel, 2012; American Association for Thoracic Surgery, 2016).

In addition to appropriate use criteria and guidelines, other models exist for determining—together with a patient—whether a procedure is appropriate. One example is the "Heart Team"[2] approach, created for use in the TransCatheter Aortic Valve Replacement Program. For patients in this program, a Heart Team consists of a variety of clinicians including, but not limited to, a cardiologist and/or primary care provider, cardiothoracic surgeon, cardiac anesthesiologist, and hospitalist. The Heart Team serves to review cases in which a patient is referred for invasive CAD treatment by assessing patient data, consulting with the patient and family, and discussing best options for care. This model would require consideration of appropriate reimbursement within the episode price if included in an episode design.

[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.

[2] Society for Cardiovascular Angiography and Interventions, "The Revascularization Heart Team: Take Patient-Centered Care to Heart, August 26, 2014, *http://www.scai.org/QITTip.aspx?cid=e7ec55bc-8e92-4fcd-8b4d-4cb73bd8af5b*

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 poor health outcomes such as AMI or heart failure, while avoiding inappropriate services. 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. It is extremely important to include cardiac rehab in the procedure bundle, given that fewer than 20 percent of patients eligible for this care go on to participate in a cardiac rehabilitation program. Refer to resources in Appendix H for more information on specific services included in PCI and CABG episode payment models. One issue to consider is whether a patient who receives a concomitant procedure—such as a valve replacement—during the course of a CABG should be included in the nested procedure episode. Examples of how CABG episode payment has been designed and implemented will provide guidance on questions related to what services and potential concomitant procedures should be considered within the scope of the CAD procedure episode model.

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, the care that is 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 because those practices will also have accountability for the costs and quality of care for that patient living with CAD. The box at right describes Comprehensive Primary Care Plus (CPC+), one prominent upcoming primary care-related initiative.

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. While a cardiologist is not going to manage a patient's chronic kidney disease care, 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, diabetes care, or other comorbidities associated with CAD will need to be addressed for multiple reasons. Determining the list of services to include will have a direct bearing on the level at which the episode price is set, and determining how to code services that are relevant to care for CAD and its comorbidities will have a direct bearing on whether a provider is determined to have come under, over, or hit the episode price target at the completion of the episode. For example, there is the potential for coding lifestyle change support services to the diabetes condition—instead of attributing that spending to the CAD episode—if a provider is participating in the CAD episode but not a similar episode for diabetes.

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. It is also possible that this will not be an issue for primary care providers who are working within a system that operates multiple episode payment models. Ultimately, whether the implementing organization seeks to develop a discrete CAD episode model (i.e. more narrowly defined service inclusions) or if it has already established other episode payment models that it wants to build upon (i.e. broader set of service inclusions) will determine how broad the service inclusions will be in this episode.

The Comprehensive Primary Care Plus (CPC+) Initiative and CAD Episode Payment

The Center for Medicare and Medicaid Innovation (CMMI) recently announced the Comprehensive Primary Care Plus (CPC+) initiative to support the delivery of care via advanced primary care medical homes. The CPC+ initiative builds on the foundation of the Comprehensive Primary Care (CPC) initiative, which concludes in December 2016.

The hallmark of the CPC+ initiative is its multi-payer payment redesign focus, which will involve coordination across CMS, commercial insurance plans, and state Medicaid agencies to support primary care practices in making significant and fundamental changes in how care delivery occurs, to achieve the goals of 1) access and continuity, 2) care management, 3) comprehensiveness and coordination, 4) patient and caregiver engagement, and 5) planned care and population health.

Given the role that primary care providers play in the care management of patients with CAD, it is possible that CPC+ initiative participants may also consider implementation of this CAD episode model. It will be important to consider the implications of the CPC+ initiative on the episode design and implementation as part of the design process.

5. Patient Engagement

Models should support patient and family involvement in episode payment design, implementation and evaluation; as well as patient and family engagement in all phases of cardiac care, facilitated by Health Information Technology.

Person-centered episode payment models have a strong investment in engaging patients in multiple ways, including through shared care planning, shared decision-making, comparative quality information, care coordination, chronic disease management tools, transparency of payment information, and care transition support. Examples of the types of processes and tools described in this section are in Appendix H. To be effective, communications and resources must be tailored to the health literacy level of patients and families and linguistically and culturally appropriate.

Supported, Shared-Care Planning: Providers should incorporate shared care planning early in the delivery of care. This process should include collaborative provider-patient goal setting related to both the care for CAD as a condition and any goal setting related to a PCI or CABG procedure. Shared care planning also involves ongoing decision making and monitoring, using documented individualized care plans that are accessible to the patient, families, and providers.

Shared Decision Making: Over 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, including how best to manage their condition through medication and lifestyle approaches; and 2) determining whether to undergo a PCI or CABG procedure. However, the shared decision-making process cannot be a check-the-box activity. 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 a threshold score using the International Patient Decision Aids Standards (IPDAS).

Comparative Quality Information: Patients and family caregivers must be provided with information about the procedure complication rates and quality of possible surgeons and possible acute-care facilities. Clearly designated personnel without conflicts of interest should assist patients with identifying eligible providers and in finding and interpreting relevant information about those providers. Transparency of quality information may also allow the patient – together with the provider and family—to make informed decisions on the inclusion of certain providers on the care team.

Coordination Across Provider Settings: Care coordination takes various forms, including the following:

- **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 those overseeing a patient's overall CAD care management, and the patient's primary care providers. Within this care coordination, however, is the often challenging aspect of care known as care transition. Following discharge from a hospital, 49% of patient experience at least one error in medication continuity, diagnostic workup, and/or test follow-up, 19% 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). A CAD episode

model needs to engage patients in transitional care services to be successful. During the transitional time, providers must communicate with each other, family caregivers must be engaged and involved in post-acute care planning, and patients must be 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 skills that promote and support continuity of care, both in the hospital and for 30 days post discharge.
- The American College of Cardiology and the Institute for Healthcare Improvement's **H2H Hospital to Home Quality Initiative** focuses on post discharge medication management. This ensures the patient has symptom management and a rapid follow-up appointment with their cardiologist or primary care provider to ensure that the patient fully understands the signs and symptoms that require medical attention.

It is also important to discuss the options of in- or out-of-network post-acute or follow-up care with patients and family caregivers. In the Medicare FFS program, this may involve discussions related to choice of post-acute providers, confirming that the patients still have freedom of choice. This is a critical patient conversation because a patient may not wish to see a provider that is within a specified payment arrangement.

Chronic Disease Management Tools: The goal of condition-management care is two-fold. First, it is to help patients make the kind of lifestyle changes that will prevent aggravation of their disease or the need for a procedure. Second, it is to manage a patient's medication protocol. Patient engagement is critical in both areas 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 both emotional support and tips and tricks from others who have experienced similar concerns to patients diagnosed with CAD. When available, high-quality decision aids should be used to make care management decisions. A study to track the effects of smartphone app usage was conducted by the Mayo Clinic and followed 44 patients participating in

Deploying Meaningful Shared Decision-Making for Patients and Caregivers

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

- 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.

Following an opportunity for the patient and family caregiver to meet with a decision coach or a nurse educator to review decision tools and get answers to any questions, they should determine together with a care provider the optimal path forward.

cardiac rehab following a heart attack and PCI. Patients were divided into two groups: one that used an app to record their weight and blood pressure daily in a 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, and the importance of engaging patients in "owning" their lifestyle behavior changes (Klein, 2014).

Transparency of Reimbursement and 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.

SMARTCare Pilot: The Florida and Wisconsin chapters of the American College of Cardiology developed this pilot project 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—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.

Patients should be involved with all aspects of identifying and achieving care goals and should actively participate in their care planning. They should also be encouraged to engage their primary care provider in their decision-making process, especially those patients with chronic disease. Integration of health information technology that facilitates access to health data, shared-care plans, educational and support tools, and communications with members of the care team can improve the topics discussed in all of the above sections. One example of a tool that is providing access to these data is the successful Open Notes project, which is providing a growing proportion of patients to full access to their electronic health records (Bell et al., 2015; Esch et al., 2016; Walker, Meltsner, & Delbanco, 2015). HIT is also crucial for timely filling of prescriptions, making necessary appointments, communicating with members of the care team between visits, and completing patient-reported measure surveys.

6. Accountable Entity

The accountable entity should be chosen based on readiness to re-engineer change in the way care is delivered to the patient and to accept risk. In this model, the accountable entity will likely require a degree of shared accountability, given the number of clinicians working to care for a patient.

Overall Readiness: The question of readiness to both re-engineer the care delivery model for the patient, and in the process, accept the financial risk they might incur, is central to the determination of what entity or entities should be accountable. There are a number of key requirements needed for success regardless of which entity (or entities) are held accountable. 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. This process can require active participation across the continuum by aligning incentives across contracts in the private sector, because the payer often has contracts directly with providers. Medicare allows for full freedom of choice of provider in FFS, and the risk spreading may take the form of a gain-sharing relationship once a Medicare waiver is in place. 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.

Factors to Weigh in Determining Readiness for Episode Accountability:

- Minimum-volume standards, in acute and post-acute care, for the CAD patient population;
- Ability to deliver, or contract for, the entire bundle of services to be rendered;
- Demonstrated ability to care for CAD patients;
- Effective discharge planning capacities, including systems to include rehabilitation physicians and extenders early in the discharge planning process to help in identifying the proper trajectory of patients and their care;
- Ability to manage transitions or handoffs from one setting to another when necessary (e.g. entry, transitions, and discharge);
- Ability to track quality indicators and patient outcomes across an array of services and settings;
- Demonstrated dedication of the hospital, physicians, nurses, therapists, and other clinical professionals' time to the programs;
- Capacity to monitor patient clinical status and coordinate medication management/reconciliation as patients progress across acute and post-acute care settings;
- Ability to coordinate with other community services to foster the patient's independence;
- Necessary financial systems to administer payment across multiple entities; and
- Ability to tolerate financial risk, including post discharge outcomes, such as readmissions, and understand its own risk exposure.

There will need to be accountability placed on the clinician(s) who oversee both the condition management and the PCI or CABG procedures in situations where either procedure is needed. Shared accountability is an important design idea to consider, especially given the importance of a team-based approach to this model. Under this shared accountability umbrella, payers can negotiate 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(s) in a given market can act most effectively in achieving a CAD episode payment initiative's goals and establish that provider or providers as the accountable entity.

In some instances, the care team may be narrower, particularly if one clinician or clinician organization is able to provide both the condition-management care and conduct 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.

The accountable entities in current examples of CAD episode payment vary. Because current models are typically procedure based, it is often the hospital that serves as the accountable entity. Sometimes, it is the physician practice (often the cardiology practice). In many cases, the clinician, when acting as the accountable entity, can have the greatest impact on care redesign 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 the hospital. Further, 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 the hospital served as the accountable entity, which is consistent with the episode definition as it is limited 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. The accountable entity in the more recent Bundled Payment for Care Improvement demonstration, which included cardiac care such as CABG, PCI, or AMI, could be a physician practice, hospital, health system, or a so-called convener that would organize the effort across multiple sites. Premier, which is an organization that works with hospitals, and Cogent, which manages hospitalist practices, are two examples of such. It is not surprising that the accountable entities were often hospitals inasmuch as this bundled payment program was also centered upon procedures delivered in the hospital—albeit somewhat broader in several models (Centers for Medicare & Medicaid Services, 2016a).

Ability to Accept Risk: Ability and readiness to accept risk are high priorities among the factors that should be used to determine the accountable entity or entities. 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. Limiting the level of risk associated with the episode can mitigate this limited ability for physician practices to take on risk. Recommendation 7, Payment Flow discusses some strategies for doing this.

In situations where shared accountability is not feasible, other scenarios might include one multi-specialty group holding accountability for both the condition and the procedure, using internal mechanisms for operationalizing joint accountability, or a cardiology practice holding accountability for the entire condition episode, and as part of this accountability, coordinating with a surgical practice if a procedure is deemed necessary. Again, transparent, accessible quality information will help the accountable entity seek out the highest-performing proceduralists. The commonalities of these notional scenarios are that the accountable entity is incentivized to ensure the care in the procedure (if needed) is as efficient as possible, that the hand-offs pre and post procedure are as smooth as possible for the patient, and that the clinician accountable for the full episode seeks to contract with the highest-performing proceduralists.

See the chapter on Operational Considerations for a discussion on two related issues: First, in the data infrastructure section is a discussion of the structures necessary to facilitate coordination and communication across members of the care team and between clinicians and patients. Second, in the regulatory environment section, is the discussion of how state laws may affect how much risk providers

are allowed to incur. For example, some states' laws and regulations are supportive of hospitals to serve as the accountable entity, rather than a physician or physician practice.

7. Payment Flow

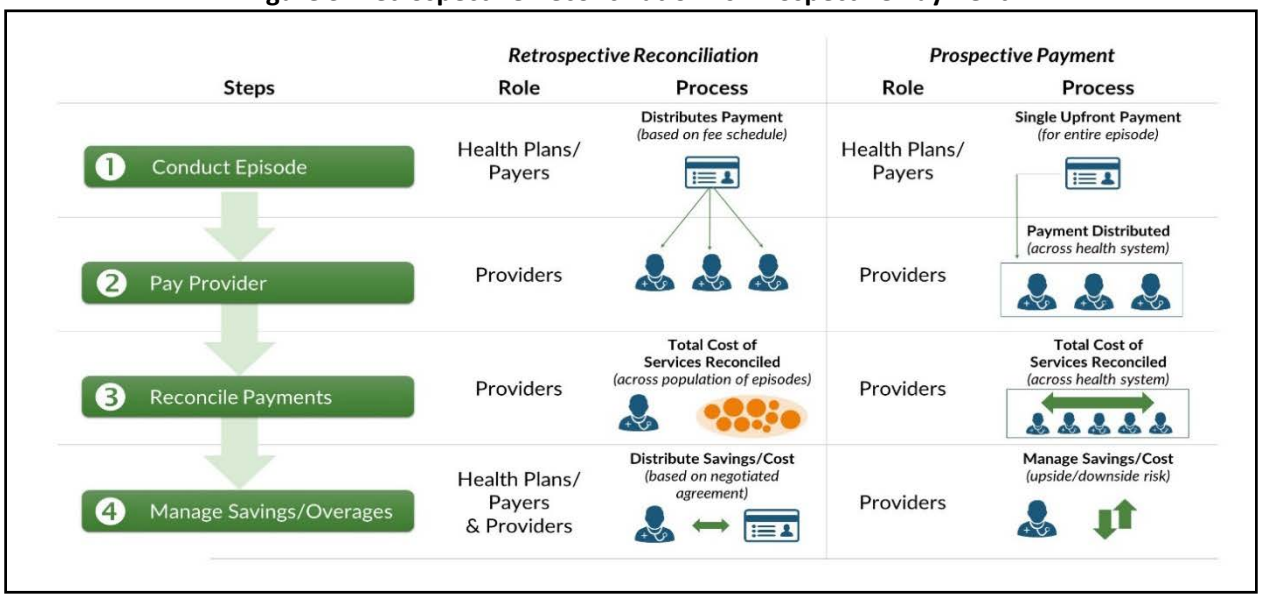
The unique circumstances of the condition-level/nested procedure episode model makes upfront FFS payment to individual providers within the episode, with retrospective reconciliation and potential for shared savings/risk, the more feasible option.

Episode payments are typically dispersed via either prospective payment or retrospective reconciliation (Figure 11).

In **Prospective Payment**, payment is provided for the whole episode, including all services and providers, and paid to the accountable entity, which subsequently pays each provider in turn. This payment typically occurs after the episode has occurred, but is termed "prospective" because the price of the episode is set in a prospective budget ahead of time. 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 are managing the predetermined price.

In **Retrospective Reconciliation**, individual providers are each paid on a typical FFS basis and then the target episode price and the actual average episode price are reconciled 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 after an episode's end, and a final reconciliation is typically conducted within six months of the episode's completion. For this CAD episode, these reconciliations take place in roughly April and June. Based on a specific formula, either negotiated or determined by the payer, the accountable entity can share with the payer in gains and/or losses. Gains or losses are also shared among providers in the episode to encourage collaboration and coordination across settings in some instances. These types of gain-sharing arrangements need to be considered within the constraints of federal laws that may impact their design, which is discussed in further detail in the regulatory infrastructure section of Chapter 6, Operational Considerations.

Figure 3: Retrospective Reconciliation vs. Prospective Payment



While 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, the Work Group recommends using retrospective reconciliation for this episode model. Retrospective reconciliation is simpler to administer, and 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 because it does not require providers to develop the capacity to pay claims, it allows for better tracking of the resources used in the episode, and it can be built on an existing payment system. Retrospective reconciliation may also continue to engage the payer as a partner as they maintain a more direct interest in the financial success of the program.

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, which is the case in integrated systems. However, prospective payment may also be better at encouraging innovation as providers in a prospective payment program are often not limited by the payer's coverage policy. Increased use of prospective payment can accelerate development of various supporting mechanisms to aid in this process. One caution on prospective payment in a FFS Medicaid program is that there may be regulatory barriers for one provider assigning payment to another. Legal counsel should be sought in this scenario.

An additional consideration in this CAD episode payment approach 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, the manner in which those gains or losses are split within the time period of the procedure episodes will be a critical issue.

8. Episode Price

The episode price should strike a balance between provider-specific and multi-provider/regional utilization history. The price should 1) acknowledge achievable efficiencies already gained by previous initiatives; 2) reflect a level that potential provider participants see as feasible to attain; and 3) include the cost of services that help achieve the goals of episode payment.

Pricing episodes is significantly complex as a result of the need to both assure the accuracy of estimates and 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 at the lowest cost. 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. For example, Recommendation 3, Patient Population, describes the importance of using a model such as the "Heart Team" to help make appropriate determinations. Incorporating this model, which is not currently used under traditional FFS reimbursement, will require calculating the reimbursement costs to do this work.

It will also be necessary to identify a price that both reflects current utilization practices and creates an achievable "stretch" goal. Factors such as decreased rates of use of certain testing, procedures, or lower complication and readmission rates may affect the episode price as a result of this. In essence this bakes in a certain level of downside risk, but the provider knows upfront the target they must reach. However, the episode price should not be set so low that providers are discouraged from delivering all necessary care.

The manner in which the episode price is established largely determines the monetary rewards or penalties that an accountable entity may experience. Several key aspects interact in the determination 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 costs for the services described in Recommendation 5, Patient Engagement, in the target episode price in order to provide sufficient resources for care coordination, care transitions, shared decision-making, and other strategies.

Balancing Regional and Provider-Specific Data: Cost data should reflect a mix of provider and regional claims experience. The goal of including regional, rather than market-level data, is to ensure that there is enough variation in episode cost. This mix will also ensure that the established episode price takes into consideration the unique experience of the specific provider, and that the goals are set based on what is feasible in the region. Risk adjustment will be needed during this process to adjust for the unique characteristics of the population the provider serves. If the payer is a national payer, it may be more difficult to address specific provider issues and will require consideration of the use of national claims experience to ensure equity across regions. Over time, as performance becomes less variable, it may be useful to lessen the proportion of the episode look-back period that is based on the organization's

specific experience. The payer can also include an estimate of a decrease in costs based on improvements in some cases, such as lower rate of PCI or CABG, or reduced rate of hospital readmissions post AMI. The Work Group recommends balancing regional/multi-provider[3] 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. This emphasizes 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. One issue with using regional claims is that if providers in that region as a whole have already achieved a certain level of efficiency, they may be less able to achieve further savings. These regions—or the providers in them—could argue that an efficient region will be "punished" for its previous work to achieve these efficiencies. On the other hand, if the region has a higher per bundle cost on average than other regions or specific providers within the region, the payer may achieve fewer savings than if the episode price was set at a national or provider-specific level. While basing some part of the price on region, it is also important to note variation across regions and to consider whether variation across the regions is warranted. It is important to look at this closely, and not just "bake in" regional variation if there is not an objective reason for doing so.

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 will conduct the analysis using the current episode definition and apply it to its CAD patients from the past two years. However, this can come with challenges—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.

A combination of provider and regional claims experience should be used as data. This mix will ensure both that the determined 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. This process will also require risk adjustment to adjust for the unique characteristics of the population the provider serves. Recommendation 9, Type and Level of Risk, discusses this further.

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 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, 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

[3] 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.

reconciliation payment flow, since a plan may want to conduct retrospective adjustments after a certain number of quarters based on patient resource use. The Work Group also recommends that payers track the frequency of diagnostic testing over the first quarter of the episode in a newly diagnosed patient in order to understand and assess pricing in subsequent years.

The price for the procedure episode can be calculated as a percentage allocation carved out from the underlying condition episode price. It is reasonable to 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, the episode price will account for a certain number of procedures that may occur across the population as a whole. 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, it will be important to assess whether a provider is conducting procedures that may not be appropriate or necessary.

The procedure episode could be priced with historical data applied to the episode definition for the procedure—the same basic foundation as the condition. It would be necessary to calculate the 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 essential to determining the episode price. Health plans should ideally use 12 to 24 months of patient historical data. The depth of historical data will differ depending on whether the model is being designed for Medicare, Medicaid, or for a commercial payer. One concern is that there is a wider range in cost and utilization within and across markets for cardiac care than there is in a common procedure episode. One option for starting to develop a full condition episode price with the nested procedures is to begin by pricing the procedure episodes, and building the condition episode around the procedure. This is particularly relevant here, since historical data on procedure price may be most feasible to collect and use. The role of negotiating power is also an issue. Prices will vary based on market share. While negotiating power based on market share is not helpful, CEP can encourage transparency across providers and expose these types of variances to drive market to those who are providing a higher value product.

Incentivize More Efficient Levels of Practice: In addition to historical provider and region-level data, the episode price should be based on the performance of the better performers in a particular market, such that all providers can see that the episode price and the quality metric performance thresholds are feasible to achieve. If a provider's performance is already at a relatively efficient level, it will need to see some reward for that achievement at the same time that low performers will have an incentive to improve.

The episode price can be revised over time to ensure continual improvement by both the more and less efficient providers. In this way, the episode price automatically integrates savings and simultaneously incentivizes a compression of variation in cost and quality across all providers. Finally, the episode price should take into account services that are historically under-reimbursed, and thus, underused, but are of high value to the patient. Care coordination, patient engagement, shared decision making, and assessment of patient-reported pain and function are examples of services that could fall under this category.

Other Factors Impacting Episode Price

There are many other factors that should be used in developing the episode price, though the ability to do so will depend on the availability of data and analytic tools. These include:

Socio-Economic Status of the Patient Population: There are a number of socio-economic factors that have a significant impact on a patient's health status prior to the joint replacement procedure, access to care, and post-procedure rehabilitation and follow-up care. These include income, literacy status, living status (living alone, living in a community without family or other supports nearby), availability of transportation (both in general, and to care settings), and others. Certain socio-economic factors may align with a specific payer category, whether it be Medicare or commercial payers.

Public vs. Private Payers: There are differences between public and private payers that should be acknowledged and reflected in the episode pricing. In addition to the socio-economic status of the patient population, as described above, there is also a difference in how overall pricing is set. For private commercial payers, pricing is an element of negotiation; in the public payer realm, prices are set by the public payer. Either way, this will impact the level at which the episode price is set, as will the market in which the payer operates. Most private sector payers will need to negotiate with providers on the episode price, particularly if participation is voluntary. If the initiative requires participation, it may be easier to establish an episode price, as is the case for the CJR.

Trusted Empirical Data: One challenge is the ability for payers and providers to understand the variation in the costs of the episode across their region. Determining the appropriate price requires empirical data from a trusted source. The availability of these data to identify the opportunities for efficiencies is critical to the success of these initiatives.

Episode Payment Flow: The episode price can be set retrospectively in an episode model for which retrospective reconciliation is the selected payment flow. Similarly, the price can be set prospectively in a model designed around prospective payment. Thus, setting the episode price and the payment flow should be part of an integrated process.

Patient and Family Definitions of Value: Information on the types of services that are most valued by patients and their families should be considered in determining the episode price. This information would not typically be captured via historical data, but rather via engagement between providers and their patients, as well as between purchasers and their employees.

For further discussion on this topic, please read the paper on Financial Benchmarking, click here.

9. Type and Level of Risk

The goal should be to utilize both upside reward and downside risk. Transition periods and risk mitigation strategies should be used to encourage broad provider participation and support as broad a patient population as possible.

The goal should be to incorporate both upside reward and downside risk when setting an episode price. Without downside risk—where the actual costs exceed the target episode price—the accountable entity and other involved providers have less incentive to redesign care 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 due to the reliance on historical data. Prospective payment includes both by definition. Retrospective reconciliation with upfront FFS payment can be designed either to only share in savings (upside reward) or to share in losses (downside risk). In some cases, payers will begin with upside reward to allow for the provider to establish the infrastructure and reengineer care practices in order to become capable of managing downside risk in the future.

Payers can utilize strategies to limit that risk or to transition (phase in) to downside risk arrangements over time in order to address concerns related to the level of risk. This is particularly important if the initiative is voluntary and participation would be limited without the option for only upside reward. 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.

Safety Net Providers and Risk

A primary goal in designing any alternative payment model arrangement is guarding against unintended consequences. In episode payment for coronary artery disease, the unintended consequence that concerns all providers – but perhaps safety net providers most of all – is the potential for decreased access to care for patients with poor health status, which puts them at increased risk for poor outcomes. This may be correlated with lower socio-economic status if the provider feels that it will not be possible to provide the full continuum of care and achieve positive outcomes within the episode price. Safety net providers in particular may need time to develop adequate reporting and staffing infrastructure; and build relationships across historically siloed organizations in order to feel prepared to take on the risk in an episode payment model.

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 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 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 when the fact that an accountable entity is accountable for care provided by other providers is taken into account. In the case of cardiac care, who accounts for the largest percentage of overall costs? The FFS payment received by the accountable entity—the physician practice—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 additional strategies used by various initiatives to limit risk in an episode payment while still maintaining as broad an episode population as is feasible. These are often, but not always, used in tandem.

Risk Adjustment: Risk adjusting the episode price based on the patient severity within the CAD population is one risk-mitigation strategy. Most initiatives will both include a list of included and excluded patients and 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). Another example is the Society for Thoracic Surgeons (STS) National Database, which includes more than 5.4 million patient records. The database contributes to the STS Risk Calculator, which allows users to calculate outcomes such as a patient's risk of mortality and length of stay. 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. However, 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. For further discussion on this topic, please read the paper on Financial Benchmarking, click here.

Stop-Loss Caps, Risk Corridors, 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 that the overall costs of the episodes may exceed the established episode price. These corridors can also be placed on the upside reward, so that the incentives to limit care are less than they would otherwise be. Another risk-mitigation strategy is to require the accountable entity to maintain a certain level of capital in order to 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; use quality scorecards to track performance on quality and inform decisions related payment; and use quality information and other supports to communicate with, and engage patients and other stakeholders.

There are two tiers of measurement necessary in this model—measures that provide information on the quality of condition management, and 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 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 greater focus on the use of episode-level measures that allow for assessment of patient outcomes across care settings and providers. That said, it is most effective if all stakeholders in the initiative, including providers, agree on the value of the measures.

Given 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 their cardiologist/PCP, from their surgeon in the case of procedures, and from measures of functional status pre and post procedure, and over time with a condition.

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 when selecting the metrics for an episode payment model. 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 is not recommended because it would not be fit for this purpose. The Work Group is not including recommendations for specific metrics at this time.

Potential Measures: Table 10 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 divides the set into chronic care and acute care accountability and specifies whether the measures themselves are at the hospital or the physician level. The Work Group recommends considering the measures in Table 10 as a menu of potential options for developing a core measure set for CAD episode payment.

Table 3: Potential CAD-Related Quality Measures for Use for Accountability and/or Payment

Measure	Examples
Clinical Outcomes	• 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) • Hospital 30-day risk-standardized readmission rate following PCI (NQF # X) • 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	• 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)

Measure	Examples
	• Therapy with aspirin, P2Y12 inhibitor and statin at discharge following PCI (NQF# 0964)
Care Transition Coordination	• Post discharge appointment for heart failure patients (NQF #2439)
Patient-Reported Outcomes	• 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	• Cardiac Stress Imaging Not Meeting Appropriate Use Criteria: Routine testing after PCI (NQF# 0671)
Functional Status	• 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	• 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. As a result, it is imperative for the CAD episode model to include clinical outcome measures for the purpose of accountability and in order 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, due to 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 are core features of any episode payment initiative. 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, both 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 in order 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 across the nation 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 both 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 for procedures such as CABG and aortic valve replacement (AVR), among others. The work of the STS and others within the National Quality Registry Network (NQRN) could be a major contribution 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 many 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. Patients 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 is the STS Public Reporting Initiative. Though the STS' initial efforts focused on CABG performance, it has also added quality data on Aortic Valve Replacement (AVR) surgery. The STS uses a composite CABG score that includes 11 different components of clinical care, which include both 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 both to develop provider networks and to help employees make these choices. Employees need to understand the bundle and what their role is in providing 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 identifying and interpreting this information. The use of patient navigators—for whom some existing initiatives have substituted community health workers—can be helpful in providing this support. First, however, the information itself must be available. It is important, therefore, to establish cross-cutting efforts to define metrics and systems for data collection and analysis. It is a significant burden, however, for each initiative to define its own metrics, collection system, and scorecard. Broader efforts are needed to build the necessary infrastructure for meaningful development and use of quality performance information, and building these systems is one of the key challenges discussed in Chapter 6, Operational Considerations. To read the LAN White Paper on Performance Measurement, click here.

HCP LAN
Health Care Payment Learning & Action Network

CLINICAL EPISODE PAYMENT MODELS

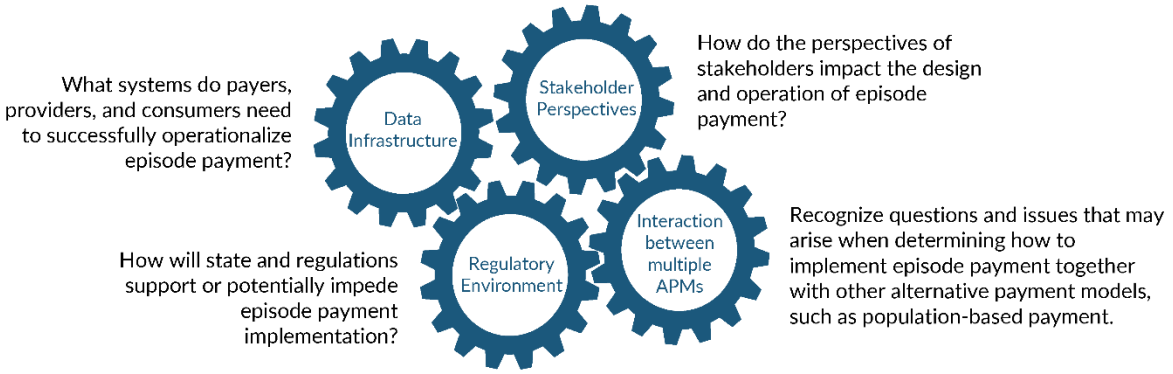
OPERATIONAL CONSIDERATIONS

Chapter 6: Operational Considerations

In this section, the CEP Work Group does not offer specific recommendations. Instead, the Work Group has developed a set of 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; staying abreast of regulatory statutes and regulations that could affect the design and operation of episode payments; and, finally, considering how episode payments interact with population-based payments (Figure 12).

Figure 1: Operational Considerations



1. Role and Perspectives of Stakeholders

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

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 (including states and the federal government), may be interested in creating incentives for providers to develop the capacity to invest in data infrastructure to support that goal. Meanwhile, providers may be equally interested in the potential of episode payments and can be valuable innovators. But they may have reservations about leadership and accountability when it comes to care coordination across multiple medical settings. Involving patients and families in myriad ways throughout the episode as partners in their own care and in the design, implementation and evaluation of episode payment models is an essential strategy for advancing value-based care and improving outcomes. They can also provide valuable feedback on how the methodology impacts the patient.

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 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. Another consideration that impacts the roles and relationships among the various stakeholders is whether the initiative is voluntary or mandatory. For example, if a given market is characterized by having significant alignment of multiple payers or has one dominant payer, there is greater opportunity for a payer to make participation mandatory. Whether it is voluntary or mandatory, the negotiations among providers, purchasers, and payers will need to ensure that participation is feasible for those to whom it applies.

Stakeholder Perspectives

Patients and Consumers: Patients and their families, caregivers, and consumers contribute to, and benefit from, episode payment models, including by participating in design, governance, evaluation, and improvement of episode payment models. They can use high-quality decision tools to decide about appropriate care. 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. Patients and families can participate in shared care planning and benefit from care coordination to implement care plans and monitor quality. Finally, consumers and patients can provide important feedback on care experiences and outcomes, which helps measure success and drive improvement. Health information technology facilitates their involvement throughout the episode.

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 (clinicians and facilities) look for indicators of sufficient leadership and accountability for episode payment to be established to ensure that the goals of care redesign 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: 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. Large purchasers hold significant leverage with payers and providers and can push for episode payment within their contracting negotiations. In the case of maternity care, this leverage is held by employers and state Medicaid agencies that can encourage their managed care organizations (MCOs) to use bundled payment for maternity care. In the CAD 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.

2. Data Infrastructure Issues

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

One of the biggest challenges to implementing a clinical episode payment model is the process of managing and sharing the vast amounts of data necessary to assess, manage, and mitigate risk and to use it to improve quality and outcomes for patients. 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 to coordinate care and engage patients in their care.

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 require pulling claims from multiple data files, applying exclusionary rules, calculating and updating benchmarks and target episode prices, 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.

For episode payment to achieve its potential requires a data infrastructure that supports and facilitates analysis for the following purposes:

- Determining which clinical episodes/conditions to target and what services and costs are considered part of the episode;
- Establishing the episode price;
- Bundling claims to determine historical/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 clinicians to understand patient preferences and expectations, and for patients and family caregivers to communicate preferences and goals. For these purposes, an episode payment data system by itself may not be sufficient. Other clinical data and patient decision aid information will also be important. However, the payment systems that analyze FFS claims data can also provide important information on the types of clinical decisions and the impact of those decisions on patients experiencing similar conditions.

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. Although the needs are complex, some companies have developed the capacity to assist payers and providers in these functions. Further movement toward the use of clinical episode payments will create an even greater market for such services whether they are developed by a third party or whether the payer creates their own solution.

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, digital systems that provide information to patients and enable them to communicate with their providers and take an active role in their care are also key and must be tied to the provider data analytics. The grouping of claims is primarily a payer function; however, the clinical infrastructure is something that a provider may want/need to develop on its own, or it is possible that a payer can assist. This is a critical decision point when implementing CEP.

The Work Group recommends the following two concepts 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. State-sponsored All-Payer Claims Databases (APCDs) are an example of a data warehouse that could pull together data across payers for these purposes. In any implementation scenario, neutral sources of such data and analysis will help to facilitate multi-payer analysis. 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.

A Core Set of Logic: A core set of logic will assist the health care industry in developing the capacity for grouping claims into bundles by standardizing the core logic, but allowing each payer to customize a portion of the more granular 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 way 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).

Several other legal issues also impact the implementation of clinical episode payment. For example, EMTALA is an important consideration when pricing the three episodes of care discussed in this paper. Patients being seen for the first time in the emergency room will be given whatever care the hospital and clinician on call determine feasible without regard or awareness of the clinical episode payment context. This may be particularly important for maternity episodes if the bundled payment is developed using the cost of a birth-center birth.

Regarding medical liability, it may be the case that clinicians and facilities need to consider concerns related to liability with their preferred treatment. There may also be concerns with liability when multiple providers are sharing accountability in a team-based approach. Payers need to be aware of and acknowledge these concerns. With maternity care, liability laws for the clinicians (including OB/GYN, midwives, and birth centers) vary across states regarding birth; those establishing a maternity care initiative should have an understanding of their state laws.

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).

In addition, we note that, given limits on reassignment of claims, if a state pays FFS for EJR, Maternity or Cardiac care under Medicaid it may not be feasible to prospectively pay for a clinical episode of care to

one accountable entity that would then remunerate other providers.[1] We highlight this issue for maternity because of the importance of Medicaid as a payer, but it is relevant to the episode types as well.

In the maternity context, we found evidence that it may be helpful for the various participants to know that a series of evaluations of rigorous quality improvement programs has documented rapidly plummeting liability claims, payments, and premiums (Sakala, Yang, & Corry, 2013). It will be important to include these dimensions of care in evaluations of episode payment models because of this relationship.

Regulatory Areas That May Additionally Impact Maternity Payment Strategy

States define the types of providers, including practitioners, and settings of care that support birth. They define licensure and certification of providers and the scope of practice under which the providers operate. At a minimum, these regulations will impact decisions related to participating providers, services covered, and episode price determination. For example, laws that require written agreements for transfers between birth centers and hospitals or that require OB/GYN supervision of births in a birth center can limit the availability of that birthing option if no hospital or OB/GYN is willing to engage in such an agreement. Other state laws create a different minimum length of stay for a birth than the federal minimum and may also need to be considered.

The **Medicaid context** is important to consider, given a large number of births are paid for by Medicaid. A high percentage of those births are paid through MCOs; therefore, it will be important to consider the manner in which a state contracts with MCOs. These contracts must determine whether states could encourage such payment arrangements or whether the Medicaid MCOs may be interested in paying for maternity care in that manner without state encouragement. There are examples whereby a state encourages these types of payment arrangements through their contracted MCOs; whereas, other states have MCOs build bundled payments for maternity care into their contracts with providers without state encouragement. We note that, given limits on reassignment of claims, if a state pays FFS for births under Medicaid it may not be feasible to prospectively pay for a clinical episode of care to one accountable entity that would then remunerate other providers.

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).

[1] See Section 1903(a) (32) of the Social Security Act and the regulations at 42 CFR 447.10.)

4. Interaction between CEP and Population-Based Payment

How do clinical episode payment and population-based payment interact to move payment reform forward?

As the LAN develops recommendations specific to implementing either clinical episode payment or population-based payment, questions arise from those in the field who see opportunities, or at some point in the future, mandates, related to implementing both of these alternative payment models within one organization. There are many questions that payers, purchasers, and providers will need to think about and address when determining whether and how to implement multiple payment models. The discussion here centers on integrating both CEP and PBP, but may apply to other APMs as well.

It is critical that the decision to implement both of these payment reforms (either separate or together) will be taken within the context of a broader strategic goal. As the health system moves towards APMs of all types, a clear vision is needed to avoid confusion and unnecessary complexity. In some instances, it may be the case that using CEP will incentivize the necessary delivery system changes to ensure person-centered care. In other initiatives, payers may implement PBP and find that clinical episodes within the continuum of care become person-centered without CEP. Establishing a goal for adopting one or multiple APMs and measuring movement towards it is critical.

Implementing one APM, either CEP or PBP, has its own challenges; these challenges are compounded when an organization considers implementing both types of APMs. Questions that arise when implementing both CEP and PBP may include:

- Can initially implementing the model that focuses on the risk limited to an episode of care (clinical episode payment) serve as a transition to implementing the broader model of population-based payment? If so, how?
- What are some potential operational practices for implementing CEP and PBP in an integrated way?

Can Clinical Episode Payment Serve as a Transition to Implementing Population-Based Payment?

As policymakers and payers consider various APMs, the movement towards PBP is often described as a progression from "less disruptive" forms of APMs to "more disruptive" forms. For example, accountability for value in the HCPLAN Framework Category 2 (FFS link to payment/quality) is only related to the services provided by individual providers. In Category 3, accountability for value is across several settings and providers, but not all. Category 4 holds one entity accountable across all care for the enrollee. Thus one question is whether CEP can (or should) serve as an appropriate "stepping stone" toward a potential goal of broad population-based payment.

While it may be the case, as noted below, that implementing CEP before a PBP reform may help build a foundation for PBP, it is also the case that CEP is a goal on its own. CEP can be quite complex to implement as it requires defining hard-to-define beginnings and endings of episodes within the continuum of patient care and also separating out the costs of the episode from other costs of care. These distinctions are not always clear. Thus, implementation of CEP should not be considered only as a stepping stone to PBP. It may also be the case that a payer or provider finds CEP on its own to be

effective at focusing on the types of care of most interest to its population and thus, see no need to implement PBP.

While CEP can be implemented on its own, below are some ways in which CEP could encourage the development of infrastructure and relationships among providers that would be useful for moving towards PBP:

- Encouraging providers to create mechanisms for coordinating across settings within a clinical episode **and,** potentially, with primary care before and after the episode. The mechanisms and infrastructure needed to facilitate this kind of coordination would create a foundation for coordinating care in a PBP environment.
- Creating expectations for accountability beyond a provider's own setting and for the patient over time. Accountability across settings, clinicians, and phases of the care continuum is critical for PBP and CEP. A culture of shared accountability and team-based care is particularly important given the need to measure patient-reported outcomes and key quality metrics across settings in both models.
- Incentivizing new structures, including care management protocols, information sharing systems, and ongoing quality improvement programs that make it more feasible to take on additional risk.
- Providing experience for providers to learn how to take on financial risk and distribute payment across providers.

Clinicians participating in a CEP model will likely need to share accountability across members of a patient's care team, and will require the infrastructure to support that. Building this infrastructure for CEP may make it easier for them to become an entity capable of the risk involved in a PBP arrangement. From the payer or purchaser perspective, it may be easier to begin with CEP, as it requires less change in organization billing systems and will be applied to a smaller subset of claims. As billing systems become more facile at grouping claims to define the episodes, that capacity could be used to assist the provider organization in targeting their interventions on episodes and conditions with the greatest opportunity for improvement and cost savings under a PBP model.

Operationalizing Integrated CEP and PBP Models

In an integrated model, it is possible that the clinical episode payment will "nest" within the population-based payment. This is because a PBP model holds the accountable entity responsible for the costs and quality of care for all services an aligned enrollee uses across a continuum of care, while the CEP model will focus on the episodic portion of that care. From a clinical perspective, having an accountable entity under a CEP program within a PBP model could complement the primary care focus of the PBP model. The PBP accountable entity will have a need to prevent some high cost episodes, but also to effectively manage those that do occur. In this way, CEP could assist the PBP accountable entity reach its financial and quality benchmark goals by managing specific high-cost, high-volume episodes within the continuum of care. However, this complementary relationship is only feasible if the providers themselves coordinate the primary, specialty, and post-acute care for the patient both before and after the episode.

Before tackling these clinical questions, however, there are a number of operational issues that must be addressed when two entities have responsibility for costs that may arise for one patient, but could be attributed to both a clinical episode and a population-based care service. The primary issue when integrating CEP and PBP is that a patient may be attributed to two entities at the same time: the PBP entity for total cost of care, and the CEP entity if the patient needs care that aligns with a clinical

episode. Using a carve out mechanism—or some variety of carve out—can address this situation. In the three carve out examples provided below, we assume that each situation involves a single payer (Medicare, state Medicaid agency or Medicaid or Medicare MCO, or a commercial payer) implementing both CEP and PBP in the same region:

1. **Basic Carve Out**: The most straightforward way to address this is to carve out the dollars represented by those episodes from the total cost of care baseline calculation for which the PBP entity is accountable. The payer would keep track of the members and their costs assigned to these episodes, and subtract them out when payment is reconciled. The benchmarks would be based on these amounts.
2. **Carve Out with Metric-Based Provider Accountability**: A criticism of the basic carve out is that it provides no incentive for the PBP entity to coordinate with the CEP entity for things such as upfront shared decision making, or high quality, coordinated, follow-up care for the patient post discharge. One way to address this might be (when using the basic carve out methodology) to use quality metrics to hold providers accountable, and encourage PBP entity providers to work with the CEP entity to make sure the member or patient received seamless care around the episode.
3. **Carve Out with Savings Assigned to the PBP Entity**: Another criticism of a pure carve out is that carving out the costs of an episode removes part of the incentive for entities to enter into PBP arrangements as they are not able to obtain all of the savings from their efforts. One way to address this is to either establish the price less than the historic average episode price (essentially building in a guaranteed discount level). The PBP could absorb these upfront savings while the CEP entity would accept the risk beyond that amount.

For some providers, this discussion may still be in the realm of the theoretical. For providers participating in various ACO models **and** wishing to participate in a new episode-based demonstration initiative, these questions and challenges are important. As APM implementation evolves, the hope is that promising practices will emerge to support providers and payers in successful design, implementation, and sustainability of such integrated models.

Chapter 7: Conclusion

Overall, the recommendations developed by the CEP Work Group include design elements and operational considerations that together are designed to support APM 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 CEP 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 LAN Guiding Committee and the designated focus of the LAN.

Finally, the recommendations and implementation options described in the body of the White Paper are directed toward all stakeholders. It is the intention of the CEP Work Group that payers, providers, consumers, patients and their family caregivers, purchasers, and states will all consider these recommendations and options as starting points for critical conversations about how to work together to promote aligned adoption of episode payment models. Specific priorities for moving this work forward are described below.

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, the following issues stand out as being necessary in the short-term for moving the field of episode payment forward:

Creating an Infrastructure that Supports Person-Centered Care: The design and implementation of person-centered episode payment models requires the ability of providers and patients to engage in shared decision-making, shared care planning, sharing of critical information on cost and quality, and systematic care coordination that puts the patient first. Addressing the need for an overarching infrastructure that allows all of these interactions to occur is central to supporting episode payment.

Transparency of Cost Data: All stakeholders need transparent, detailed data on episode-based care prices that payers negotiate 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. Ideally, participants will be able to compare episode to FFS costs, and understand cost implications for their situation.

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 process standards, patient outcomes, patient engagement tools, 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. Continued development of key measures capable of measuring quality across settings of care will be critical for the effectiveness of episode payment models.

High-Value, Underused Services: As noted in the body of this White Paper, a wide variety of high-value services (both those currently covered and others non-covered) are underused today. Especially within maternity care, research suggests their use can increase vaginal birth rates, lower pre-term birth rates, and provide necessary support for childbearing women and newborns throughout the episode. There are a number of episode payment design elements that point to ensuring payment models incentivize the use of these high-value, underused services across all episode payment models.

Low-Value, Overused Services: Also noted in this paper is the fact that the current health care system is overusing services that do not provide value to the patient. These services may come in the form of unnecessary diagnostics or procedures. The goal of the episodes described herein is to reduce the incentives to providers for including these types of services in their care process, and replace them with services that are high value, and are appropriate for a given patient, based on clinical assessment and the patient's preferences and values.

Appendix A: Roster

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Appendix C: Elective Joint Replacement Bundled Payment Models

This appendix presents a summary review of selected elective joint replacement initiatives. Results reported are based on studies of varying statistical rigor and extrapolated from publications.

	Episode Definition	Episode Timing	Patient Population	Service Inclusion/Exclusion	Accountable Entity	Payment Flow	Episode Price	Level and Type of Risk	Quality Metrics	Patient Engagement	Results
CMS—ACE demonstration	Hip and knee replacement	Medicare Part A and Part B services provided during an inpatient stay	Admits for MS DRGs 469 and 470 Limited list of population exclusions	Limited list of service exclusions IP and OP in an admission, including some pre-op Part A and B in an admission, including some pre-op services	Health system Voluntary gain sharing with providers	Prospective Payment	Competitive bidding by sites on a voluntary basis to provide orthopedic services to Medicare patients in inpatient settings	Upside and downside risk Built in discount	No explicit quality tie to payment methodology	NA	Medicare payments decreased; savings shared with beneficiaries not accounted for. Increase in Part B costs. Discharges to PAC less likely. Decrease in readmissions. Mixed results on complications.

	Episode Definition	Episode Timing	Patient Population	Service Inclusion/Exclusion	Accountable Entity	Payment Flow	Episode Price	Level and Type of Risk	Quality Metrics	Patient Engagement	Results
CMS—Bundled Payment for Care Improvement (BPCI): Model 2[1]	Hip and knee replacement	Inpatient stay through 30, 60, or 90 days post discharge except hospice Awardees select episode length	Admits for MS DRGs 469 and 470 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 convener 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	Early evaluation (based on one quarter only) found: Lower lengths of hospital stays. Percentage of BPCI patients discharged to an institutional PAC provider (SNF, IRF, LTCH) decreased from 66% in the pre-BPCI baseline to 47% during intervention quarter. This proportion remained relatively steady at 62-60% for the comparison hospitals. Lower number of HHA days among patients with at least one HHA day.

[1] Note: Model 1 not included as it is a discount off of IPPS, not accountability across providers or settings.

	Episode Definition	Episode Timing	Patient Population	Service Inclusion/Exclusion	Accountable Entity	Payment Flow	Episode Price	Level and Type of Risk	Quality Metrics	Patient Engagement	Results
CMS—Bundled Payment for Care Improvement (BPCI): Model 3[1]	Hip and knee replacement	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	Admits for MS DRGs 469 and 470 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 convener 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	Early evaluation (based on one quarter only) found: Average PAC days lower than comparison. Most of difference was present prior to demonstration. HHA payments increased more in BPCI sites vs. comparison sites. Sample was very small.
CMS—Bundled Payment for Care Improvement (BPCI): Model 4[1]	Hip and knee replacement	Entire acute care hospital stay and related readmissions for 30 days	Admits for MS DRGs 469 and 470 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 Convener 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

	Episode Definition	Episode Timing	Patient Population	Service Inclusion/Exclusion	Accountable Entity	Payment Flow	Episode Price	Level and Type of Risk	Quality Metrics	Patient Engagement	Results
CMS—Comprehensive Care for Joint Replacement (CJR)	Hip and knee replacement	Admission through 90-days post discharge for all Part A and Part B Subject to limited exclusions	Admits for MS DRG 469 and 470 Limited list of population exclusions	Limited list of service exclusions	Hospital Voluntary gain sharing with providers	FFS with retrospective reconciliation	Reconcile actual spending against target prices set by risk stratification methodology each year	Upside and downside risk Increasing upside and downside risk over time to stop loss and stop gain limits	Payment methodology includes complications, HCAHPS, and voluntary reporting of patient outcome	NA	Not yet available.
PBGH—Employers Centers of Excellence Network (ECEN) with Walmart, Lowe's, McKesson, and JetBlue	Hip and knee replacement	Consultation, care and travel through post-op clinical care.	Employee population willing to travel to a center of excellence pays no co-pays or cost-sharing; travel and lodging for patient and caregiver provided by employer Some BMI and other appropriateness criteria applied to definition of bundle and to the certification of the Centers of Excellence	Episode based on MS-DRG 469 and 470 Bundle includes hospital charges, physician fees, affiliated services (PT, home health) for 7–10 day bundle Other appropriateness criteria applied to definition of bundle and Centers of Excellence certification	Hospital/ health system	Prospective payment	Competitively set price that is a negotiated bundled payment for surgical procedures performed by Centers of Excellence	Upside and downside risk	Replicates CMS and BREE Collaborative orthopedic complication definitions and measures Additionally, completion rates and average change in HOOS/KOOS and all incidents of unanticipated medical care"	Patient navigator provides patients and caregivers with 24/7 support at the Centers of Excellence	Employer savings on procedure episodes; employee travel and lodging included.

	Episode Definition	Episode Timing	Patient Population	Service Inclusion/Exclusion	Accountable Entity	Payment Flow	Episode Price	Level and Type of Risk	Quality Metrics	Patient Engagement	Results
Integrated Healthcare Association *a regional health care improvement collaborative with several health plans and hospitals*	Relied primarily on PROMETHEUS Evidence-based Case Rates (ECRs)	Admission through related readmissions within 90 days of hospital discharge. Does not include post-acute care as it would have required multiple new contracts	Limited list of eligible patients to avoid complexities of risk-adjustment Avoid high BMI, those with high severity scores	Specific list of services	Hospitals	Prospective payment	Fixed, single price, covering all medical care for the episode including physician fees, inpatient stay, tests, and devices.	Upside and downside risk	Not yet implemented	NA	Results from the study were developed into several papers on implementation issues. (See Appendix F.)
Geisinger Health System (GHS) ProvenCare Total Hip and Total Knee Replacement Initiatives	Hip and knee replacement	Admission through 90 days post discharge	Appropriateness criteria Limited exclusions based on prospective provider consensus	Inpatient, Outpatient, and Post-Acute Care with some pre-operative care included	GHS facility or GHS provider	Prospective payment with retrospective reconciliation	Set price for episode of care	Upside and downside risk	Complications Readmissions Adherence to Best Practice Elements	"Patient Compact" was developed so that patients could become partners in their own care.	50% decrease in readmissions. 10% decrease in length of stay. Two of their programs certified for exceeding national benchmarks for hip fracture care.

	Episode Definition	Episode Timing	Patient Population	Service Inclusion/Exclusion	Accountable Entity	Payment Flow	Episode Price	Level and Type of Risk	Quality Metrics	Patient Engagement	Results
Arkansas Health Care Improvement Initiative *Medicaid and commercial payers*	Hip and knee replacement	Inpatient or Outpatient Admission and Post-Acute Care through 90-days	Differential definitions of population included based on the point of time in the trajectory of the episode Fewer cases included in the last 31 to 90 days, for example	Differential definitions of what services are included based on the point of time in the trajectory of the episode Fewer cases included in the last 31 to 90 days, for example	Orthopedic surgeons	FFS with retrospective reconciliation	Shared savings and includes a built-in discount on the target price	Upside and downside risk Downside risk limited to relatively high spending levels	Readmissions 30-day wound infection Frequency of prophylaxis for DVT and PE Treatment for DVT and PE	NA	Over two-year period (See January 2016 report for more specifics). AR BCBS–trend for LOS from 2.7 to 2.3 from 2013 to 1014. Medicaid—2013 to 2014. 30-day wound infection decreased from 2.0% to 1.7%. Post-op complications increased from 8% to 14%. Prophylaxis for DVT/PE increased from 13% to 17.4%

	Episode Definition	Episode Timing	Patient Population	Service Inclusion/Exclusion	Accountable Entity	Payment Flow	Episode Price	Level and Type of Risk	Quality Metrics	Patient Engagement	Results
PROMETHEUS/Health Care Improvement Initiative Institute (HCI3)	Hip and knee replacement	30 days prior to inpatient or outpatient 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/downside, with or without stop loss, and with upside tied to quality scorecards	Builds in savings for potentially avoidable complications Set of measures evaluating potentially avoidable complications	NA	Varies by payer and/or provider.
Tennessee Division of Health Care Finance & Administration Episodes of Care	Hip and knee replacement Treatment of chronic arthritis	Claims related to total joint replacement beginning 45 days prior to admission Procedure Post-acute care related to procedure Up to 90-days post discharge	Patients with an inpatient or outpatient hip or knee replacement procedure code Limited business, clinical, patient, and high-cost outlier exclusions	Includes PT, certain medications, and treatment for complications due infections, blood clots or readmissions	Orthopedic surgeon	FFS with retrospective reconciliation Shared savings potential	Reimbursement for episode is risk adjusted using historical claims data Payers adjust over time based on new data Acceptable, commendable, and gain-sharing limit thresholds are set	Upside and downside risk	30-day readmission rate 30-day post-operative DVT or PE 90-day post-operative infection rate 90-day post-operative dislocation or fracture rate Average LOS	NA	Not yet available.

Appendix D: Maternity Care Bundled Payment Models

This appendix presents the Summary Review of Selected Maternity Care Initiatives. Results reported are based on studies of varying statistical rigor and extrapolated from publications.

	Episode Definition	Episode Timing	Patient 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	Low-risk pregnancy with live birth	40 weeks prior to delivery through 60 days after delivery or discharge	Mother only Exclusions: Various comorbidities, maternal death, any indication of leaving AMA, triggering events occurring at FQHC/RHC, and use of TPL	Prenatal: Related medical claims, related medication, or emergency department claims Delivery: All claims Postpartum – Days 1-30: Non-Inpatient Admissions (readmissions), ED claims not resulting in readmission, other pharmacy/professional/ facility claims with an inclusion code Postpartum – Days 31-60: All related medical claims and medications	Physician or midwife who delivers the baby Global Billing Code: Tax ID of the billing provider or group No Global Billing Code: Tax ID of the billing provider or group responsible for delivery	FFS with retrospective reconciliation	End of an episode: Costs are totaled and adjusted using a risk weight based on: woman's age, health conditions, and complications during pregnancy. PAP's end of year average adjusted cost is compared to "Commendable" and "Acceptable" levels established by each payer. Pregnancies with a cost greater than the 99.73rd percentile after adjustment and certain comorbidity pregnancies will be excluded from PAP's annual average adjusted cost.	Upside and downside risk	Gain sharing: Screening rates for HIV, group B streptococcus (GBS), cesarean section Informational only (not for gain sharing): Screening rates for gestational diabetes, asymptomatic bacteriuria, hepatitis B specific antigen, Tdap vaccination	NA	Available late 2016

	Episode Definition	Episode Timing	Patient 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	Low-risk pregnancy with live birth	Roughly 40 weeks before delivery through 60 days postpartum	Mother only Exclusions: Various comorbidities and high-risk pregnancy	Inclusions: All prenatal care, care related to labor and delivery, and postpartum maternal care, including labs, imaging, specialist consultations, and inpatient care Exclusions: Patient costs that are incurred during the episode time period that are not related to the maternity episode	Physician or nurse midwife (provider or provider group) who delivers the baby and performs the majority of prenatal care (identified by claims with the appropriate global OB bundle procedure, prenatal care bundle procedure, or office visit procedure)	FFS with retrospective reconciliation	FFS payments during episode, retrospective adjustment based upon patient comorbidities Provider average episode cost is compared to Commendable, Acceptable, Unacceptable thresholds that are established by each payer annually. When providers have 5+ episodes, an average episode cost in the Commendable range, and have met the quality metrics, they are eligible to share in savings. For providers that have 5+ episodes and an average cost in the Unacceptable range, they share in the risk.	Upside and downside risk	Performance metrics are linked to payment, but reporting metrics are not. Cost savings require a provider to meet quality thresholds on all performance metrics and report data for reporting metrics. Quality Metrics (80% threshold): prenatal screenings and appropriate utilization of diagnostic tests Performance quality metrics linked to shared savings: HIV, GBS, and chlamydia screenings. Reporting only metrics: gestational diabetes screening, UTI or asymptomatic bacteriuria screening, hepatitis B-specific antigen screening, and cesarean section utilization rate.	NA	Medicaid cesarean section rate reduced from 38.6% (baseline) to 33.5% (2014), with an estimated 2-4% direct savings to date. Preliminary results show an increase in reported screenings. From 2012 to 2014, chlamydia screening increased from 65% to 90% and group B strep screening increased from 90% to 93%.

	Episode Definition	Episode Timing	Patient Population	Service Inclusion/Exclusion	Accountable Entity	Payment Flow	Episode Price	Level and Type of Risk	Quality Metrics	Patient Engagement	Results
Community Health Choice	Low-risk and high-risk deliveries with severity markers	Mother: 270 days prior to delivery through 60 days post discharge Newborn: Initial delivery stay and all services/costs up to 30 days post discharge	Mother and newborn Exclusions: First phase: Currently Level 4 NICU stay Second phase: Planning on using individual stop/loss limits	All prenatal care and services related to delivery. Blended cesarean section and vaginal delivery rate Blended nursery levels 1, 2, and 3 Exclusions: Level 4 NICU stays	OB/GYNs from two multispecialty group providers who are participating in the pilot	FFS with retrospective reconciliation	Use historical average costs and adjust based on risk factors (e.g., age, comorbidities, clinical severity markers). Year 1: Use quality scorecard for monitoring and setting benchmarks. Year 2: Set quality thresholds for shared savings. Year 3 and beyond: Move away from current contractual payments to flat dollar or other budget payments with reconciliation.	Upside reward only in Year 1 with move to upside and Downside risk in Year 2 Reconciliation occurs at the end of each year of the pilot.	Normal birth weight: Prenatal care and screenings; Delivery care (cesarean section rate, elective deliveries); Postpartum care with depression screening; Baby care (breastfeeding, hepatitis B vaccine) Low birth weight: Similar to above plus NICU infection rates Patient-reported outcome measures: Hardcopy survey is mailed, and results are accepted in hardcopy or online. Additional measures for monitoring purposes	Active with community groups that promote prenatal care	Results not yet available

	Episode Definition	Episode Timing	Patient Population	Service Inclusion/Exclusion	Accountable Entity	Payment Flow	Episode Price	Level and Type of Risk	Quality Metrics	Patient Engagement	Results
Providence Health & Services **The Pregnancy Care Package**	Low-risk pregnancy	Positive pregnancy confirmation until 6 weeks after delivery	Mother and newborn	All prenatal and postpartum care, including check-ups, prenatal tests, education, psychosocial support, labor, delivery, hospital stay, and postpartum care. Doulas and patient navigators are also included services.	Nurse midwife	Prospective	Fixed, negotiated fee	Upside and downside risk	NA	NA	First implementation at nurse midwife-based clinic: 10% reduction in overall pregnancy costs and a cesarean section rate of 19%
Geisinger Health System (GHS) **Perinatal ProvenCare Initiative**	Low-risk pregnancy Exclusions: Late referrals, high-risk patients, members without continuous enrollment during the entire episode or other primary coverage	Prenatal: Identification of pregnancy in the first or second trimester Postpartum: Concludes with postpartum visit 21-56 days post delivery	Mother only Exclusions: Neonatal care	All prenatal, labor and delivery, and postpartum care; at least 12 continuous weeks of prenatal care and delivery must be performed by a GHS provider. Global payment includes technical and professional, physician, consultations, and supporting clinicians Prenatal: Professional and outpatient services only Postpartum: Inpatient readmissions, outpatient, and professional Exclusions: Care provided by non-GHS providers	GHS provider	Prospective	Fixed rate for episode	Upside and downside risk	103 evidence-based elements of care are incorporated, measured, and tracked for compliance.	"Patient Compact" was developed so that patients could become partners in their own care.	Preliminary results: Improved in nearly all 103 measures identified; reduced NICU admissions by 25%; 23% reduction in NICU use; 26% reduction in cesarean sections; 68% reduction in birth trauma. Since 2011, Geisinger has not performed an early induction or elective cesarean before 41 weeks unless medically indicated. No cost savings have been made publicly available to date.

	Episode Definition	Episode Timing	Patient Population	Service Inclusion/Exclusion	Accountable Entity	Payment Flow	Episode Price	Level and Type of Risk	Quality Metrics	Patient Engagement	Results
Pacific Business Group on Health (PBGH) *PBGH Blended Case Rate*	High- and low-risk pregnancy	Hospital labor and delivery only	Mother only	Blended case rate for all facility and professional fees rendered during labor and delivery for both vaginal and cesarean section births	Hospital accountable for the facility blended rate. Medical group practice accountable for the professional blended rate.	Prospective	Rate for cesarean section and vaginal birth the same and negotiated between payer and hospital, and payer and physician group, respectively.	Upside and downside risk with no prospective risk adjustment	Rate of cesarean sections performed among primary, low-risk (NTSV) births Incidence of unexpected newborn complications is also used as a balancing measure.	NA	Three hospitals in pilot demonstrated a 20% decrease in cesarean section rates, which was sustained. Also, no changes in incidence of unexpected newborn complications.
American Association of Birth Centers (AABC) *Bundled Payment Proposal*	Low-risk pregnancy	Enrollment in freestanding birth center through and including 6-week postpartum care visit	Mother and newborn care through first 28 days of life	Prenatal care, nutrition, patient navigation, care coordination, discussion of options for birth, breastfeeding and childbirth preparation instruction, health education and support to avoid preventable complications, labor and birth in the birth center, newborn care and home visits Large birth center includes lab services, ultrasound, obstetrician, and perinatal visits Includes facility fee and professional fee at time of birth in the birth center.	Freestanding birth center (FSBC)	FFS with retrospective reconciliation	Small birth centers would receive incentive payments for each participant provided with enhanced services. Large birth centers would receive a bundled rate for professional and facility services with shared savings for overall cost savings.	Small birth centers: upside reward only Large birth centers: upside and downside risk	Number of prenatal visits, cesarean birth rate, elective delivery before 39 weeks, preterm birth and low birth weight rates, breastfeeding initiation and continuation, NICU admissions, perineal integrity, and completion of the 6-week postpartum visit	Prenatal education, enhanced prenatal care, doulas, peer counselors, and continuous support during labor and birth. Client experience surveys	Birth centers typically achieve average cesarean rates of 6% for women admitted to birth center in labor, 1.59% episiotomy rate, and 0.11% elective delivery rate before 39 weeks of pregnancy.

	Episode Definition	Episode Timing	Patient Population	Service Inclusion/Exclusion	Accountable Entity	Payment Flow	Episode Price	Level and Type of Risk	Quality Metrics	Patient Engagement	Results
Baby+ Company	Low-risk pregnancy	Initial OB visit at birth center through 6 weeks postpartum	Mother and newborn	Prenatal care, birthing plan, classes, postpartum care, newborn exam, metabolic screen, and medications Includes facility and professional fees Exclusions: labs, ultrasounds	FSBC if low-risk pregnancy, uncomplicated delivery	FFS with retrospective reconciliation	Working with payers to set pricing based on the outcomes (healthy mother and baby) Separate bundle rates if transferred before/during labor	Incremental percentage at end of year if hit certain quality markers	NTSV cesarean, early elective delivery, exclusive breastfeeding during birth center stay, cesarean rate among women who entered labor in the birth center	Measured by logging in to a patient's EHR's mirrored interface that allows for patients to record their experiences. Electronic experience surveys at 32 weeks and postpartum	More than 90% engagement NTSV rate: 11.8% Early elective rate: 0% Exclusive breastfeeding rate: 100% Cesarean rate for BC labors: 5.3%

	Episode Definition	Episode Timing	Patient Population	Service Inclusion/Exclusion	Accountable Entity	Payment Flow	Episode Price	Level and Type of Risk	Quality Metrics	Patient Engagement	Results
The Minnesota Birth Center's BirthBundle™	Low-risk pregnancy	270 days prior to delivery and 56 days postpartum	Mother and newborn	Prenatal care, labs within normal OB panel, ultrasound, and perinatal consults within reasonable scope, and birth Facility fee (birth center only, hospital facility fee outside of bundle) and professional fee at time of birth Baby assessment and facility fees at delivery 24-hour postpartum assessment 1-2 week and 6 week postpartum visit	Birth center	Model is prospectively determined budget but payment is currently retrospective	Use birth center historical data. Professional fees only are included if delivered in a hospital. Facility fees are FFS outside of bundle. If all care is within the birth center, facility and professional fees are included in the bundle.	Upside and downside risk within the bundle	Patient-reported outcome measures	Prenatal/ postpartum care surveys	Results not yet available, but significantly lower level of cesarean sections than the national average

Ohio Episode-Based Payment Model	Low-risk pregnancy with live birth	280 days prior to delivery until 60 days post delivery	Mother only Exclusions: specific clinical and business exclusions	Relevant prenatal care and complications, delivery care, and relevant care and complications through the postpartum period, including readmissions relevant to the episode Exclusions: prenatal medications	Physician/group delivering the baby	FFS payment with retrospective reconciliation	Risk adjusted reimbursement per episode for each accountable provider Adjust average episode cost down based on presence of 70+ clinical risk factors Removal of any individual episodes that are more than three standard deviations above the risk-adjusted mean	Positive incentive payment if average costs below Commendable levels and quality targets are met Pay negative incentive if average costs are above Acceptable level No impact if average risk-adjusted costs are between Commendable and Acceptable levels Incentive payment based on average across all episodes within a 12-month performance period	Linked to Incentive Payments: HIV Screening, GBS Screening, cesarean Rate, Postpartum Visit Rate For Reporting Only: % of episodes with gestational diabetes screening, % of episodes with prenatal hepatitis B screening, % of episodes with chlamydia screening, ultrasound rate Year 1: quality metric threshold will at a level where 75% of providers pass all metrics tied to incentive payments After Year 1: quality metric threshold will increase to top quartile performance over the next 5 years	NA	NA

Appendix E: Coronary Artery Disease Bundled Payment Models

This appendix presents the Summary Review of Selected CABG and PCI Initiatives. Results reported are based on studies of varying statistical rigor and extrapolated from publications.

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 2[2]	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 convener 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 32	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 Convener 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

[2] 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
CMS – Bundled Payments for Care Improvement (BPCI): Model 42	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 convener 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
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 reward	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

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
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 reward only, upside and downside risk, with or without stop loss, and with upside reward 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

Appendix F: Elective Joint Replacement Implementation Resources

General Resources:	
Centers for Medicare & Medicaid Services (CMS) **Bundled Payment for Care Improvement (BPCI) Home Page**	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.
Integrated Healthcare Association (IHA) **Bundled Payments Web Page**	The IHA website offers multiple reports and specification documents on bundled payments.
Arkansas Health Care Improvement Initiative **Payment Reforms Report**	The Arkansas Health Care Improvement Initiative report describes that state's payment reforms, including their episodes of care work. Description of the design and findings from their initiative are included. Medicaid and several insurers, including Blue Cross Blue Shield of Arkansas, are described in detail.
State of Tennessee Health Care Initiative **Episodes of Care Description and Examples**	The State of Tennessee Health Care Initiative website offers descriptions of episodes of care and examples of quality and cost provider reports.
Horizon Blue Cross Blue Shield in New Jersey **Payer and Provider Relationship Case Study**	The Horizon Blue Cross Blue Shield in New Jersey case study includes results and a description of the incentive relationship between the payer and provider.
Pacific Business Group on Health (PBGH) **Employee Center of Excellence Network (ECEN) Summary**	The Pacific Business Group on Health offers an Employers Center of Excellence Network in which certain hospitals and health systems are designated Centers of Excellence. These centers agree to take a bundled payment for the episode, and several large employers provide incentives to employees who need those services to seek care from the centers' providers.

Episode Definition:	
Health Care Incentives Improvement Institute's Evidence-Based Case Rates and Definitions	The Health Care Incentives Improvement Institute website provides open source definitions of various evidence-based case rates. Includes specific codes that can be used for defining the trigger event and what services are included.
Integrated Healthcare Association's Description of Episode Definitions	The Integrated Healthcare Association's description of definitions of the episode offers a prototype used by several payers and providers, particularly in California.
Centers for Medicare & Medicaid Services (CMS) Bundled Payment for Care Improvement (BPCI) Program Presentation	This CMS presentation on the Bundled Payment for Care Improvement models includes information on how to define episodes including data on episode costs and post-acute care use variation.
Catalyst for Payment Reform (CPR) Report on Implementing Total Joint Replacement Episode Payment How to Guide	The Catalyst for Payment Reform report on implementing total joint replacement episode payment is a downloadable document that includes a spreadsheet with several examples of inclusion and exclusion lists as well as guidance on the steps necessary, including initial data analysis, model contract language, and stakeholder expectations.

Shared Decision-Making Tools:	
Shared Decision-Making for Total Joint Replacement: The Physician's Role	"Shared Decision-Making for Total Joint Replacement: The Physician's Role," published by the Rheumatology Network, contains description of considerations in shared decision-making and determinations of when total joint replacement is most effective.
Introducing Decision Aids at Group Health was Linked to Sharply Lower Hip and Knee Surgery Rates and Costs	This Health Affairs article cites evidence of the impact of decision aids on the costs and use of total joint replacement.
Decision Aid Library Inventory (DALI)	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.

Patient Assessment Tools:	
Knee Injury and Osteoarthritis Outcome Score (KOOS)	The KOOS questionnaire was developed as an instrument to assess the patient's opinion about their knee and associated problems. The psychometric properties of the KOOS have been assessed in more than 20 individual studies from all over the world. KOOS is widely used for research purposes in clinical trials, large-scale databases, and registries. KOOS is also extensively used for clinical purposes. It consists of 5 subscales: pain, other symptoms, function in daily living, function in sport and recreation, and knee-related quality of life.
Hip Disability and Osteoarthritis Outcome Score (HOOS)	HOOS was developed as an instrument to assess the patient's opinion about their hip and associated problems. HOOS is intended to be used for hip disability with or without osteoarthritis (OA). HOOS is meant to be used over both short and long-time intervals; to assess changes from week to week induced by treatment (medication, operation, physical therapy) or over years due to the primary injury or post traumatic OA. HOOS consists of 5 subscales: pain, other symptoms, function in daily living, function in sport and recreation, and hip-related quality of life.
Patient Reported Outcome Measurement Information System (PROMIS)	PROMIS® instruments use modern measurement theory to assess patient-reported health status for physical, mental, and social well-being 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. While not specifically designed for outcomes related to hip and knee replacement, it does include a broader set of outcomes than the KOOS and HOOS, including mental functioning and quality of life.
Veterans RAND 12-Item Health Survey (VR-12)	The 12-Item Short Form Health Survey (SF-12) was developed for the Medical Outcomes Study, a multi-year study of patients with chronic conditions. These questionnaires help an investigator or clinician gather reliable information about patient health, save time and money in obtaining this information, obtain information that could not otherwise be obtained, determine the effectiveness of alternative treatments, and assess the course of health over time. A 20-Item and 36-Item survey is also available.

Quality Measurement:	
National Quality Forum	The National Quality Forum (NQF) leads national collaboration to improve health and health care quality through measurement, primarily through measure endorsement. NQF oversees the *Quality Positioning System,* a searchable database of quality measures.

Quality Measurement:	
CMS Measures Inventory	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.
Hospital Compare	Hospital Compare offers information about the quality of care at over 4,000 Medicare-certified hospitals across the country, including: • Hospital-level risk-standardized complication rate (RSCR) following elective primary total hip arthroplasty (THA) and/or total knee arthroplasty (TKA) (NQF #1550) • Hospital-level 30-day all-cause risk-standardized readmission rate (RSRR) following elective primary total hip arthroplasty (THA) and/or total knee arthroplasty (TKA) (NQF #1551)
Core Quality Measures Collaborative (CQMC)	America's Health Insurance Plans (AHIP), together with CMS and the NQF, convenes the Core Quality Measures Collaborative (CQMC), which is comprised of leaders from health plans, physician specialty societies, employers and consumers. The CQMC works to develop consensus-driven core measure sets across a variety of clinical areas, including orthopedics, with the goal of harmonizing implementation across both commercial and government payers, which will, in turn, support quality improvement efforts, reduce the reporting burden of quality measures, and offer consumers actionable information for decision-making.
CMMI Comprehensive Care for Joint Replacement Mode: Quality Measures, Voluntary Data, Public Reporting Processes for Preview Reports	This document includes information on a risk-adjusted set of total joint replacement outcome measures that are being used by CMS and providers as part of the CJR program.

Appendix G: Maternity Care Implementation Resources

Existing Initiatives	
State of Tennessee Health Care Initiative **Episodes of Care Description and Examples**	The State of Tennessee Health Care Initiative website offers descriptions of different episodes of care and examples of quality and cost reporting from providers.
Arkansas Health Care Improvement Initiative **Payment Reform Report**	The Arkansas Health Care Improvement Initiative report describes the state's payment reforms, including its episode payment work. Description of the episode design and findings from its initiative are included. The roles of Medicaid and several insurers, including Blue Cross Blue Shield of Arkansas, are described in detail.
Community Health Choice **Maternity and Newborn Care Bundled Payment Pilot**	Community Health Choice's pilot includes both the mother and newborn in the episode of care and uses a blended cesarean and vaginal delivery payment rate.
Providence Health's Pregnancy Care Package	Providence Health's Pregnancy Care Package uses a bundled payment model that includes the use of certified nurse midwives, patient navigators, and doulas on the care team.
Geisinger's Perinatal *ProvenCare* Initiative	Geisinger uses the ProvenCare model to provide a global payment for the perinatal episode and allows providers to share in savings.
Pacific Business Group on Health (PBGH) **Maternity Payment and Care Redesign Pilot Case Study**	The Pacific Business Group on Health designed a pilot program to reduce low risk, first time cesarean deliveries and implemented this program across three Southern California Hospitals.
Baby+Company	Baby+Company is a birth center model that provides enhanced prenatal care and education to reduce the rate of cesarean deliveries, and shows significant savings in cost for both vaginal and cesarean deliveries. The Baby+Company website offers additional details about the birth center.
The Minnesota Birth Center's BirthBundle™	The Minnesota Birth Center's BirthBundle™ provides cost savings by offering a single, global fee for maternity care. It uses certified nurse midwives who collaborate with OB physicians to provide coordinated clinical care throughout the pregnancy, delivery, and postpartum period.
Ohio Health Transformation **Episode-Based Payment Model**	The Ohio Governor's Office of Health Transformation website offers information on its implementation of episode-based payment models.

General Resources:	
Integrated Healthcare Association's Description of Maternity and Women's Health Episode Definitions	The Integrated Healthcare Association's description of the Maternity and Women's Health Episodes definitions offers a prototype used by several payers and providers, particularly in California.
Health Care Incentives Improvement Institute's (HCI^3) Evidence-Based Case Rates and Definitions	The Health Care Incentives Improvement Institute (HCI3) website provides open source definitions of various evidence-based case rates. Includes specific codes that can be used for defining the episode starting point and what services are included.
Catalyst for Payment Reform (CPR) Maternity Care Payment Action Brief	The Catalyst for Payment Reform issue brief on maternity care payment discusses challenges with maternity payment reform, offers advice to purchasers, and defines blended payment for delivery.
Center for Healthcare Quality & Payment Reform (CHQPR)	The CHQPR website offers various publications and reports detailing suggestions for payment reform.
Overdue: Medicaid and Private Insurance Coverage of Doula Care to Strengthen Maternal and Infant Health	The National Partnership for Women & Families, Childbirth Connection, and Choices in Childbirth worked together on this issue brief, which provides additional details on how doula services can be incorporated into a perinatal episode of care to help reduce the cost of an episode.
American Association of Birth Centers (AABC)	The AABC website provides comprehensive information on the role of birth centers in maternity care, including a proposal related to using alternative payment models for maternity care.
National Association of Certified Professional Midwives (NACPM) Bundled Payment Proposal	The NACPM offers a proposal to address the definition of the eligible population, three payment models, quality metrics, and data collection for maternity bundles.

Patient Engagement:	
Childbirth Connection **Listening to Mothers III: Pregnancy and Birth**	Results from a national survey of women's childbearing experiences.
Childbirth Connection **Listening to Mothers III: New Mothers Speak Out**	Results from a national survey of women's childbearing experiences.
Support for Healthy Breastfeeding Mothers and Healthy Term Babies	The Cochrane Library provides a discussion on the effectiveness of encouraging early and ongoing support for breastfeeding.
US OpenNotes Initiative	This initiative allows patients to access their providers' clinical notes online.
Maternity Neighborhood	Tools available online to help connect women with their providers during their perinatal episodes.
Strong Start Initiative **Year 1 Annual Report** **Year 2 Annual Report**	Results from both year 1 and year 2 of the Strong Start for Mothers and Newborns Initiative.
CenteringPregnancy	This website offers additional information on CenteringPregnancy's group care and education.
Informed Medical Decisions Foundation	HealthWise Research and Advocacy provides information for patients to participate in a shared decision-making process of their health care.
Patient Decision Aids	An online inventory of decision aids by topic that have been rated according to international standards.

Quality Measurement:	
Core Quality Measure Collaborative (CQMC)	America's Health Insurance Plans (AHIP), together with CMS and the NQF, convenes the Core Quality Measures Collaborative (CQMC), which is comprised of leaders from health plans, physician specialty societies, employers, and consumers. The CQMC works to develop consensus-driven core measure sets across a variety of clinical areas, including orthopedics, with the goal of harmonizing implementation across both commercial and government payers. This, in turn, will support quality improvement efforts, reduce the reporting burden of quality measures, and offer consumers actionable information for decision-making.

Quality Measurement:	
National Quality Forum	The National Quality Forum (NQF) leads a national collaboration to improve health and health care quality through measurement, primarily through measure endorsement. NQF oversees the Quality Positioning System, a searchable database of quality measures.
CMS Measures Inventory	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.
Healthy People 2020	This website provides information on various Health People quality initiatives for maternal, infant, and child health.
American Congress of Obstetricians and Gynecologists (ACOG) Quality Improvement in Maternity Care	ACOG provides guidelines that address areas where quality improvement initiatives may provide positive outcomes for the mother and infant during a perinatal episode.
Centers for Medicare & Medicaid Services (CMS) Maternal and Infant Health Care Quality	This CMS website provides links to various data and measurement material related to maternal and infant care.
Better Measurement of Maternity Care Quality	This blog by *Health Affairs* discusses variations in rates of obstetrical complications across the nation and offers steps that may help clinicians become more aware of quality measures.

Appendix H: Coronary Artery Disease Implementation Resources

Existing Initiatives	
Centers for Medicare & Medicaid Services (CMS) **Bundled Payment for Care Improvement (BPCI) Home Page**	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.
Blue Cross Blue Shield of Texas	Blue Cross Blue Shield of Texas created a Blue Care Connection program for its members to better control chronic conditions.
New York State Delivery System Reform Incentive Payment (NYE DSRIP Program)	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.
Geisinger's ProvenCare Initiative	Geisinger uses the ProvenCare model to provide a global payment for PCI and CABG procedures and allows providers to share in savings.
Health Care Incentives Improvement Institute's Evidence-Based Case Rates and Definitions	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.
State of Tennessee Health Care Initiative **Episode of Care Description and Examples**	The State of Tennessee Health Care Initiative website offers descriptions of episode of care and examples of quality and cost provider reports.
Ohio Health Transformation **Episode-Based Payment Model**	The Ohio Governor's Office of Health Transformation website offers information on their implementation of episode based payment models.
Arkansas Health Care Improvement Initiative **Payment Reform Report**	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.

General Resources	
Convener Organizations	Examples of convener organizations include Premier, Inc., which primarily works with hospitals, and Cogent Healthcare, which manages hospitalist practices.
Health Care System Federal Laws	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.
CMS Acute Care Episode (ACE) Demonstration	This bundled payment approach includes 28 cardiac and 9 orthopedic inpatient surgical services and procedures.

Physician Engagement	
The Informed Medical Decisions Foundation's Patient Visit Guide	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.
Agency for Healthcare Research and Quality (AHRQ) Effective Health Care Program	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.
Decision Aid Library Inventory (DALI)	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.
Cardiovascular Disease Risk Calculator	This risk assessment tool predicts a patient's risk of having a heart attack in the next ten years.
Newcastle Hospital Patient and Visitor Guides	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 patients to be involved in decisions about their health care.
Health Consumer Alliance	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."

Physician Engagement	
Joint Commission's Speak Up™ Program	Brochures and videos are available on The Joint Commission's website as a part of their national patient safety campaign called Speak Up™.
Mayo Clinic Study Cardiac Rehabilitation mobile app	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.
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 (AUC) at the point of care.
Patient Reported Outcome Measurement Information System (PROMIS)	PROMIS® instruments use modern measurement theory to assess patient-reported health status for physical, mental, and social well-being 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.

Care Transitions	
Acute Care for Elders (ACE) Program	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.
Care Transitions Coaching Program	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.
H2H Hospital to Home Quality Initiative	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

Quality Measurement	
American College of Cardiology (ACC) Appropriate Use Criteria and Treatment Guidelines	This website provides additional information about The American College of Cardiology's Appropriate Use Criteria and Treatment Guidelines.
Society of Thoracic Surgeons Quality Performance Measures	This website lists the cardiac-related quality measures that are developed and maintained by the Society of Thoracic Surgeons.
Core Quality Measures Collaborative (CQMC)	The Core Quality Measures Collaborative created a Consensus Core Set for Cardiovascular Measures.
National Quality Forum	The National Quality Forum (NQF) leads national collaboration to improve health and healthcare quality through measurement, primarily through measure endorsement. NQF oversees the *Quality Positioning System*, a searchable database of quality measures.
CMS Measures Inventory	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.
Hospital Compare	Hospital Compare offers information about the quality of care at over 4,000 Medicare-certified hospitals across the country.

Appendix I: LAN Related Content

In addition to the CEP Work Group, the LAN Guiding Committee convened two additional Work Groups that produced content relevant to many readers of this White Paper.

The Alternative Payment Model (APM) Framework and Progress Tracking Work Group produced the Alternative Payment Model Framework, which describes four categories of alternative payment models.

The Population-Based Payment Work Group developed recommendations for the implementation of population-based payment, with a focus on four priority areas: financial benchmarking, patient attribution, performance measurement, and data sharing.

These priority areas should be considered as a whole for effective PBP implementation as they interact considerably. For example, to determine the financial benchmark, it is critical to know precisely which patients are being attributed to the PBP model. Further, most PBP initiatives will require performance on certain measures in considering whether the accountable entity has met the benchmark. Data sharing is critical for the providers to effectively target their efforts, for payers and purchasers to monitor performance and for patients to be empowered to be active in their care.

The following provides links and a brief overview of each of the papers written by the APM and PBP Work Groups. These products offer readers of this paper additional resources to support decision making on APM design and implementation. Visit our website (https://www.hcp-lan.org) for an up-to-date list of LAN work products and for a glossary of terms.

The Alternative Payment Model Framework White Paper

The APM Framework White Paper defines payment model categories and establishes a common framework and a set of conventions for measuring progress in the adoption of APMs, which are methods of rewarding health care providers based on the quality and coordination of the care they provide. Providers are encouraged to move to categories that offer greater quality and value. As they do, they will experience increased accountability for both quality of care and total cost of care, with a greater focus on population health management (as opposed to payment for specific services).

Accelerating and Aligning Population-Based Payment: Financial Benchmarking

The Financial Benchmarking White Paper describes approaches for setting an initial benchmark and updates over time and also addresses risk adjustment considerations. The White Paper discusses the need to balance voluntary participation with the movement toward convergence in a market with providers at different starting points.

Accelerating and Aligning Population-Based Payment: Patient Attribution

The Patient Attribution White Paper describes the method by which patient populations are assigned to providers who are accountable for total cost of care and quality outcomes for their designated populations in a PBP model. The paper recommends that active, intentional identification or self-reporting by patients should be considered first. The paper also outlines nine additional recommendations that payers and providers can use when making decisions on attribution in their PBP models.

Accelerating and Aligning Population-Based Payment: Performance Measurement

The Performance Measurement White Paper offers both short-term action recommendations and a longer-term vision for accelerating alignment around APMs. The paper offers a way forward that could lead to radical change in how performance is measured across the board in order to enable effective population-based payments. The White Paper describes how to evolve from granular measurement systems of the full continuum of care, which focus on narrow and specific care processes, to more macro-level measurement systems oriented on outcomes. The paper also makes strong recommendations for immediate action steps by describing four key performance measurement principles and seven recommendations for building and sustaining a performance measurement system that supports and encourages collaboration among stakeholders.

Accelerating and Aligning Population-Based Payment: Data Sharing

The Data Sharing White Paper offers several guiding principles and recommendations that highlight the future development of data sharing arrangements in PBP models. The paper also outlines Use Cases for data sharing which describe particular types of data sharing arrangements, in both their current and aspirational states. The goal is to create an environment where data follows the patient and is available to stakeholders (patients, providers, purchasers, and payers) in a timely manner.

Appendix J: Principles for Patient- and Family-Centered Payment

The following principles, produced by the LAN's Consumer and Patient Affinity Group, are intended to help guide the development of new payment strategies. They provide guidance and aspirational direction to ensure that we address the needs and priorities of patients and families as we transition to value-based payment. The principles rest on the conviction that consumers, patients, and families are essential partners in every aspect of transforming health care and improving health.

Consumers, patients, families and their advocates should be collaboratively engaged in all aspects of design, implementation, and evaluation of payment and care models, and they should be engaged as partners in their own care.

The collaboration in design of payment and care models should include oversight, governance, and interface with the communities where care is delivered. At the point of care, patients and families should be engaged in ways that match their needs, capacities and preferences. Collaborative care should be aligned with patient goals, values and preferences (including language), and should reflect shared care planning and decision making throughout the care continuum.

Positive impact on patient care and health should be paramount.

The central consideration in all payment design should be improving patient health outcomes, experience of care, and health equity, while also ensuring the most effective use of health care resources.

Measures of performance and impact should be meaningful, actionable, and transparent to consumers, patients and family caregivers.

New payment models should be assessed using measures that are meaningful to patients and families. They should prioritize the use of measures derived from patient-generated data that address both care experience and outcomes. Measures should also address the full spectrum of care, care continuity and overall performance of specific models. Measures should be granular enough to enable patients to make informed decisions about providers and treatments.

Primary care services are foundational and must be effectively coordinated with all other aspects of care.

Payment models should foster this coordination, particularly between primary and specialty care, in order to promote: optimal coordination, communication and continuity of care; trusted relationships between clinicians and patients/families; concordance with patient goals, values and preferences; integration of non-clinical factors and community supports; and coordination of services delivered through non-traditional settings and modalities that meet patient needs. Effective delivery and coordination of primary care services should promote better care experience, optimal patient engagement, better health outcomes, and increased health equity.

Health equity and care for high-need populations must be improved.

New payment models should foster health equity, including access to innovative approaches to care and preventing any discrimination in care. They should collect data that allows for assessment of differential impacts and the identification and redress of disparities in health, health outcomes, care experience, access, and affordability.

Patient and family engagement and activation should be supported by technology.

New payment models should promote use of information technology that enables patients and their designated caregivers to easily access their health information in a meaningful format that enables them to use the information to better manage and coordinate their care. The technology should also enable patients to contribute information and communicate with their providers, and it should foster patient-clinician partnership in ongoing monitoring and management of health and care.

Financial incentives used in all models should be transparent and promote better quality as well as lower costs.

Financial incentives for providers and patients should be fully disclosed so that patients and consumers understand how new payment approaches differ from traditional fee-for-service models, and how certain incentives may impact the care providers recommend or provide. Financial incentives should be developed in partnership with patients and consumers in order to reflect how patients define value, and to reduce financial barriers to needed care and ensure that patients are not steered to lower cost care without regard for quality.

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Harvard Business Review

ECONOMICS & SOCIETY

How to Pay for Health Care

by Michael E. Porter and Robert S. Kaplan

FROM THE JULY–AUGUST 2016 ISSUE

The United States stands at a crossroads as it struggles with how to pay for health care. The fee-for-service system, the dominant payment model in the U.S. and many other countries, is now widely recognized as perhaps the single biggest obstacle to improving health care delivery.

Fixing Health Care

Editor's Note: The United States is about to radically change how it pays for health care. Experts agree that the prevailing method—fee for service—fuels waste and does not promote high-quality care. The big question is: What should replace it?

In our Fixing Health Care package, we look at the two leading models. In this article, Michael E. Porter and Robert S. Kaplan argue for bundled payments, which they believe generates the kind of competition among providers that improves the value of health care. In the accompanying piece, Brent C. James and Gregory P. Poulsen make the case for capitated payment. They say that approach is the only one that would encourage health care providers to attack all types of waste.

Fee for service rewards the quantity but not the quality or efficiency of medical care. The most common alternative payment system today—fixed annual budgets for providers—is not much better, since the budgets are disconnected from the actual patient needs that arise during the year. Fixed budgets inevitably lead to long waits for nonemergency care and create pressure to increase budgets each year.

We need a better way to pay for health care, one that rewards providers for delivering superior value to patients: that is, for achieving better health outcomes at lower cost. The move toward "value-based reimbursement" is accelerating, which is an encouraging trend. And the Centers for Medicare & Medicaid Services (CMS), to its credit, is leading the charge in the United States.

That doesn't mean, however, that health care is converging on a solution. The broad phrase "value-based reimbursement" encompasses two radically different payment approaches: capitation and bundled payments. In capitation, the health care organization receives a fixed payment per year per covered life and must meet all the needs of a broad patient population. In a bundled

payment system, by contrast, providers are paid for the care of a patient's medical condition across the entire care cycle—that is, all the services, procedures, tests, drugs, and devices used to treat a patient with, say, heart failure, an arthritic hip that needs replacement, or diabetes. If this sounds familiar, it's because it is the way we usually pay for other products and services we purchase.

> We need a way to pay for health care that fosters the delivery of superior value to patients.

A battle is raging, largely unbeknownst to the general public, between advocates of these two approaches. The stakes are high, and the outcome will define the shape of the health care system for many years to come, for better or for worse. While we recognize that capitation can achieve modest savings in the short run, we believe that it is not the right solution. It threatens patient choice and competition and will fail to fundamentally change the trajectory of a broken system. A bundled payment system, however, would truly transform the way we deliver care and finally put health care on the right path.

The Small Step: Capitation

Capitation, or population-based payment, is not a new idea. It was introduced in the United States with some fanfare in the 1990s but quickly ran into widespread criticism and was scaled back significantly. Today, a number of transitional approaches, including accountable care organizations (ACOs), shared savings plans, and alternative quality contracts, have been introduced as steps toward capitation. In the ACO model, the care organization earns bonuses or penalties on the basis of how the total fee-for-service charges for all the population's treatments during the year compare with historical charges. In full capitation, the care organization absorbs the difference between the sum of capitation payments and its actual cost.

FURTHER READING

The Strategy That Will Fix Health Care

ASSESSING PERFORMANCE FEATURE by Michael E. Porter and Thomas H. Lee, MD

The days of business as usual are over.

SAVE SHARE

Under capitation, unlike in the FFS model, the payer (insurer) no longer reimburses various providers for each service delivered. Rather, it makes a single payment for each subscriber (usually per patient per month) to a single delivery organization. The approach rewards providers for lowering the overall cost of treating the population, which is a step forward. However, under this system cost reduction gravitates toward population-level approaches targeting generic high-cost areas, such as limiting the use of expensive tests and drugs, reducing readmissions, shortening lengths of stay, and discharging patients to their homes rather than to higher-cost rehabilitation facilities. As a response to the failed experience with capitation in the 1990s, current capitation approaches include some provider accountability for quality. However, "quality" is measured by broad population-level metrics, such as patient satisfaction, process compliance, and overall outcomes such as complication and readmission rates.

This all seems good at first blush. The trouble is that, like the failed FFS payment system, capitation creates competition at the wrong level and on the wrong things, rather than on what really matters to patients and to the health care system overall.

Providers are not accountable for patient-level value.

Capitation and its variants reward improvement at the population level, but patients don't care about population outcomes such as overall infection rates; they care about the treatments they receive to address their particular needs. Outcomes that matter to breast cancer patients are different from those that are important to patients with heart failure. Even for primary and preventive care, which the concept of population health rightly emphasizes, appropriate care depends heavily on each patient's circumstances—health status, comorbidities, disability, and so on. And managing the overall health of a diverse population with high turnover (as ACOs do) is extremely difficult.

Thus, capitated payments are not aligned with better or efficient care for each patient's particular condition. Instead, capitation puts the focus on limiting the overall amount of care delivered without tying the outcomes back to individual patients or providers. The wrong incentives are created, just as is the case for fee for service, which reimburses for the volume of services but not the value.

Providers bear the wrong risks.
Because capitation pays providers a fee per person covered, it shifts the risk for the cost of the population's actual mix of medical needs—over which they have only limited control—to providers. Some large private insurers favor capitation for just this reason. But bearing the actuarial risk of a population's medical needs is what insurers should do, since they cover a far larger and more diverse patient population over which to spread this risk. Providers should bear only the risks related to the actual care they deliver, which they can directly affect.

A more fundamental problem is that capitation payments are extremely difficult to adjust to reflect each patient's overall health risk, not to mention to correctly adjust for this risk across a large, diverse population. Risks are much better understood and managed for a particular medical condition—for example, the probable effects of age or comorbidities on the costs and outcomes for joint replacement—as is the case in bundled payments.

Because population-level risk factors are so complex, health systems under capitation have an incentive to claim as many comorbidities as possible to bolster their revenue and profitability. A whole segment of health care IT providers has emerged to help providers "upcode" patients into higher-risk categories. Such gaming of risk adjustment first became a problem during the era of managed-care capitation in the 1990s, and it remains one today.

Patient choice is limited, and competition is threatened.
Capitation creates strong incentives for a health system to deliver all the care within its system, because contracting for outside services reduces net revenue and results in underutilization of existing internal capacity. There is even a term for this in health care—"avoiding leakage"—and many systems explicitly monitor and control it. Capitated health systems encourage or require patients (and their referring doctors) to use in-house providers (the ultimate narrow network). Patients are often penalized with extra fees when they don't use services within the system, even if outside providers have greater experience and get better results for treating the patient's particular condition. Capitation creates, in essence, a monopoly provider for all the patients in the population. Consumers cannot choose the best provider for their particular needs.

Since providers now bear actuarial risk, they also have a strong incentive to amass the largest possible population. This will accelerate the recent trend of providers' buying up other hospitals and physician practices and merging systems, which reduces competition. To offset health systems' rising bargaining power, insurers will feel pressure to merge. The two dynamics will reinforce each other as

How Fee for Service Destroys Value for Patients

Fee-for-service reimbursement, the dominant method used to pay for health care in the United States and elsewhere, has held back improvements in the quality of care and led to escalating costs. Overturning the status quo is not easy, but here's why doing so is essential.

Rewards Poor Outcomes: Because FFS reimburses providers on the basis of volume of care, providers are rewarded not just for performing unnecessary services but for poor outcomes. Complications, revisions, and recurrences all result in the need for additional services, for which providers get reimbursed again.

Fosters duplication and lack of coordination. FFS makes payments for individual procedures and services, rather than for the treatment of a patient's condition over the entire care cycle. In response, providers have organized around functional specialties (such as radiology). Today, multiple independent providers are involved in each patient's treatment, resulting in poorly coordinated care, duplicated services, and no accountability for health outcomes.

Perpetuates inefficiency. Today's FFS payments reflect historical reimbursements with arbitrary inflation adjustments, not true costs. Reimbursement levels vary widely, causing cross-subsidization across specialties and particular services. The misalignment means that inefficient providers can survive, and even thrive, despite high costs and poor outcomes.

Reduces focus. FFS motivates providers to offer full services for all types of conditions to grow overall revenue,

provider consolidation begets even more insurer consolidation.

FURTHER READING

How to Solve the Cost Crisis in Health Care

COSTS FEATURE by Robert S. Kaplan and Michael E. Porter

A new way to measure costs and compare them with outcomes.

SAVE SHARE

The end result will be the emergence of a few dominant systems—or even only one—in each region. This would be bad for patients. No one organization can have all the skills and technologies needed to be the best in treating everything. We need multiple providers in each region to ensure enough choice and drive innovation in care delivery.

The bottom line is that capitation is the wrong way to pay for health care. It is a top-down approach that achieves some cost savings by targeting low-hanging fruit such as readmission rates, expensive drugs, and better management of post-acute care. But it does not really change health care delivery, nor does it hold providers accountable for efficiency and outcomes where they matter to patients—in the treatment of their particular condition. Capitation's savings also come at the high cost of restricting patient choice and inhibiting provider competition.

Let's consider the alternative.

Paying for Value: Bundled Payments

For virtually all types of products and services, customers pay a single price for the whole package that meets their needs. When purchasing a car, for example, consumers don't buy the motor from one supplier, the brakes from another, and so on; they buy the complete product from a single entity. It makes just as little sense for patients to buy their diagnostic tests from one provider, surgical services from another, and post-acute care from yet another. Bundled payments may sound complicated, but in setting a single price for all the care required to treat a patient's particular medical condition, they actually draw on the approach long used in virtually every other industry.

Bundled payments have existed in health care for some time in isolated fields such as organ transplantation. They are also common for services that patients pay for directly, such as Lasik eye surgery, plastic surgery, and in vitro fertilization.

To maximize value for the patient, a bundled payment must meet five conditions:

Payment covers the overall care required to treat a condition.

The bundled payment should cover the full cost of treating a patient over the entire care cycle for a given condition or over time for chronic conditions or primary care. The scope of care should be defined from the patient's perspective ("Delivering a healthy child"). Care should include all needed services, including managing common comorbidities and related complications. In primary and preventive care, bundled payments should include all the needed care for each defined patient segment (such as healthy adults or low-income elderly).

Payment is contingent on delivering good outcomes.

Bundled payments should be tied to achieving the outcomes that matter to patients for each condition and primary care patient segment. Important outcomes include maintaining or returning to normal function, reducing pain, and avoiding and reducing complications or recurrences.

WEBINAR: THE CASE FOR BUNDLED PAYMENTS IN HEALTH CARE

Watch a discussion about the future of health care payments featuring Harvard Business School professors Michael E. Porter and Robert S. Kaplan.

Payment is adjusted for risk.

Differences in patients' age and health status affect the complexity, outcomes, and cost of treating a particular condition, as do their social and living circumstances. These risk factors should be reflected in the bundled payment and in expectations for outcomes to reward providers for taking on hard cases.

Payment provides a fair profit for effective and efficient care.
A bundled payment should cover the full costs of the necessary care, plus a margin, for providers that use effective and efficient clinical and administrative processes. It should not cover unnecessary services or inefficient care.

Providers are not responsible for unrelated care or catastrophic cases.
Providers should be responsible only for care related to the condition—not for care such as emergency treatment after an accident or an unrelated cardiac event. The limits of provider responsibility should be specified in advance and subject to adjudication if disputes arise. Bundled payments should also include a "stop loss" provision to limit providers' exposure to unusually high costs from catastrophic or outlier cases. This reduces the need for providers to build such costs into the price for every patient (unlike in capitation).

How Bundled Payments Will Transform Patient Care

Decades of incremental efforts to cut costs in health care and impose practice guidelines on clinicians have failed. Bundled payments directly reward providers for delivering better value for the patient's condition and will unlock the restructuring of health care delivery in three crucial ways that capitation cannot.

Integrated, multidisciplinary care.
Specialty silos have historically led to fragmented, uncoordinated, and inefficient care. With bundled payments, providers with overall responsibility for the full care cycle for a condition will be empowered and motivated to coordinate and integrate all the specialists and facilities involved in care. Clinical teams (the experts) have the freedom to decide how to spend the fixed bundled payment, rather than being required to deliver the services that are reimbursed by legacy FFS payments in order to receive revenue. Teams can choose to add services that are not currently covered by FFS but that provide value for patients.

Bundled payments are triggering a whole new level of care innovation. For example, hospital-based physicians are remaining involved in care after patients are discharged. Hospitalists are added to teams to coordinate all the inpatient specialists involved in the care cycle. Nurses make sure patients fill their prescriptions, take medications correctly, and actually see their primary care physician. (A recent study showed that 50% of readmitted patients did not see their primary care doctor in the first 30 days after discharge.) And navigators accompany patients through all phases of their care and act as first responders in quickly resolving problems. Bundled payments are also spurring innovation in the creation of tailored facilities, such as those of Twin Cities Orthopedics (Minneapolis), which performs joint-replacement care in outpatient surgery centers and nearby recovery centers, rather than in a traditional hospital.

> Bundled payments will empower providers to coordinate and integrate care.

Bundled payments will accelerate the formation of integrated practice units (IPUs), such as MD Anderson's Head and Neck Center and the Joslin Diabetes Center. IPUs combine all the relevant clinicians and support personnel in one team, working in dedicated facilities. Joslin, for example, brings together all the specialists (endocrinologists, nephrologists, internists, neurologists, ophthalmologists, and psychiatrists) and all the support personnel (nurses, educators, dieticians, and exercise physiologists) required to provide high-value diabetes care. IPUs concentrate volume of patients with a given condition in one place, allowing diagnosis and treatment by a highly

experienced team. Numerous studies show that this approach leads to better outcomes and greater efficiency (including less wait time and fewer visits). Bundled payments also encourage the formation of "virtual" IPUs, where even separate practices and organizations actively collaborate across inpatient and outpatient settings to coordinate and integrate care—something that rarely happens today.

Accountability for outcomes.
By definition, a bundled payment holds the entire provider team accountable for achieving the outcomes that matter to patients for their condition—unlike capitation, which involves only loose accountability for patient satisfaction or population-level quality targets.

Because bundled payments are adjusted for risk, providers are rewarded for taking on difficult cases. With a fixed single payment, they are penalized if they overtreat patients or perform care in unnecessarily high-cost locations. And because providers are accountable for outcomes covering the entire care cycle, they will move quickly to add new services, more-expensive interventions, or better diagnostic tests if those will improve outcomes or lower the overall cost of care. Specialists operating under a bundled payment, for example, have added primary care physicians to their care teams to better manage the overall care cycle and deal with comorbidities.

Most important, the accountability built into bundled payments will finally bring to health care the systematic measurement of outcomes at the condition level, where it matters most. We know from every other field that measuring and being accountable for results is the most powerful driver of innovation and continuous improvement.

Cost reduction.
There have been repeated efforts to control health costs for decades without success, and top-down cost reduction initiatives have sometimes increased costs rather than reduced them. The core problem is that legacy payment models such as FFS have given providers no incentive to cut costs or even to understand what their costs are for treating a given condition. Bundled payments, by contrast, directly reward and motivate cost reduction from the bottom up, team by team. At the same time, they encourage accurate cost measurement not only to inform price setting but to enable true cost reduction.

FURTHER READING

Redefining Competition in Health Care
HEALTH MAGAZINE ARTICLE by Michael E. Porter and Elizabeth Teisberg

The wrong kinds of competition have made a mess of the American health care system. The right kinds of competition can straighten it out.

SAVE SHARE

Bundled payments will be the catalyst that finally motivates provider teams to work together to understand the actual costs of each step in the entire care process, learn how to do things better, and get care right the first time. By encouraging competition for the treatment of individual conditions on the basis of quality and price, bundled payments also reward providers for standardizing care pathways, eliminating services and therapies that fail to improve outcomes, better utilizing staff to the top of their skills, and providing care in the right facilities. If providers use ineffective or unnecessary therapies or services, they will bear the cost, making bundled payments a check against overtreatment.

The result will be not just a downward "bend" in the cost curve—that is, a slower increase—but actual cost reduction. Our research suggests that savings of 20% to 30% are feasible in many conditions. And, because bundled payments are contingent on good outcomes, the right kind of cost reduction will take place, not cost cutting at the expense of quality.

Overcoming the Transition Challenges

Despite the now proven benefits of well-designed bundled payments, many hospital systems, group purchasing organizations, private insurers, and some academics prefer capitation. Bundled payments, they argue, are too complicated to design, negotiate, and implement. (They ignore the fact that capitation models continue to rely on complex, expensive fee-for-service billing to pay clinicians

and to set the baseline for calculating savings and penalties. Bundled payments are actually simpler to administer than the myriad of FFS payments for each patient over the care cycle.)

Skeptics raise a host of other objections: The scope of a condition and care cycle is hard to define; it is unrealistic to expect specialists to work together; the data on outcomes and costs needed to set prices are difficult to obtain; differences in risk across patients are hard to assess, which will lead to cherry-picking; and bundled payments won't rein in overtreatment.

If these objections represented serious barriers, we would expect to see little progress in implementing bundled payments and plenty of evidence that such programs were unsuccessful. To the contrary, bundled payments have a history of good results and are currently proliferating rapidly in a wide range of conditions, organizations, and countries.

A History of Success

Bundled payments are not a new idea or a passing fad. Successful pilots date back for decades and include initiatives spearheaded by the Centers for Medicare & Medicaid Services.

Consider the Heart Bypass Demonstration, an initiative that ran from 1991 to 1996. CMS offered a bundled payment for coronary artery bypass graft surgery that covered all services delivered in the hospital, along with 90 days of post-discharge services. The pilot yielded savings to Medicare of $42.3 million, or roughly 10% of expected spending, at the seven participating hospitals. The inpatient mortality rate declined at all the hospitals, and patient satisfaction improved.

CMS also implemented the Acute Care Episode program (from 2009 to 2011), in which Medicare paid five participating organizations a flat fee to cover hospital and physician services for various cardiac conditions and orthopedic care. Over a total of 12,501 episodes, the initiative generated an average savings to Medicare of 3.1% of expected costs.

In 2007, for example, the Netherlands introduced a successful bundled payment model for treating patients with type 2 diabetes, and, later, for chronic obstructive pulmonary disease (COPD). In 2009, the County of Stockholm, Sweden, introduced bundled payments for hip and knee replacements in healthy patients, achieving a 17% reduction in cost and a 33% reduction in complications over two years. More recently, Stockholm introduced bundled payments for all major spine diagnoses requiring surgery, and extensions to other conditions are under way there.

In 2011, Medicare introduced the voluntary Bundled Payments for Care Improvement (BPCI) program, which currently includes more than 14,000 bundles in 24 medical and 24 surgical conditions. Numerous physician practices have embraced the BPCI model, a transitional bundled payment approach that covers acute-care episodes and often a post-acute period of up to 90 days to promote better management of post-discharge services. According to participating providers, BPCI bundles have achieved significant improvements and savings an order of magnitude greater than savings from ACOs. Building on that success, CMS launched a mandatory bundled payment program for joint replacements in 2016, which covers 800 hospitals in 67 U.S. metropolitan areas.

Bundled payment contracts involving private insurers are also finally beginning to proliferate. For example, Twin Cities Orthopedics offers a bundle for joint replacement with most of the region's major insurers at a price well below the traditional hospital models. The practice reports better outcomes and cost reductions of more than 30%.

> The County of Stockholm's bundle for joint replacement reduced costs by 17%.

To be sure, many existing bundled payment programs have yet to encompass all the components of an ideal structure. Most have made pragmatic compromises, such as covering only part of the care cycle, using important but incomplete risk adjustments, and incorporating limited outcome measures. But even these less-than-comprehensive efforts are resulting in major improvements, and the obstacles to bundled payments are being overcome.

Let's consider some of the main criticisms of bundled payments in more depth:

Only some conditions can be covered.

Critics have suggested that bundled payments apply only to elective surgical care and other well-defined acute conditions, and not to nonsurgical conditions, chronic disease, or primary care. But this claim is inconsistent with actual experience. Of the 48 conditions designated for BPCI, only half were surgical. The other half were for care episodes in nonsurgical conditions, such as heart disease, kidney disease, diabetes, and COPD. Time-based bundled payments for chronic care are emerging in other countries and with private payers. Bundled payments work well for chronic conditions because of the huge benefits that result from coordinated longitudinal care by a multidisciplinary team.

Bundled payment models are also beginning to emerge for primary and preventive care for well-defined segments of patients with similar needs. Each primary care segment—such as healthy children, healthy adults, adults at risk for developing chronic disease, and the elderly—will need a very different mix of clinical, educational, and administrative services, and the appropriate outcomes will differ as well. Bundled payments reward integrated and efficient delivery of the right mix of primary and preventive services for each patient group.

Primary care bundles need not cover the cost of treating complex, acute conditions, which are best paid for with bundled payments to IPUs covering those conditions. Instead, primary care teams should be held accountable for their performance in primary care and prevention for each patient segment: maintaining health status, avoiding disease progression, and preventing relapses.

Defining and implementing bundled payments is too complicated.

Critics argue that it will be hard to negotiate bundled payments across all conditions and to get agreement on the definition of a medical condition, the extent of the care cycle, and the included services. This objection is weak at best. A manageable number of conditions account for a large proportion of health care costs, and we can start there and expand over time. The care required for most medical conditions is well established, and experience in defining bundles is rapidly accumulating. Methodologies and commercial tools, such as the use of comprehensive claims data sets, are in widespread use. Service companies that help providers define conditions, form teams, and manage payments are emerging, as are software tools that handle billing and claims processing for bundles.

Initially, bundled payments may cover less than the full care cycle, focus on simpler patient groups with a given condition, and require adjudication mechanisms for gray areas that arise. This is already happening. As experience grows, bundled payments will become more comprehensive and inclusive. And a large body of evidence shows that the effort involved in understanding full care cycles and moving to multidisciplinary care is well worth it.

Providers won't work together.

Critics argue that bundled payments hold providers accountable for care by other providers that they don't control; skeptics also claim that it will be hard to divide up a single payment to fairly recognize each party's contribution. This is one reason many hospital systems have been slow to embrace the new payment model. We are selling doctors short. Many physician groups have enthusiastically embraced bundles, because they see how the model rewards great care, motivates collaboration, and brings clinicians together. As physicians form condition-based IPUs and develop mechanisms for sharing accountability, formulas for dividing revenues and risk are emerging that reflect each provider's role, rather than flawed legacy fee structures.

Why DRGs Are Not Bundled Payments

Critics of bundled payments point to Medicare's experience with a superficially similar approach: the diagnosis-related group, or DRG, payment model. DRGs, which date back to 1984 and were adopted in many countries, were a step forward, but they did not trigger the hoped-for innovations in care delivery.

Why have DRGs failed to bring about greater change? DRGs make a single payment for a set of services provided at a given location; however, the payment does not cover the full care cycle for treating the patient's condition. By continuing to make separate payments to each specialist physician, hospital, and post-acute care site involved in a patient's care, DRGs perpetuate a system of uncoordinated care.

Moreover, DRG payments are not contingent on achieving good patient outcomes. Indeed, many DRGs fail to cover many support services crucial to good outcomes and overall value, such as patient education and counseling, behavioral health, and systematic follow-up. Under the DRG system, therefore, specialty silos in health care delivery have remained largely intact. And providers continue to have no incentive to innovate to improve patient outcomes.

At UCLA's kidney transplant program, for example, a bundled payment was first negotiated with several insurers more than 20 years ago. An IPU was formed and has become one of the premier U.S. kidney transplantation programs with superior outcomes. To divide the bundled price, urologists and nephrologists—the specialists who have the greatest impact on care—pay negotiated fees to other specialists involved in care (such as anesthesiology) and bear the residual financial risk and share the gain. This structure has reinforced collaboration, not complicated it.

Another example is physician-owned OrthoCarolina's 2014 contract with Blue Cross and Blue Shield of North Carolina for bundled payment for joint replacement. OrthoCarolina provides care in several area hospitals and has negotiated a fixed payment with each of them for all the required inpatient care. Each participating hospital now has a designated team, including members of the nursing, quality, and administrative departments, that collaborates with OrthoCarolina surgeons in a virtual IPU. This ensures that everyone involved with the patient and the family fully understands the care pathway and expectations. The initial group of 220 patients in the plan experienced 0% readmissions, 0% reoperations, 0.45% deep venous thrombosis (versus 1% to 1.5% nationally), and substantial improvements in patient-reported quality-of-life outcomes. Average length of stay dropped from 2.4 days to 1.5 days, with 100% of patients discharged to their homes rather than a rehabilitation center. The cost per patient, as reported by Blue Cross and Blue Shield of North Carolina, fell an average of 20%.

Outcomes are difficult to measure.

Critics claim that the outcome data at the medical condition level, an essential component of value-based bundled payments, doesn't exist or is too difficult and expensive to collect. While this may have been true a decade ago, today outcome measurement is rapidly expanding, including patient-reported outcomes covering functional results crucial to patients. Many providers are already systematically measuring outcomes. Martini-Klinik, a high-volume IPU for prostate cancer in Hamburg, Germany, has been measuring a broad set of outcomes since its founding, in 1994. This has enabled it to achieve complication rates for impotence and incontinence that are far lower than average for Germany. In congenital heart disease care, Texas Children's tracks not only risk-adjusted surgical and intensive care mortality rates but also metrics of patients' neurodevelopmental status and, increasingly, ongoing quality of life.

Advances in information technology are making outcome measurement better, easier, less costly, and more reliable. Greater standardization of the set of outcomes to measure by condition will also make measurement more efficient and improve benchmarking. The International Consortium for Health Outcomes Measurement (ICHOM) has published global standard sets of outcomes and risk factors for 21 medical conditions that represent a significant portion of the disease burden, and the number is growing. Early bundled payment programs are already achieving significant outcome improvement. As provider experience grows, bundled payments will expand accountability and lead to even greater improvements.

Current cost information is inadequate.
Critics argue that bundled payments require an understanding of costs that most providers lack, which puts them at unfair financial risk. Yet numerous bundled payment programs are already in place, using prices based on modest discounts from the sum of historical fee-for-service payments. New service companies are assisting providers in aggregating past charges and in reducing costs. Providers will learn to measure their actual costs, as organizations such as Mayo Clinic, MD Anderson, and the University of Utah are already doing. This will inform better price negotiations and accelerate cost reduction.

The failure of care delivery organizations to properly measure and manage costs is a crucial weakness in health care globally. Bundled payments will finally motivate providers to master proper costing and use cost data to drive efficiencies without sacrificing good patient outcomes.

Providers will cherry-pick patients.
Critics charge that bundled payments will encourage providers to treat only the easiest and healthiest patients. But as we have already noted, proper bundled payments are risk-stratified or risk-adjusted. Even today's imperfect bundled payment contracts incorporate risk adjustments that are often better than those used in current FFS payment and beyond the crude risk adjustment used in capitation. Innovators are developing pragmatic approaches that adjust for risk, such as restricting initial bundles to groups of patients with similar risk profiles for a condition. The County of Stockholm did this with joint replacements. Its initial bundle covered the 60% to 70% of patients classified as ASA 1 (normally healthy) or 2 (mild systemic disease); more-complex patients remained in the old reimbursement system. Careful tracking showed no evidence of bias in the selection of patients. The county plans to extend the bundle to more-complex joint replacement patients as better data becomes available.

> Bundled payments will motivate providers to master proper costing practices.

Recently, the county introduced bundled payments for nine spine diagnoses requiring surgery, with far more sophisticated risk adjustment. The bundled payment includes a base payment, a payment covering expected complications, and a performance payment based on pain reduction. All three elements are adjusted for multiple patient risk factors. Risk adjustment will only improve as experience with it grows.

Bundled payments will encourage overtreatment.
Critics raise concerns that bundled payments, like FFS, will lead to overtreatment because payment is tied to performing care, incenting providers to manufacture demand. Note that capitation plans, which have limited accountability for individual patient outcomes, have the opposite incentive: motivating providers to deny or delay the treatments patients need.

While definitive results are not yet available, our conversations with payers and government authorities in the United States, Sweden, and elsewhere have revealed no evidence that bundled payments have resulted in unnecessary surgeries or other treatments. Bundled payments are risk-adjusted and introduce transparency on outcomes, and the fixed payment will discourage unnecessary procedures, tests, and other services. Bundled payments (and all care) should incorporate appropriate use criteria (AUC), which use scientific evidence to define qualifications for particular treatments.

Price competition will trigger a race to the bottom.
Finally, some providers worry that bundled payments will result in excessive price competition, as payers demand discounts and low-quality providers emerge offering cheap prices. This concern is common among hospitals, which are wary of greater competition and want to sustain existing reimbursement levels. We believe this fear is overblown. Bundled payments include clear accountability for

outcomes and will penalize poor-quality providers. At the root of all these objections to bundled payments are critical failures that have held back health care for decades. Bundled payments will finally address these problems in ways that capitation cannot.

How Bundled Payments Will Transform Competition

As our multiple examples reveal, bundled payments are already transforming the way care is delivered. They unleash a new kind of competition that improves value for patients, informs and expands patient choice, lowers system cost, reshapes provider strategy, and alters industry structure for the better.

With bundled payments, patients are no longer locked into a single health system and can choose the provider that best meets their particular needs. Choice will expand dramatically as patients (and physicians) gain visibility into outcomes and prices of the providers that treat their condition. In a transparent bundled-payment world, patients will be able to decide whether to go to the hospital next door, travel across town, or venture even farther to a regional center of excellence for the care they need. This kind of choice, long overdue in health care, is what customers have in every other industry.

At the same time, the prices should fall. A bundled payment will usually be lower than the sum of current FFS reimbursements in today's inefficient and fragmented system. For conditions where legacy FFS payments failed to cover essential costs to achieve good outcomes, such as in mental health care or diagnostics that enable more targeted and successful treatments, prices may initially rise to support better care. But even these prices will fall as providers become more efficient.

In a world of bundled payments, market forces will determine provider prices and profitability, as they should. In today's system, FFS pricing allows inefficient or ineffective providers to be viable. With bundled payments, only providers that are effective and efficient will grow, earn attractive margins, and expand regionally and even nationally. The rest will see their margins decline, and those with poor outcomes will lose patients and bear the extra costs of dealing with avoidable complications, infections, readmissions, and repeat treatments.

> Providers will target conditions where they can achieve good outcomes at low cost.

Given today's hyperfragmentation of care, bundled payments should reduce the absolute number of providers treating each condition. But those that remain will be far stronger. And unlike the consolidation that would result from capitation, this winnowing of providers will create more-effective competition and greater accountability for results.

Providers will stop trying to do a little bit of everything and instead will target conditions where they can achieve good outcomes at low costs. Where they cannot, they will partner with more-effective providers or exit those service lines. The net result will be significantly better overall outcomes by condition and significantly lower average costs. No other payment model can produce such a transformation.

The shift to bundled payments will also spill over to drive positive change in pharmaceuticals, medical devices, diagnostic testing, imaging, and other suppliers. Today, suppliers compete to get on approved lists, curry favor with prescribing specialists through consulting and research payments, and advertise directly to patients so that they will ask their doctor for particular treatments. As a result, many patients receive therapies that are not the best option, deliver little benefit, or are unnecessary. With bundled payments, suppliers will have to demonstrate that their particular drug, device, diagnostic test, or imaging method actually improves outcomes,

lowers the overall cost, or both. Suppliers that can demonstrate value will command fair prices and gain market share, and there will be substantial cost reduction in the system overall. Competition on value is the best way to control the costs of expensive drugs and therapies, not today's approach of restricting access or attacking high prices as unethical or evil regardless of the value products offer.

The Time Is Now

The biggest beneficiary of bundled payments will be patients, who will receive better care and have access to more choice. The best providers will also prosper. Many already recognize that bundled payments enable them to compete on value, transform care, and put the health care system on a sustainable path for the long run. Those already organized into IPUs for specific medical conditions are particularly well-positioned to move aggressively. Physician groups in particular have often moved the fastest.

Many health systems, however, have been reluctant to get behind bundled payments. They seem to believe that capitation better preserves the status quo—a top-down approach that leverages their clout and scale. They also see it as encouraging industry consolidation, which will ease reimbursement pressure and reduce competition. However, leading health systems are embracing bundled payments and the shift in competition to what really matters to patients.

Health systems with their own insurance plans, or those that self-insure care for their employees, can begin immediately to introduce bundled payments internally. Health systems that have adopted ACOs or other capitated models can also use condition-based bundled payments to pay internal units. Doing so will accelerate learning while motivating clinical units to improve outcomes and reduce costs in a way that existing departmental budgets or FFS can never match. Adopting bundles internally will be a stepping stone to contracting this way with payers and directly with employers.

Payers will reap huge benefits from bundled payments. Single-payer systems, such as those in Canada, Sweden, and the U.S. Veterans Administration, are well-positioned to transition to bundled payments for a growing number of medical conditions. Indeed, this is already happening in some countries and regions, with CMS leading the way in the United States.

But many private insurers, which have prospered under the status quo, have been disappointingly slow in moving to bundled payments. Many seem to favor capitation as less of a change; they believe it preserves payment infrastructure while shifting risk to providers. As an excuse, they cite their inability to process claims for bundled payments, even though bundled claims processing is inherently far simpler.

Improving the way they pay for health care, however, is the only means by which insurers can offer greater value to its customers. Insurers must do so, or they will have a diminished role in the system. We challenge the industry to shift from being the obstacle to bundled payment to becoming the driver. Recently, we've been heartened to see more private insurers moving toward bundled payments.

Employers, which actually pay for much of health insurance in the United States, should step up to lead the move to bundled payments. This will improve outcomes for their employees, bring down prices, and increase competition. Self-insured employer health plans need to direct their plan administrators to roll out bundles, starting with costly conditions for which employees experience uneven outcomes.

Should their insurers fail to move toward bundles, large employers have the clout to go directly to providers. Lowe's, Boeing, and Walmart are contracting directly with providers such as Mayo Clinic, Cleveland Clinic, Virginia Mason, and Geisinger on bundled payments for orthopedics and complex cardiac care. The Health Transformation Alliance, consisting of 20 large employers that account for 4 million lives, is pooling data and purchasing power to accelerate the implementation of bundled payments.

The time has come to change the way we pay for health care, in the United States and around the world. Capitation is not the solution. It entrenches large existing systems, eliminates patient choice, promotes more consolidation, limits competition, and perpetuates the lack of provider accountability for outcomes. It will fail again to drive true innovation in health care delivery.

Capitation will also fail to stem the tide of the ever-rising costs of health care. ACOs, despite their strong advocates, have produced minimal cost savings (0.1%). By contrast, even the simplified bundled payment contracts under way today are achieving better results. Medicare is expected to save at least 2% ($250 million) in its program's first full year of operation. And experience in the United States and elsewhere shows that the savings can be far larger.

Capitation might seem simple, but given highly heterogeneous populations and continual turnover of patients and physicians, it is actually harder to implement, risk-adjust, and manage to deliver improved care. Bundled payments, in contrast, are a direct and intuitive way to pay clinical teams for delivering value, condition by condition. They put accountability where it should be—on outcomes that matter to patients. This way to pay for health care is working, and expanding rapidly.

Much remains to be done to put bundled payments into widespread practice, but the barriers are rapidly being overcome. Bundled payments are the only true value-based payment model for health care. The time is now.

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POST

23 COMMENTS

Stefan Ehrbar 14 hours ago

Did you realize that the "first-aid kit" you were picturing in the article and on page 87/89 in the Magazine actually shows the flag of Switzerland instead of the red cross?

REPLY

1 0

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Maternal Health 4

Drivers of maternity care in high-income countries: can health systems support woman-centred care?

Dorothy Shaw, Jeanne-Marie Guise, Neel Shah, Kristina Gemzell-Danielsson, KS Joseph, Barbara Levy, Fontayne Wong, Susannah Woodd, Elliott K Main

In high-income countries, medical interventions to address the known risks associated with pregnancy and birth have been largely successful and have resulted in very low levels of maternal and neonatal mortality. In this Series paper, we present the main care delivery models, with case studies of the USA and Sweden, and examine the main drivers of these models. Although nearly all births are attended by a skilled birth attendant and are in an institution, practice, cadre, facility size, and place of birth vary widely; for example, births occur in homes, birth centres, midwifery-led birthing units in hospitals, and in high intervention hospital birthing facilities. Not all care is evidenced-based, and some care provision may be harmful. Fear prevails among subsets of women and providers. In some settings, medical liability costs are enormous, human resource shortages are common, and costs of providing care can be very high. New challenges linked to alteration of epidemiology, such as obesity and older age during pregnancy, are also present. Data are often not readily available to inform policy and practice in a timely way and surveillance requires greater attention and investment. Outcomes are not equitable, and disadvantaged segments of the population face access issues and substantially elevated risks. At the same time, examples of excellence and progress exist, from clinical interventions to models of care and practice. Labourists (who provide care for all the facility's women for labour and delivery) are discussed as a potential solution. Quality and safety factors are informed by women's experiences, as well as medical evidence. Progress requires the ability to normalise birth for most women, with integrated services available if complications develop. We also discuss mechanisms to improve quality of care and highlight areas where research can address knowledge gaps with potential for impact. Evaluation of models that provide woman-centred care and the best outcomes without high costs is required to provide an impetus for change.

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Introduction

Global efforts to end preventable maternal and newborn mortality have appropriately focused on addressing of known risks associated with pregnancy and birth. This approach has been the great success of medical intervention in high-income countries (HICs), resulting in very low maternal mortality (12 deaths per 100 000 livebirths) and neonatal mortality (four deaths per 1000 livebirths).[1,2] HICs virtually guarantee antenatal care and a skilled birth attendant, and generally have institutional births, which can provide appropriate emergency care for complications.

The new era of Sustainable Development Goals (SDGs)[3] brings HICs under the accountability lens, providing an opportunity for timely reflection on the status of maternal health and its drivers in these countries. Although mortality is generally low, the picture is far from perfect. Care varies greatly, not all care is evidenced based, and some care might actually be harmful. In some settings, fear prevails among subsets of women and providers, driving increased and inappropriate intervention. Medical liability costs are enormous, human resource shortages are common, and costs of provision can be very high. Outcomes are not equitable, and disadvantaged sub-populations can face substantially elevated risks. New challenges linked to changing epidemiology, such as older age at birth and increased obesity are also present. At the same time, examples of excellence and progress are evident, from clinical interventions to models of care. This Series paper presents the main drivers of the models of maternity and childbirth care in 14 HICs, and their influences on outcomes. Drivers are factors that cause a particular phenomenon to happen or develop. This Series paper also includes mechanisms and research direction to promote evidence-based change and woman-centred care.

To explore potential drivers, including cost, we compared available national data from 14 representative HICs. We also draw on the scientific literature, particularly reviews, to identify additional potential drivers (methods are shown in the appendix).

Health system and epidemiological drivers

Health system drivers of maternal health outcomes include birth setting (home, free-standing birthing centre, hospital-sited midwifery-led birthing unit, or hospital), cost of models of care, and size and location of facilities (rural and remote). Epidemiological drivers of maternal health outcomes include maternal mortality and morbidity surveillance and audits, and the changing epidemiology of women giving birth. Evaluation of data for these health system drivers can provide evidence for necessary change.

Care delivery models in high-income countries: birth setting

Hospital births

Most women in HICs have access to antenatal care, and postnatal care, including settings where postnatal care includes home visits by midwives and health visitors.

Key messages

- Women should be offered care that supports the safe physiological process of labour with the lowest level of intervention possible, to reduce overintervention, and support woman-centred care. Countries, care systems, and providers need to consider how they will promote this.
- High-income countries (HICs) with a combination of lowest intervention rates, best outcomes, and lowest costs have integrated midwifery-led care through different models, including team-based care in maternity hospitals, low-risk units alongside full-scope maternity hospitals, and freestanding or home-based midwifery. Such experiences in HICs are informative for countries where maternal mortality is decreasing, and transitions in care models are occurring.
- Most HICs lack robust surveillance systems for ascertainment of maternal deaths, and for accurate identification of the underlying cause of death and instances of preventable death. State, provincial, or national level audits of maternal death are needed, with results collated, analysed, and disseminated, along with recommendations for prevention. Data should specifically be disaggregated by vulnerable populations.
- Maternal safety programmes are recognising the importance of protocols, drills, and team training in a simulation environment, to address preventable causes of mortality and morbidity, such as massive obstetric haemorrhage.
- HICs experience variation in practice that is not evidence-based nor attributable to size of facility, providing opportunities for improvement of quality of care, and outcomes.
- Malpractice liability might pose a barrier to optimal maternity care in North America, especially the USA, by reducing the number of obstetricians willing to pay high premiums and by contributing to overuse of services based on fear. Some countries manage to overcome liability barriers by state support provision for those infants born with serious neurological birth injury. Research from other countries suggests that state support should be in conjunction with implementation of safety programmes at the facility level.

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See Online for appendix

Home births are infrequent in most HICs, other than the Netherlands (table 1). In most HICs, women with high-risk and low-risk pregnancies deliver in the same place, a hospital. These facilities are well optimised for high-risk women, with technology and staffing for close monitoring and expeditious access to interventions. Conversely, these facilities might not be optimised for low-risk women, and staff monitor and intervene more than is necessary for the overwhelming majority of women. The consequences of overintervention include avoidable harms to women and newborns, such as rapidly rising incidence of placenta accreta linked to previous caesarean section, while driving escalating, unsustainable costs. In some settings, hospital-sited midwifery-led birthing units are an attempt to optimise care for low-risk women. Such units have lower rates of medical interventions during labour, and higher satisfaction levels, with no increased risk to mothers or babies.[4]

Birth centres and home births

Midwives attending births at home or in free-standing birthing centres are another way to optimise birth for low-risk women. These centres are typically clustered around urban centres, with easy transfer to hospital when appropriate.[5]

Research on planned hospital versus planned home births in the UK indicates that home birth services with collaborative medical backup should be established and offered to women with low-risk pregnancies in all jurisdictions.[6] The National Institute for Health and Care Excellence (NICE) 2014 guidelines recommend that all birth settings should be available to women at low risk of birth-associated complications, and home birth should generally be considered a safe option, although an increased risk of adverse outcomes for the baby for nulliparous women compared with birth in a midwifery-led unit is noted.[7] A 2015 US study[8] showed a higher perinatal mortality (3·9 *vs* 1·8 deaths per 1000 deliveries) in planned out-of-hospital births but did not highlight important factors, including lack of insurance in 34·5% of the women (*vs* 1·0% for planned hospital birth) and no skilled attendant in 23·1% of the planned out-of-hospital births (*vs* <0·2% for planned hospital birth). A 2015 Canadian study[9] that compared planned hospital births with home births, attended by licensed midwives, found no difference in serious neonatal adverse outcomes, and noted that Canadian midwives are well integrated into the health-care system.

Costs of models of care and outcomes

The cost of childbirth is disproportionately expensive in the USA compared with all other HICs within the Organization for Economic Co-operation and Development (OECD; table 1). Similar trends in higher costs can be seen in Australia and other HICs. Cost increases over time are largely attributed to use of interventions (appendix).

Some elements of increased spending improve outcomes, particularly for premature infants, although support of extremely preterm infants with neonatal intensive care is a significant expense in HICs. Increasing numbers of caesarean sections and inductions of labour are additional cost drivers in the USA, UK, and Canada; vaginal delivery is the least expensive, and unplanned caesarean is the most expensive mode of delivery.[10] Several studies from HICs,[11–14] including the Netherlands, show lower resource use and costs at home and birth centres than hospitals, especially in urban or academic medical centres.

Size and location: rural and remote

The trend over the past two decades in HICs towards closure of smaller facilities providing maternity care means women travel further to receive care, especially for labour and delivery, and can involve relocation to maternity waiting homes.[15] Access costs in many cases are borne by women. Smaller hospitals have lower rates of obstetric intervention and improved neonatal outcomes among low-risk women.[5,16] A Canadian study[17] showed that travel to access maternity care in large hospitals is associated with adverse perinatal outcomes for infants. German[18] and Norwegian[19]

	Home birth rate (%)	Birth centre birth rate (%; free-standing)	Vaginal birth rate (%)	Caesarean-section rate (%)	Episiotomy rate (% of vaginal births)	Epidural in labour (%)	Main care provider	Most common remuneration type for physicians	Cost to patient	Cost of vaginal birth (2015 US$)	Cost of caesarean section (2015 US$)	Overall health expenditure (% of GDP) 2014	Year of data
Australia	0·4%	2·2%	67·7%	32·3%	15·6%	29·9%	Midwife/GP/ obstetrician	Salary	None (can pay privately)	$6775	$10 499	9·03%	2011/2012/2014
Canada	1·2%	N/A	72·9%	27·1%	17·0%	58·7%	Obstetrician/FP/ GP/midwife	Government-set fee for service	None	$2930	$5420	11·18%	2002–03/ 2011–12/ 2013–14
Denmark	1·2%	N/A	77·9%	22·1%	4·9%	N/A	Midwife/ obstetrician	Salary	None	$2517	N/A	11·15%	2005/2010–12
Finland	0·6%	N/A	83·2%	16·8%	24·1%	49%	Midwife/ obstetrician	Salary	None (facility fee €17)	$2784	$4561	8·85%	2008/2010/2013
France	0·0%	N/A	79·0%	21·0%	26·9%	82%	Midwife/GP/ obstetrician	Salary	N/A	$3676	$6686	11·63%	2010/2012
Germany	0·0%	N/A	68·7%	31·3%	27·7%	<10%	Midwife/ obstetrician	Salary (hospital)	N/A	$2592	$4253	11·06%	2010/2013
Japan	1·1%	N/A	80·8%	19·2%	N/A	10–50%	Midwife/ obstetrician	Government-set fee for service	No net cost	$3931	$3931	9·27%	2010/2011
Netherlands	20·0%	11·4%	83·0%	17·0%	30·3%	11·3%	Midwife–obstetrician consultant role	Fee for service	None	$2889	$5618	11·96%	2010/2012/2013
New Zealand	3·3%	10·1%	74·7%	25·3%	12·0%	24·7%	Midwife/ obstetrician/GP	Salary	None (can pay privately)	$2477	$4896	10·08%	2012
Norway	0·8%	0·5%	82·9%	17·1%	18·8%	28%	Midwife/ obstetrician	Salary	None	$1434	$3801	9·07%	2010
Spain	N/A	N/A	75·0%	25·0%	43·0%	N/A	Midwife/ obstetrician	Salary	None (can pay privately)	$2303	$2909	9·44%	2010/2011/2012
Sweden	<1%	N/A*	82·9%	17·1%	6·6%	34·4%	Midwife–obstetrician consultant role	Salary	None (facility fee US$10 per day)	$3025	$6025	9·36%	2008/2010/2014
UK (England, Wales)	2%	2·3%	75·4%, 73·9%	24·6%, 26·1%	19·4%/ 20·1%	16%	Midwife–obstetrician consultant role	Salary	None	$2741	$4604	9·32%	2010/2013–14
USA	0·91%	0·43%	67·8%	32·2%	14·4%	71%	Obstetrician	Fee for service	N/A	$10 232	$15 591	17·85%	2012/2014

References in appendix. GP=general practitioner. FP=family practitioner. N/A=not available. *Sweden's only birth centre is now closed.

Table 1: **Variations in interventions related to birth and cost comparisons in selected high-income countries**

studies, show smaller maternity hospitals have higher rates of neonatal death. More research is needed to clarify these issues and to identify how low-risk maternity care in rural areas can be delivered safely and acceptably.

Need for health system responses to prevailing epidemiological burden

Maternal mortality surveillance in HICs

Most HICs have experienced declines in maternal mortality since 1990, although the rate varies (figure 1).[1]

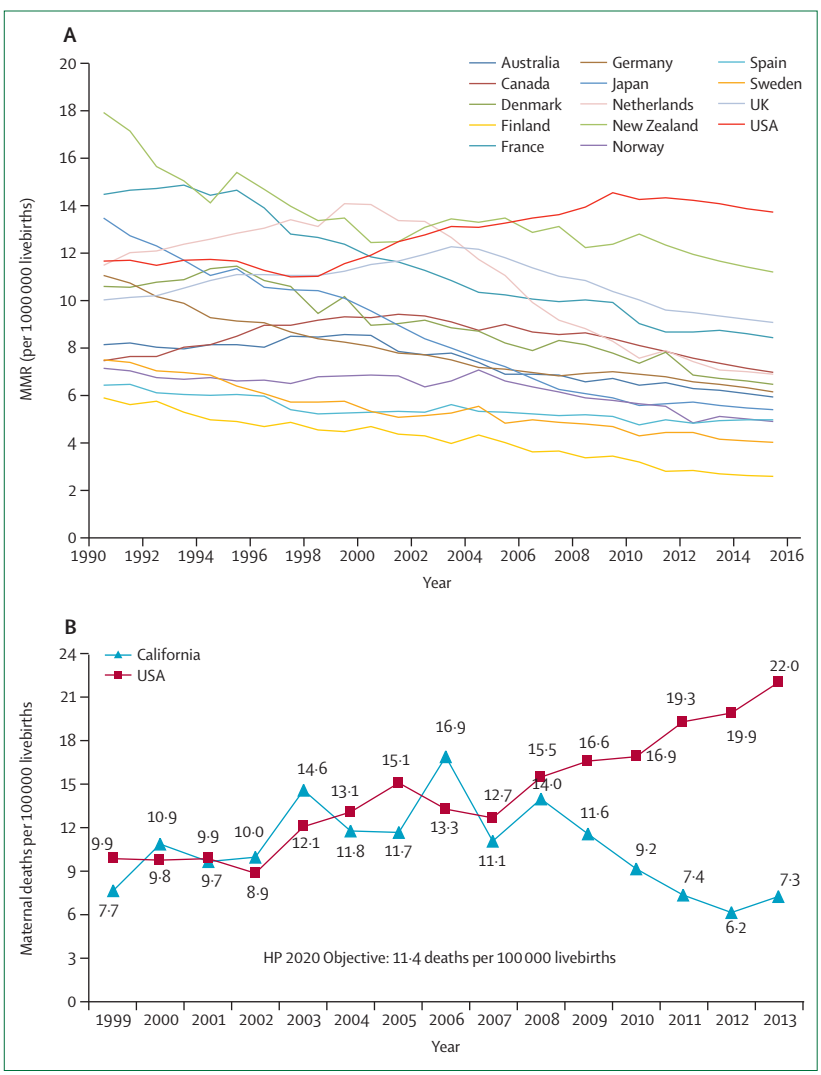

Figure 1: **Maternal mortality ratio per 100 000 livebirths from 1990–2015 for selected countries (A)[1] and maternal mortality rate in California and USA between 1999–2013 (B)**

Data source for part B was the State of California, Department of Public Health, California Birth and Deaths Statistical master files 1999–2013. Maternal mortality for California (deaths ≤42 days post partum) was calculated using International Statistical Classification of Diseases and Related Health Problems 10th Revision cause of death classification (codes A34, O00-O95, O98-O99). US data and HP2020 Objective use the same codes. US maternal mortality data is published by the National Centre for Health Statistics (NCHS) through 2007 only. US maternal mortality rates from 2008 through 2013 were calculated using CDC Wonder Online Data based accessed at http://wonder.cdc.gov/ on March 11, 2015. Produced by California Department of Public Health, Center for Family Health, Maternal, Child and Adolescent Health Division, March 2015. MMR=maternal mortality ratio.

The UK Confidential Enquiry into Maternal Deaths is possibly the finest existing surveillance system for maternal death.[20] This legislated and comprehensive examination of clinical circumstances and context relies on information from midwives, obstetricians, coroners, members of the public, the media, vital statistics records, and linked birth–death records. The UK vital registration system only identified 53% of the deaths in the most recent inquiry.[21] Deaths from direct causes (such as pre-eclampsia and eclampsia) decreased from 1985–87 to 2009–11, whereas rates of maternal death from indirect causes (such as cardiac causes) increased.[21] A substantial number of deaths from influenza emphasises the need to use influenza vaccine in pregnant women.[20] Cardiovascular disease was the largest single cause of death in 2010–12, similar to rates in Australia and the USA.[20]

Maternal mortality in Canada and the USA

Global assessments of maternal mortality ratios in 2013 revealed some disappointing trends: the ratio was increased in 19 countries, including Canada and the USA.[20,22] However, both countries had reduced their ratios in 2015: Canada at six deaths per 100 000 livebirths, and the USA at 14 deaths per 100 000 livebirths.[2] The USA has moved from having one of the lower maternal mortality ratios among HICs, to having the highest in 25 years.[23] This rise in ratio might be a result of an ageing maternity population with increasing comorbidities and ever-rising body-mass indices,[24] as well as overuse (increasing interventions), underuse (lack of risk-appropriate care), and lack of access to care. Mortality data can be based on modelling (figure 1A) or vital registration (figure 1B). Additionally, improved surveillance (eg, introduction of a pregnancy checkbox on death certificates) could be an important contributor to the relatively high rate and temporal increase in maternal mortality rates in the USA (appendix). Identification of the true state of maternal mortality will take careful correlation of case reviews with vital record coding for both direct and indirect maternal deaths.

Routine reporting of maternal mortality in Canada uses vital registration, but the most recent comprehensive report in 2004[25] showed that vital registration only identified 41% of maternal deaths between 1997 and 2000. More recently, the Canadian Perinatal Surveillance System has linked data from all hospital deaths among women aged 15–54 years to pregnancy-related hospitalisations and those within 1 year after the end of pregnancy (includes 98% of births).[26] Mortality based on vital registration data reveal an increasing trend, whereas the more accurate rates based on hospitalisation data do not show any significant change.[26,27]

The need for maternal death and severe maternal morbidity audits

Enhanced data is needed to drive practice improvement—especially in terms of an information system that is

feasible (low burden and low cost), timely, reliable, and actionable. Comprehensive details on the social circumstances and clinical context surrounding each maternal death are important in view of the small number of heterogeneous maternal deaths that occur in HICs. The lesson learnt from the UK Enquiry is that maternal death audits and severe maternal morbidity surveillance are complementary activities informing policies and quality improvement activities to reduce preventable mortality.[20]

Case study countries

USA

Most women give birth in hospitals, under the care of obstetricians. In many rural areas of the USA, women must travel long distances to access obstetric care.[14] Compared with all other OECD nations, maternal health care for the average woman is expensive, risky, and inconsistent. Large out-of-pocket expenses for care during pregnancy are common.[28,29] Despite high investment, important indicators of health system performance such as maternal and neonatal mortality, and preterm and low weight births, significantly lag behind OECD averages.[30] Equally concerning are large disparities within the USA that exist along regional, socioeconomic, and racial lines.

Maternity and newborn care constitutes the single largest category of hospital payouts by both private and public insurers in the USA.[31] 25% of all hospital discharges are either a mother or a newborn baby after childbirth.[32] Of concern, charges for childbirth in the USA tripled between 1996 and 2013.[31] Payment models vary but fee for service is most common, which provides financial incentives for high use. Labour induction, epidurals, caesarean deliveries, and other childbirth interventions have escalated in the past few decades in a manner that appears to be largely independent of patient risks or preferences.[33,34]

Underlying the US payment system is a care-delivery model that is influenced by birth setting, workforce, malpractice policies, and patient agency. Most of the childbirth charge comes from the facility fee,[35] which can vary ten fold between facilities.[36] The facility fee reflects the hospital-based birth settings that 99% of Americans choose; most of these settings have staffing ratios and equipment that closely resembles the intensive care unit.[8,37–39] Relatively few women choose midwives over obstetricians despite possible benefits for low-risk women with regard to cost and intervention rates.[40]

Even when birth setting, workforce, payment model, and malpractice policies are held relatively constant, substantial unexplained variation persists in the provision of maternal health care. Hospital caesarean section rates vary from 6% to 70%; early elective delivery rates from 0% to 83%, and third and fourth degree tears from 0·5% to 95%.[34] Black Americans are significantly more likely than are white Americans to experience preterm birth, neonatal and maternal mortality, as well as hypertension, obesity, and other complicating conditions of pregnancy.[40] More disturbingly, the overwhelming majority of childbirth in black Americans occurs in a concentrated set of hospitals that experience higher rates of severe maternal morbidity.[41]

Reforms to the US maternal health system are underway. Concerted efforts have been made to improve surveillance, audit, and feedback of important birth outcomes.[42,43] Payment reforms to reduce unnecessary interventions, including a hard stop that eliminates payment for early elective inductions of labour, have had early success,[44] although evidence is conflicting on increases in stillbirth rates.[45,46] The Affordable Care Act has improved access to care, recent measures to ensure appropriate resources are available for the types of high-risk care in which the USA excels.[47] Nonetheless, the USA has much room to improve maternal health-care affordability and outcomes, particularly for the average patient with a low-risk pregnancy.

Sweden

Sweden has one of Europe's highest birth rates. Its maternal mortality ratio in 2015[2] was four deaths per 100 000 livebirths, one of the lowest in Europe. Sweden has sparsely populated mountainous areas and remote islands, and long travel distances. Despite these obstacles, coverage is good, and all women have access to antenatal care and childbirth care.

Antenatal care is organised mainly at primary levels, provided by midwives for healthy women. Obstetricians and midwives provide antenatal care to women with high-risk pregnancies at specialist units, with planned programmes, and follow-up. All birthing facilities are located at hospitals, which are staffed by obstetricians and midwives; midwives are responsible for births of healthy women. Birthing facilities are hospital-sited midwifery-led birthing units, but all have access to skilled obstetricians and neonatologists. Less than 1% of all births are home births. Maternity care is publicly funded, and provided mainly in public facilities, with some publicly funded care in private facilities. Staffing does not differ by sector.

Labour induction for singleton pregnancies at more than 37 weeks' gestation was 17·1% in 2014.[48] Electronic fetal monitoring is used in all women at admission, continuously if indicated. Intravenous access is routine. Pain relief in labour involves use of nitrous oxide (81% of women) and minimal motor block epidural analgesia (53% of primiparas, 21% of parous women). Low-risk women are permitted to consume fluids in labour. Skin-to-skin contact for the first hour is standard care.

The overall caesarean-section rate is approximately 18%, of which 54% are planned (elective); rates are highly variable between hospitals (12–22%). Maternal requested caesarean section is covered by national guidelines[49] and comprises 17% of all caesareans. The caesarean section rate for multiple births is 58% and for breech presentation is 91%.[48]

Health facilities publish benchmarking data for quality indicators such as caesarean section rates and complications.[50] Women or their relatives, or health facilities or staff can report unexpected outcomes to the Health and Social Care Inspectorate. Economic support or compensation for adverse maternal or infant outcomes is paid by insurance covering all publicly funded health care (Landstingens Ömsesidiga Försäkringsbolag). National data are collected for women's experiences during childbirth. Stipulations for maternity leave are integrated into parental-leave schemes.[51]

Complementary efforts to improve reproductive health include free contraceptive counselling, and subsidised contraception for young women. These interventions have decreased teenage deliveries and abortions.[52] Teenage delivery rates are among the lowest globally. Induced abortion is legal.

Women generally have good health status. However, obesity has been increasing; in 2014, 13% of all mothers were obese.[48] About 6% of women smoke in early pregnancy.[48] Immigrant women, comprising more than 25% of women giving birth, use less antenatal care and less preventive care, such as cervical screening.[48,53,54] Being foreign born is an independent risk factor for induced abortion and migrant women requesting termination of pregnancy had lower contraceptive use compared with Swedish-born women.[55]

Demographics of pregnant women

Changes in the underlying epidemiology of who is giving birth will affect care and outcomes. In Australia, the percentage of women 35 years and older was 22·7% of the total who gave birth, but accounted for 40% of the total maternal deaths. In the UK, 74% of deaths occurred in women with pre-existing medical conditions.[21]

Obesity

More than one in five pregnant women are overweight or obese globally, putting these women at increased risk of congenital anomalies (specifically neural tube and abdominal wall defects), venous thromboembolism, pre-eclampsia, gestational diabetes, post-partum haemorrhage, and increased chance that an operative vaginal birth or a caesarean section will be required (appendix).[56,57] Caesarean section rates are more than doubled with increased operative morbidity; successful vaginal birth after caesarean section rates are decreased to 57·1% for women who weigh 90–135 kg, and 13·3% for women who weigh more than 135 kg, compared with 81·8% success for women who weigh less than 90 kg.[58] Additionally, hospital costs are increased for both maternal and neonatal indications in obese women.

Tobacco and alcohol use

Overall rates of smoking at the start of or during pregnancy vary between 5·5% and 23% for the selected HICs.[48,59] Alcohol intake in Europe is the highest in the world, followed by the Americas (WHO region), resulting in a higher prevalence of alcohol dependence and alcohol-use disorders than in other WHO regions (appendix).[60]

Trauma-informed practice

Woman experience a high prevalence of abuse and violence (one in three women), globally. Femicide from intimate partner violence is not currently included in maternal mortality data. Women who are young, immigrant, Indigenous, and women who have a disability are at increased risk of intimate partner violence;[61,62] prevalence is especially high in those women who continue to drink alcohol after discussion at the first prenatal visit. Trauma-informed practice is an approach to support all women in terms of providing safe care in the health system for women who experience violence. Use of a trauma-informed conversation in which judgment is suspended and substituted with supportive information and questions as suggested by the British Columbia Centre of Excellence for Women's Health is designed to move towards greater safety and a harm reduction model when abstinence from alcohol is not possible.[61]

Vulnerable women

Vulnerable populations (immigrant, Indigenous, or ethnic minorities) are associated with poor health outcomes, including high maternal mortality among African American women (at rates 3–4 times the rates for Hispanic and non-Hispanic whites),[63] south Asian women (India and Pakistan) in the UK,[64] Aboriginal and Torres Strait Islander women in Australia,[65] and refugee women in France and the UK. These women often have other adverse outcomes, including increased caesarean section rates, preterm birth, and low birthweight infants. Pregnant Canadian and Australian Indigenous women have high rates of gestational diabetes and pre-existing diabetes,[65,66] and Torres Strait Islander women have an incidence of diabetes of 3–6 times the national average.[67] High rates of micronutrient deficiency, alcohol, and tobacco use are also reported, and nutritional intake is poor in a population with very low socioeconomic indicators. As noted by Graham and colleagues in this Series,[68] *The Lancet*'s 2014 commission report on culture and health concluded that the neglect of culture is the single biggest obstacle to development of equitable health care.[69]

Preterm birth

Preterm birth remains the least well understood and greatest contributor to poor perinatal outcomes globally, and is both stressful for families and costly to the health system. Risk factors for preterm birth and its attempted prevention and treatment also have implications for maternal health, including extremes of maternal age (both young and old), assisted reproductive technology,

multiple gestation, low maternal socioeconomic status, late or no prenatal care, substance abuse, tobacco use, bacterial vaginosis, and periodontal disease.[70] In the search for potentially modifiable risk factors for preterm birth and infant health, gut and vaginal microbiomes are important ongoing research areas.[71,72]

Drivers of clinical quality of care

Biology in conflict

Drivers of clinical quality of care include women's autonomy, the role of the health-care provider and patient safety, as well as intersecting drivers such as social support, clinical evidence, fear, and medical liability.

Many women in HICs are delaying marriage and reproduction until they complete higher education and find permanent work (figure 2). The consequences of this delay are decreased fertility, a rising age at giving birth, and complications due to coexisting medical conditions that increase with age. Spain, Germany, and Japan have very low total fertility rates at 1·3–1·4 births per woman, and all Nordic countries are under replacement levels at 1·7–1·9 births per woman (appendix).[73,74]

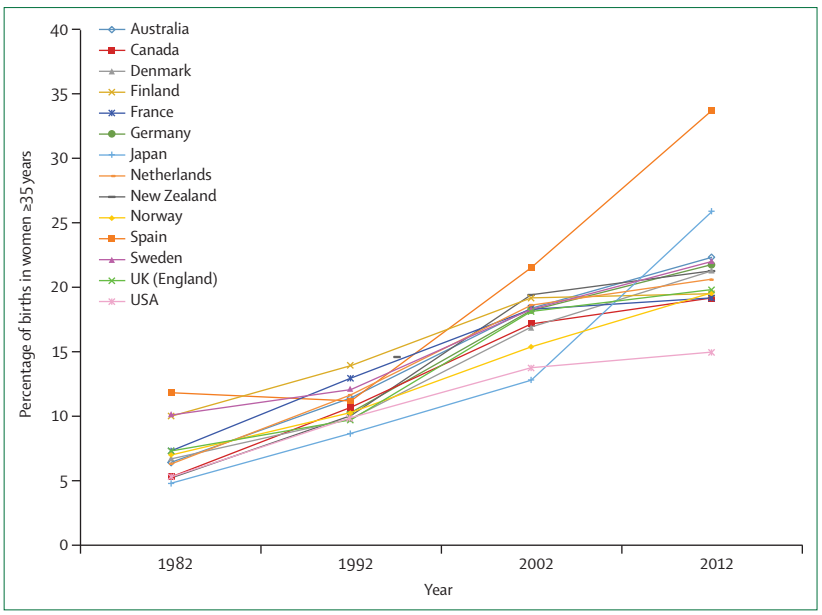

Figure 2: **Percentage of births to women aged 35 years or older, in high income countries, 1982–2012**

Autonomy of women

Women drive care because they have high expectations for a positive birth experience and a healthy baby. Fear of pregnancy and childbirth is common, affecting as many as 25% of women in HICs,[75] and can be so intense as to be termed tokophobia.[76] Women are set up to feel inadequate and responsible if a perfect outcome is not achieved, despite having little control over this mostly physiological process.[77,78] The extent to which women share in the general western valuation of technology is revealed in a study[79] in which more than 70% of women interviewed supported high-tech hospital birth, including use of electronic fetal monitoring. Primary caesarean section rates, where reported, are higher for women age 35 years and older.[80–83] However, maternal preference caesarean rates vary across HICs and surveys typically show physicians report higher maternal preferences than women do themselves.[84–86]

A multicountry systematic review found experiences during childbirth were reported as unsatisfactory when they occurred in the absence of one or more of the following situations: quality care promoting wellbeing with a focus on individual needs; unrushed caregivers who provide continuity of care and communicate effectively; involvement in decision making about care and procedures; and kindness and respect.[87] Immigrant women gave worse ratings than did non-immigrant women due to communication difficulties resulting from language barriers, unfamiliarity with how care was provided, and experiences of discrimination[87]—experience of birth from the perspective of immigrant women is particularly relevant to inform health system responses, in view of the current global migration trends.

Fear of pain in labour

Pain relief options in labour and what is accessible in any given birthing environment depend on the culture, woman's preference, and availability of obstetric anaesthesia services. Existing data suggest wide variations in the use of epidural analgesia with rates of 82% in France, 71% in the USA, 59% in Canada, and 10–50% in other countries (table 1). Comparative information on availability of a mobile or minimal motor block labour epidural for analgesia is non-existent.

Maternity (or pregnancy) leave

The International Labour Organization convention on maternity leave stipulates at least 14 weeks of leave.[88] Most OECD countries tie public income support payments to taking of maternity leave for periods ranging from 6 weeks (Australia) to 39 weeks (UK); some integrate maternity leave into parental leave schemes (appendix).[51] The USA is the only OECD country that does not provide paid maternity or parental leave[89] and 30% of US women take no maternity leave.[89] In Japan, qualification for paid child care leave is challenging, so only 4% of women in non-regular jobs can return to work after leave.[90] Mental health is a well-recognised health concern during pregnancy and post partum. Linked data in Europe (SHARE)[91] suggest that a more generous maternity leave during the birth of a first child is associated with a significantly reduced score of 0·38 points in the Euro-D depressive symptom scale at later ages (over 50 years for a 16–25 years cohort).

Adolescents

Adolescents are a special population whose reproductive health needs are often suboptimally met.

Teen pregnancy rates in the selected countries in this Series paper have mostly declined, and birth rates for adolescents have declined except for the USA, with increased abortion rates in Finland, the Netherlands, Sweden, and the UK. [92] In the UK and USA, teen pregnancy rates are increased in the most socio-economically disadvantaged groups.[93,94]

Influence of the provider on maternity care outcome

Models of care

Maternity care providers in HICs vary from single practitioners (family physician, general practitioner, midwife, or obstetrician) to group practices of single provider cadres, to shared care between midwives and obstetricians, in both public, and private settings.

A mixture of models of care is found in the UK, Canada, Germany, Japan, and Australia (appendix).[95–97] In western Europe, Scandinavia, and New Zealand, midwives provide 70–80% of care during pregnancy and for low-risk births, leading to lower intervention rates. A review[98] of continuous care led by licensed midwives showed several benefits for mothers and babies, and identified no adverse effects compared with models of medical-led care or shared care. The main benefits of midwifery-led care were reductions in epidurals, episiotomies, and instrumental births. The rate of caesarean births did not differ. In France, the roles of different types of health-care providers have changed, with greater involvement of general practitioners, and especially midwives.[97] In Japan, midwives work at hospitals and clinics, provide care for low-risk women during pregnancy, labour, and post partum, and cooperate with physicians for women at risk.

In North America, most births were assisted by physicians, with midwifery reintroduced over the last three decades. Births by certified nurse midwives and certified midwives in the USA in 2013 represented 12·0% of all vaginal births, or 8·2% of all births.[99] In Canada, midwifery began to be regulated in 1991, and planned home births by regulated midwives were first introduced in 1994. By 2013, all but two of ten provinces or territories had enacted legislation to regulate midwives.[100]

Labourists—a potential solution?

Labourists are obstetricians who only provide care for labour and delivery and may be a possible solution to high intervention rates by obstetrician-led care. Studies find that care by full-time labourists was associated with 27% fewer caesarean deliveries,[101] whereas care provided by teams of labourists and midwives showed a nearly 50% reduction in both overall and nulliparous term single vertex caesarean delivery rates.[102] Other studies have found no difference in outcomes when labourists are present. The lack of a consistent role and funding model for labourists makes reliable conclusions about this model problematic at present.[103]

Fear of litigation and malpractice insurance

Many authors discuss the essential balance between fear and trust, as birth is becoming increasingly medicalised due to domination of fear.[104] Obstetric providers are often sued, usually because of a neurologically compromised infant (table 2); despite the fact that as early as 1999, an International Cerebral Palsy Task Force strongly suggested that most cerebral palsy was a result of multifactorial and mostly unpreventable causes during either fetal development or the neonatal period.[114]

Fees for insurance liability coverage for obstetricians are high in Canada and the USA.[1108,109] The impact on the obstetric provider goes beyond the cost of indemnity payments, including time and stress, and can reduce availability of obstetricians.[110] Insurance affordability or availability was the reported reason for a 9·6% increase in the number of caesarean deliveries between Jan 1, 2012 and Dec 31, 2014, in the 2015 American College of Obstetricians and Gynecologists survey.[110] States with relatively high malpractice insurance premiums had higher rates of caesarean section and lower rates of delivery by vaginal birth after caesarean section than did states with lower premiums.[111] Furthermore, caesarean section rates were substantially reduced and vaginal birth after caesarean section rates were substantially increased in state-years, in which caps on non-economic damages were in force. Medical liability reforms that have been implemented or suggested include a no-fault system—at least for the neurologically impaired infant, caps on non-economic damages, and legal safe harbours.[111,112] A number of no-fault schemes exist throughout the world, including in New Zealand, Scandinavia, Japan, and parts of the USA.[105,106,112,114]

Quality and safety issues

High quality care should be safe, effective, woman centred, timely, efficient, and equitable,[107] and a good outcome should be defined as what is meaningful and valuable to the individual woman.[78]

Improvement of care quality is a priority in HICs clearly evidenced by findings from Confidential Enquiries in France, Netherlands, and the UK, showing that overall almost half of maternal deaths are associated with substandard care.[20,115] In countries such as France, the Enquiry and attendant remediation efforts have reduced preventable maternal deaths due to suboptimal care by 10%.[116] The substantial variation in HIC obstetric hospital care raises concerns that clinical practice patterns rather than medical indications are driving increasing intervention rates.[116,117] These variations are not accounted for simply by different levels of care in size and type of facility. As noted by Miller and colleagues in this Series,[118] overuse of technology refers to use that is not based on evidence, with multiple drivers including fear of adverse outcome, revenue generation, and women's demand. Electronic fetal monitoring and prenatal ultrasound during pregnancy and labour are major contributors to intervention in maternity care.

	Confidential inquiry into maternal deaths or near miss	Tort system	No fault system for severe neurological birth injury	Cap on damages	Malpractice insurance fees/subsidies	Other
Australia[105–107]	No (has national maternal death report generated from ad-hoc national research dataset)	Yes	No; partial funding for high payouts	No	Government premium subsidies, private indemnity insurance required for private practice	..
Canada[106,108,109]	No	Yes	Partial in 4 provinces	Yes; $100 000 for non-pecuniary losses in 1978, currently estimated at $300 000	Premiums $34 204–72 456; subsidies variable by province; insurance coverage at time of event effective whenever claim made	Losing party pays 2/3 of successful party's legal fees; health-care costs covered by state; fees not based on physician's record or claims history
Denmark[106,107]	No (regional maternal and perinatal reviews annually)	Yes	Yes	No	Yes, the regions pay compensation in case of malpractice from Patientforsikringen	Health-care costs covered by state
Finland[106,107]	No	Yes	Yes (in principle); the Finnish Patient Insurance Centre evaluates and covers; in cases of serious malpractice or misconduct the health-care provider can be charged but not for financial expenses	Case-based cap	Public hospitals cover all employees	Health-care costs covered by state
France[106]	Yes	Yes but tort-adverse system	Partial	Not available	Partial government subsidy	..
Germany[106,108]	No	Yes	No	Yes, and no punitive damages	Not available	Alternate dispute resolution encouraged; health-care costs covered by state
Japan[106]	Yes	Yes	Yes	No	Not available	..
Netherlands[106]	Yes	Yes	No	Yes; €1 250 000 per claim	Not available	..
New Zealand[106]	No (has Perinatal and Maternal Mortality Review Committee)	No	Yes	Not available	Not available	Health-care costs covered by state
Norway[106,107]	No	Yes	Yes	Case-based cap	NPE (governmental system) and private insurance for physicians in case claims not covered by NPE	Health-care costs covered by state
Spain[106]	No	Yes	No	No	No	..
Sweden[106,107]	No (Maternal Mortality review by Swedish Obstetrics and Gynecology Society)	Yes	Yes; patients eligible to receive compensation if suffered injury that could have been avoided	Yes; $370 000 per claim	Insurance of $300–600 annually through; the Swedish Medical Association	Health-care costs covered by state
UK (England)[106,107]	Yes	Yes	Government sponsored indemnification of medical injuries (National Health Service Litigation Authority)	No	No fees for NHS physicians, sliding scale if in private practice	Health-care costs covered by state
USA[106,107,110–113]	No	Yes	No (in 2 states only)	Non-economic in 28 states; federal legislation pending	No; base rates from $16 240 to $214 999; must have current insurance when claim made	..

NPE=Norsk pasientskade-erstatning.

Table 2: **Factors affecting medical liability in selected high-income countries**

Lack of clear and respectful communication across the care team is one of the most common root causes of reported maternal and perinatal sentinel events.[119,120] This lack is further amplified in publications of women's experience of care. Mechanisms to improve patient safety and quality of care in HICs include national quality or safety agencies (or both), accreditation programmes, subnational reporting, institution-specific mechanisms, involvement of patients (women) and families in planning, assessment, and delivering of

their own care, required competencies for postgraduate training, and public reporting on key quality and safety indicators.

For more on **maternal safety bundles** see http://www.safehealthcareforeverywoman.org

Key safety practices and tools include[121] maternal safety bundles, maternal safety early warning triggers, critical patient safety event reviews with root cause analysis, severe maternal morbidity case review forms, team-based simulation for obstetric emergencies, and validated communication tools.

Drivers for change

Opportunities realised from data

Efforts can be made to reduce interventions in HICs by increased understanding of potentially modifiable risk factors and identification of opportunities to address such risk factors through education, professional guidelines, health policy, and quality improvement initiatives.

New opportunities are available to use data to inform heath policy and practice. In the USA, efforts are underway to reconstitute maternal mortality reviews in every state to create a standard set of structured data elements for maternity care and to facilitate more accurate and timely collection of vital records and performance indicators directly from the electronic medical record.[122]

Detailed reviews of maternal deaths from two of the largest US states, California and New York, led to the development of state-wide pilot projects with best practice toolkits and large-scale engagement within performance improvement collaboratives.[24] These collaboratives focused on haemorrhage and severe hypertension, which account for more than 80% of severe maternal morbidity cases in the USA. The most populous US state, California, with nearly 500 000 annual births (1/8 of all US births), has a maternal mortality rate that is now half the national rate and is similar to other HICs (figure 1).

Implementation of national guidelines from France for non-invasive prenatal detection of aneuploidy successfully decreased amniocentesis, especially among women aged 38 years and older (from 61% to 42%) showing that professional recommendations are being followed.[123] Recent changes to the definition of the active phase of labour and redefinition of normal length of second stage of labour should inform professional and facility guidelines to decrease interventions for arrested progress.[124,125]

Innovation to improve access to care

Addressing of inequalities in both access to care and maternal outcomes is a priority requiring improved recognition of vulnerable women to allow more targeted or appropriate services to be delivered. The UK NHS Initiative to offer pregnant women a budget of up to £3000 to choose the care they receive is also intended to increase safety, and requires evaluation with improved data collection.[126]

Appropriate use of technology

Although technology is a major driver in high-resource settings, and might result in over-intervention, technology such as telehealth might have even greater benefit when women are geographically isolated. In HICs, telehealth has been tested in diabetes care, smoking cessation, alcohol cessation, influenza vaccination, and antepartum care with mostly positive results (appendix). As electronic technologies become increasingly prevalent, their ability to transcend access barriers and optimise convenience is attractive; understanding of where the value is worth the investment is a critical question.[127] E-health initiatives to improve access to care, woman-centred care, and improved pregnancy outcomes warrant further randomised trials.

Group antenatal care in HICs

CenteringPregnancy, and similar models of innovative group antenatal and postnatal care and education in the USA, Canada, Sweden, and Australia seek to address the concerns of consumers and professionals about the shortcomings of traditional antenatal care.[128] A Cochrane review[129] of a limited number of studies concluded that group antenatal care is positively viewed by women and is not associated with adverse outcomes for them or for their babies.

Conclusions

Models of maternity care in HICs are evolving; woman-centred care, accompanied by evidence that increasing interventions raise costs but do not improve outcomes, provides an opportunity to shift the balance in HICs, and to provide an example of best practice based on evidence.

Large variations in practice are evident in all HICs in all sizes of facilities, and among providers within the hospitals when either outcomes or processes of care are examined.

Data should drive health policy and currently too many knowledge gaps exist in HICs. Outcomes beyond mortality are required to comprehensively inform health policy, especially in view of the inequities that exist for Indigenous, ethnic, or marginalised populations. Indicator data should be disaggregated by ethnicity and vulnerable groups, with inclusion of rural versus urban contrasts. Additionally, nationally consistent oversight is needed and could be achieved by audit or confidential inquiry for maternal mortality and near miss (severe morbidity) with nationally supported provision of comparable data.

Quality improvement initiatives driven by data, evidence, and women's input are becoming standard in health-care facilities of HICs, and are beginning to improve outcomes, including reductions in maternal mortality in the USA. Leadership from national professional organisations is essential to support the adoption of best practice for quality, safety, and woman-centred care. Central to progress is the ability to change

from a perception that the pregnant and labouring woman is a risk waiting to happen, to one where birth is normalised to provide the best outcomes for most women, with services available in the event that complications develop. For women with existing or pregnancy-related medical problems, or with social circumstances that may require highly specialised care, coordinated team approaches in the pre-pregnancy and antenatal period are needed, as well as post partum, to optimise the management of pre-existing illness, and reduce morbidity from indirect causes.

Different models of care by providers should continue to be explored and evaluated in terms of their ability to meet women's needs, and reduce interventions, and costs, while outcomes are improved. Women should be involved in the process. With evolving evidence and guidelines to support low-risk women planning birth at home or in hospital birth centres, a focus on woman-centred care by accrediting bodies, and resurgence of midwifery-led care by licensed midwives in HICs where it had disappeared or waned, the tide of intervention-oriented birthing might be turning.

Contributors

DS conceptualised the paper. DS, FW, and J-MG did the literature search. NS did the US case study and cost analysis and KG-D did the Swedish case study. DS, J-MG, FW, and NS did the tables. DS, FW, KSJ, and EKM did the figures. All authors contributed to data interpretation; DS wrote the paper, with contributions from J-MG, KSJ, NS, BL, and EKM, and all authors commented on multiple versions. All authors are able to take public responsibility for the work.

Declaration of interest

We declare no competing interests.

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