Oregon Health Authority

QHOC Prometheus Training Webinar

AGENDA

DATE & TIME	Monday, October 26, 2020 9:00 am – 12:30 pm	**GOTO MEETING**	Phone: 571-317-3122 Meeting ID: 856060693 Link: Join GoTo Meeting

MEETING GOALS

- Participants understand the purpose of the Prometheus tool and overview of use
- Participants understand the methods to develop the Prometheus tool; a high-level overview of how the clinical definitions were established/maintained
- Participants understand the differences between Prometheus tool, Low Value Care Report and how these tools support utilization management and quality.

AUDIENCE

CCO Clinical Leadership including but not limited to CCO Medical Directors, CCO Quality Staff, CCO Behavioral Health Staff

Item #	DESCRIPTION	DESIRED OUTCOME	TIME	LEAD(S)
1	Welcome & Introductions	Information	9:00	Lisa Bui
2	Overview	Information	9:05	Dr. Mautner Will Clark-Shim
3	Episode Construction Overview	Training	9:30	Shane Mofford
4	Clinical Input into Episode Development	Training	10:00	Dr. Rastogi Sarah Burstein
5	Q&A with Clinical Advisors	Discussion	10:30	All
5	Break			
6	How to get the most from Prometheus?	Training	11:10	Shane Mofford
7	General Q&A	Discussion	12:00	All

Oregon Health Authority

QHOC Prometheus Training Webinar

Background

Prometheus is being rolled out with CCOs to support a core strategy for efficiency of medical spending for controlling costs and improving efficiency. The action plans submitted by CCOs to OHA will further the implementation. To better understand and coordinate with multiple partners internally (fiscal, quality) and externally (practices), CCO clinical staff need training to further understand the Prometheus tool. The training will supplement the October 2019 Prometheus training with a focus on clinical and quality staff for the 2020 training.

Webinar Purpose:

Train and Support the CCO clinical staff on the Prometheus tool.

Next Meeting(s):

QHOC	Discussion about alignment with other quality initiatives
Monday, November 9	

Quality & Health Outcomes Committee Prometheus Training

Monday, October 26, 2020

9:00am-12:30pm

PLEASE MUTE YOUR PHONE IF YOU AREN'T SPEAKING.

Do not put your phone on hold.

Oregon Health Authority

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It is better if you drop off the call and rejoin if needed.

Agenda

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1	Welcome & Introductions	9:00	Lisa Bui	Information
2	Overview	9:05	Dr. Mautner Will Clark-Shim	Information
3	Episode of Care Analysis Overview	9:20	Shane Mofford	Training
4	Clinical Input into Episode Development	10:00	Dr. Rastogi Sarah Burstein	Training
5	Q&A with Clinical Advisors	10:30	All	Discussion
5	Break			
6	How to get the most from Prometheus?	11:10	Shane Mofford	Training
7	General Q&A	12:00	All	Discussion

Introductions

Lisa Bui, OHA Quality Improvement Director

Oregon Health Authority

Questions

Actuarial Services

- Please send suggestions / requests for our User Group meetings to actuarial.services@dhsoha.state.or.us

Optumas

Episode of Care Analysis

10/26/20

Agenda

- What to expect today
- Background
- Episodes of Care Introduction
  - Low-value Care vs. Adverse Actionable Events
- Core Concepts
  - Episode Construction
  - Adverse Actionable Events/Standard Care
  - Relationships Across Episodes
  - Episodes Evaluated
- Episode Examples
  - Knee Surgery
  - Diabetes

Background

Episode of care analysis is a powerful tool for identifying opportunity to **reduce costs and improve outcomes** in the delivery system.

Working with Signify Health, Optumas developed a version of the Signify episode of care grouper.

Signify is partnering with Optumas to provide clinical support and business rules for the tool while Optumas provides technical support, data processing, and downstream analytics using the tools outputs.

Episode of Care Analysis Introduction

Episode of care analysis looks at utilization and costs through the lens of **clinically related sets of services** associated with specific conditions or procedures.

This clinical overlay, which delineates between adverse events and typical care, drastically **increases the ability of plans to use data to manage the delivery system** and provider network.

Episode of care analysis **highlights variation in costs and outcomes**. This variation can then be mapped back to specific populations, provider types, geographies, and more. This information can then be used **to form intervention strategies.**

Low-value Care vs. Adverse Actionable Events

Low-value Care	Adverse Actionable Events/Potentially Avoidable Complications
Not medically necessary or risks outweigh benefits	Usually medically necessary but could have been potentially been avoided with better upstream care
Examples include: • Too frequent cervical cancer screening • Preoperative testing for low risk surgery when no risk factors are present • CT for an uncomplicated headache	Examples include: • ED visit for high blood sugar • Diabetes related amputation • Sepsis associated with substance use disorder • Treatment of post operative infection

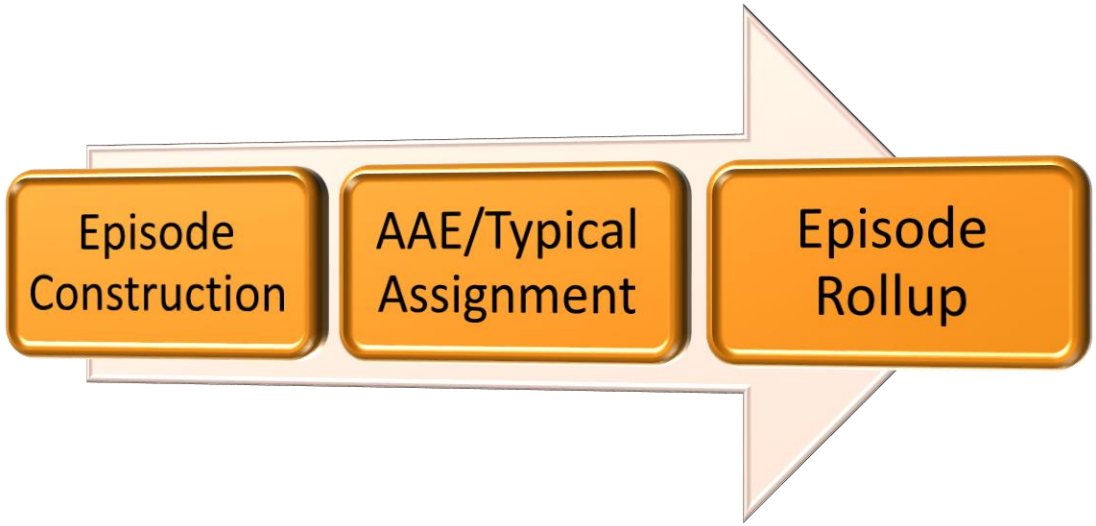
Episode of Care Core Concepts

- Episode Construction
- Adverse Actionable Events/Standard Care
- Relationships Across Episodes
- Episodes Evaluated

Episode Analysis Overview

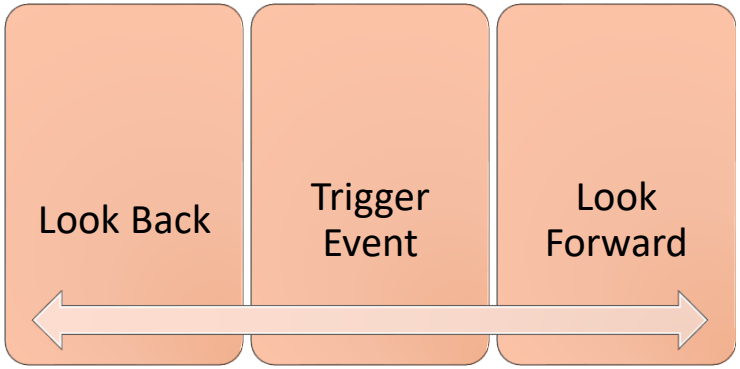
Episode of care analysis has three primary components. They include:

- **Episode construction:** Episodes are triggered, and all clinically relevant services are associated with the episode.
- **Adverse Actionable Events (AAE) and Typical Care:** the clinically relevant services for each episode are flagged as either an AAE, or typical care.
- **Episode 'Roll Up":** Relationships between different episodes are established to allow for two different types of cost aggregation.



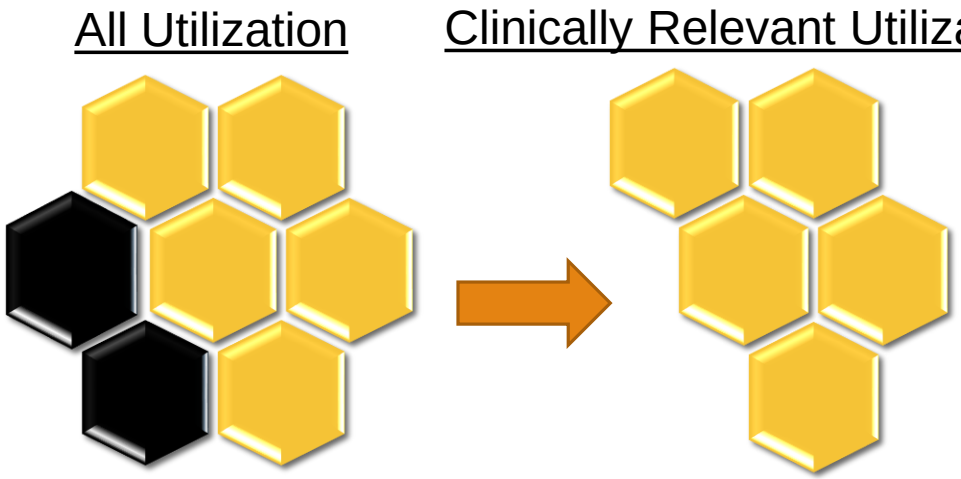
Episode Construction

Episode construction begins when a qualifying procedure code/diagnosis code combination is identified that can trigger an episode.



An episode-specific time period around the trigger event is established.

Within that time period, services that are clinically relevant to the episode are isolated.



Actionable Adverse Events and Typical Care

The clinically relevant services for each episode are flagged as either “Adverse Actionable Events”, or “Typical Care”.

“Adverse Actionable Events” represent utilization that could have potentially been avoided with the right upstream interventions and clinical management.

Adverse Actionable Event

Typical Care

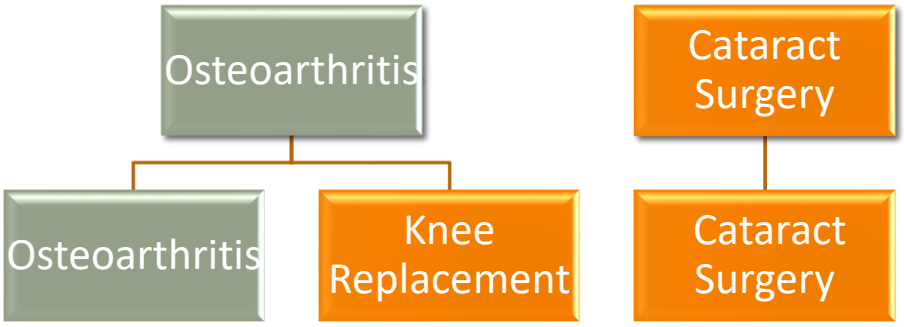
Relationships Across Episodes

Once episodes have been constructed, relationships are established across episodes. For example, the services identified as part of a knee replacement episode (procedural) can be 'rolled up' into the osteoarthritis episode (chronic).

This feature is most useful for comprehensive evaluation of chronic disease episodes as it ensures all related costs and utilization are captured.

Not all episodes 'roll up' and they look the same at both levels of analysis.

Results can be viewed with or without the 'roll up' applied.



With the 'roll up' applied, you no longer see the knee replacement, but all of its costs are captured in the osteoarthritis episode.

Episodes Evaluated

Procedures

Cataract Surgery
Tonsillectomy
Lung Resection
CABG &/or Valve Procedures
Pacemaker / Defibrillator
Coronary Angioplasty
Upper GI Endoscopy
Colorectal Resection
Colonoscopy
Gall Bladder Surgery
Bariatric Surgery
Knee Arthroscopy
Hip Replacement & Hip Revision
Knee Replacement & Knee Revision
Lumbar Laminectomy
Shoulder Replacement
Lumbar Spine Fusion
Breast Biopsy
Mastectomy
Prostatectomy
Transurethral resection prostate
Hysterectomy
Vaginal Delivery
C-Section

Chronic Diseases

Asthma
Chronic Obstructive Pulmonary Disease
Coronary Artery Disease
Hypertension
Arrhythmia / Heart Block / Condn Dis
Heart Failure
Gastro-Esophageal Reflux Disease
Crohn's Disease
Ulcerative Colitis
Low Back Pain
Osteoarthritis
Diabetes
Bipolar Disorder
Substance Use Disorder
Schizophrenia
Depression & Anxiety
Trauma & Stressors Disorders

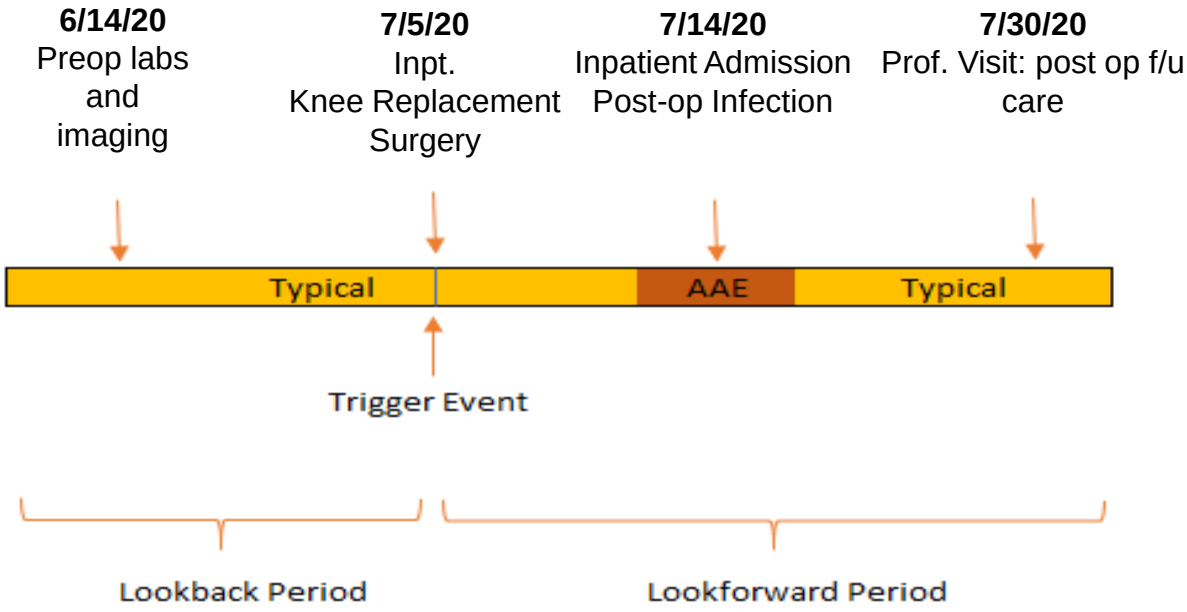
Maternity

Pregnancy
Newborn

Heracles evaluates three categories of episodes and 43 discrete episodes.

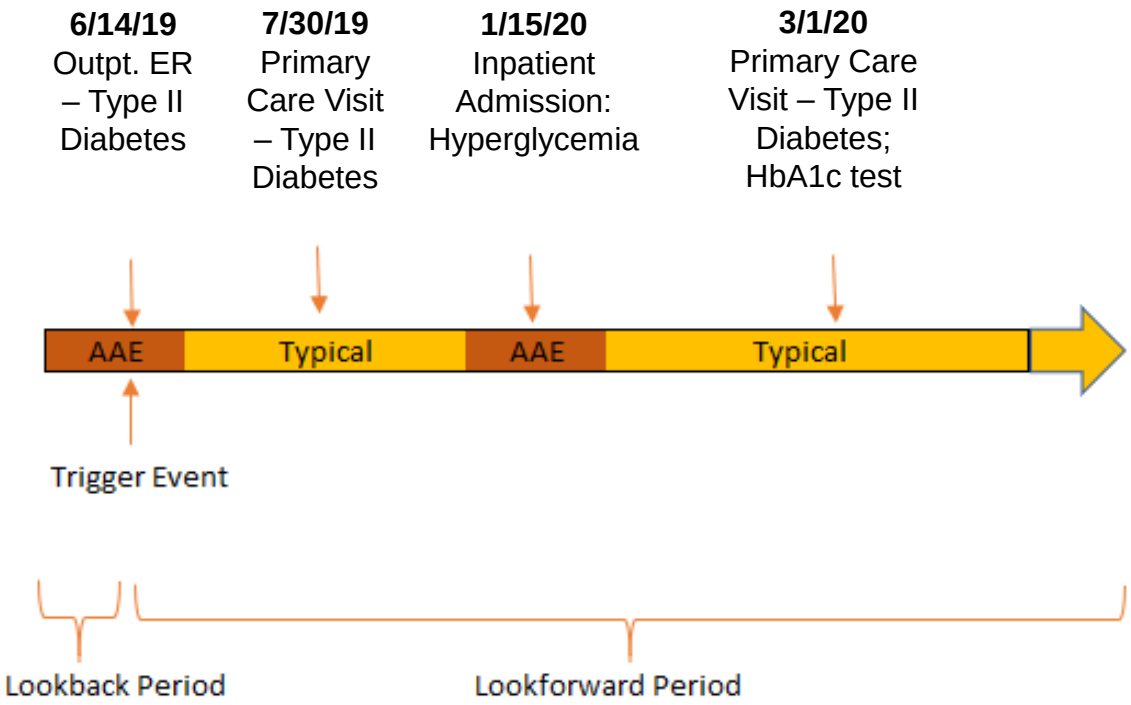
https://www.careinnovationinstitute.com/episodes-list/

Episode of Care Example: Knee Replacement



Note: pharmacy utilization within the episode is considered typical care

Episode of Care Example: Diabetes



Note: pharmacy utilization within the episode is considered typical care

Session 2 – Signify Health

Optumas

CCO Questions and Dashboards

10/26/20

CCO Questions

How do you interpret Potentially Avoidable Complications (PAC) associated with DRG 775: Vaginal delivery w/o complicating Dx?

There is a complication diagnosis code from the episode definition on the claim. It is not common that there will be complication codes associated with DRG 775. In the example provided by the CCO, 2.1% of the total expenditures had a Prometheus complication code on them.

Why are 100% of C-sections considered PAC?
This is a function of 'leveling' in Prometheus. When episodes are subsumed, they are classified as either all PAC or all Typical. This will not be the case going forward with the Signify grouper logic.

CCO Questions

Some office visits are considered PAC, but you would expect to utilize office visits to mitigate hospital utilization. Why are office visits considered PAC? What are the downstream implications for CCO accountability?

Clinically relevant services that have a complication diagnosis are labeled as PAC. The grouping of clinically relevant services and identifying complications provides a great deal of insight, but the strategy for improving outcomes requires clinical insight. It is highly likely that the costs of more office visits will be offset by avoiding hospitalizations, which would ultimately improve the PAC rate. Further, if the complication is prevented or resolved, the office visits would show up as typical care, not PAC.

CCO Questions

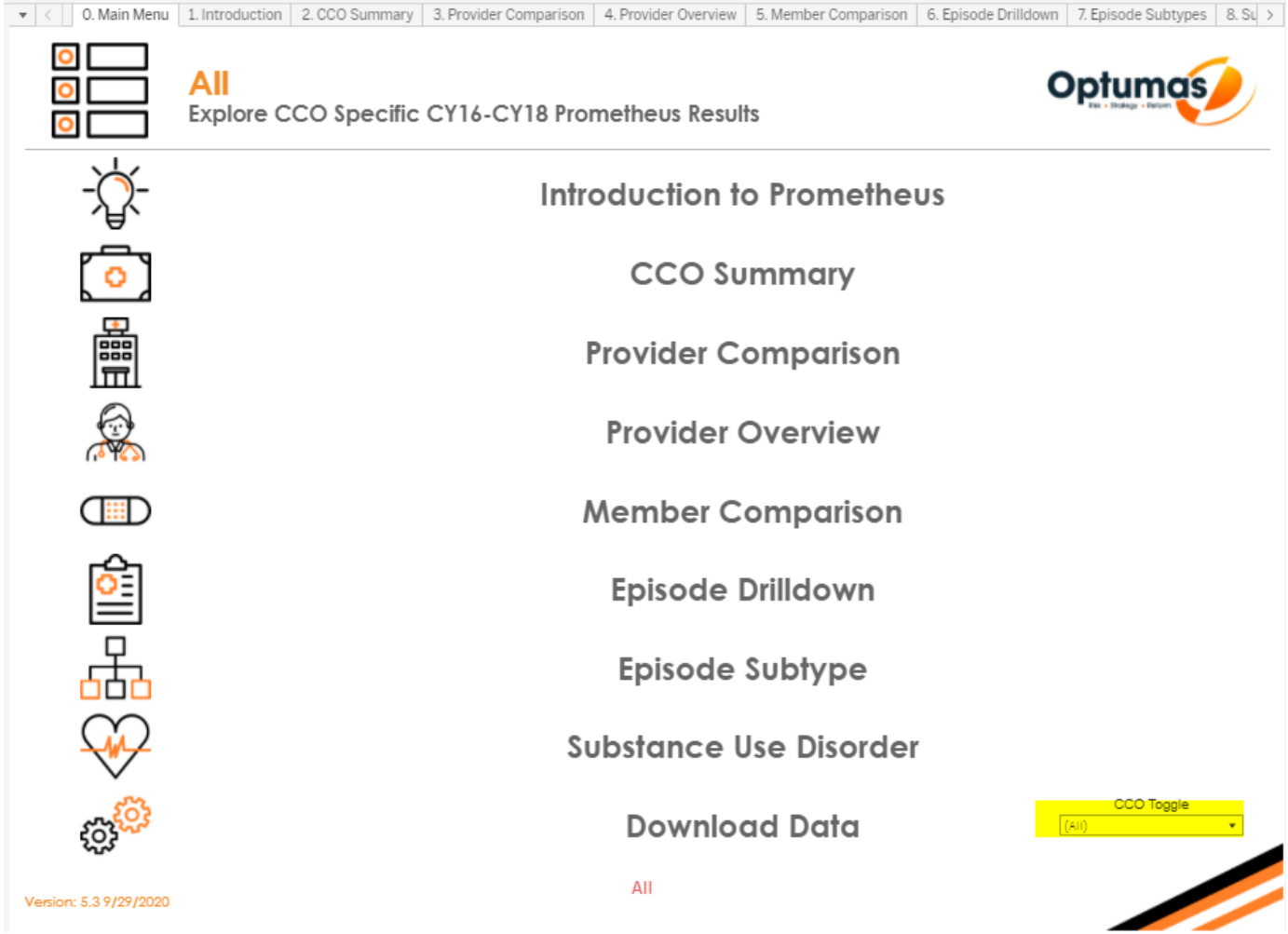
Does length of stay and readmissions impact the overall PAC calculation? Is a two-week sepsis stay the same as a two-month sepsis stay?

The PAC percentage for that individual service isn't likely impacted, but a two-month stay is likely more expensive than a two-week stay due to outlier days. That would increase total PAC dollars, which would increase the total PAC rate.

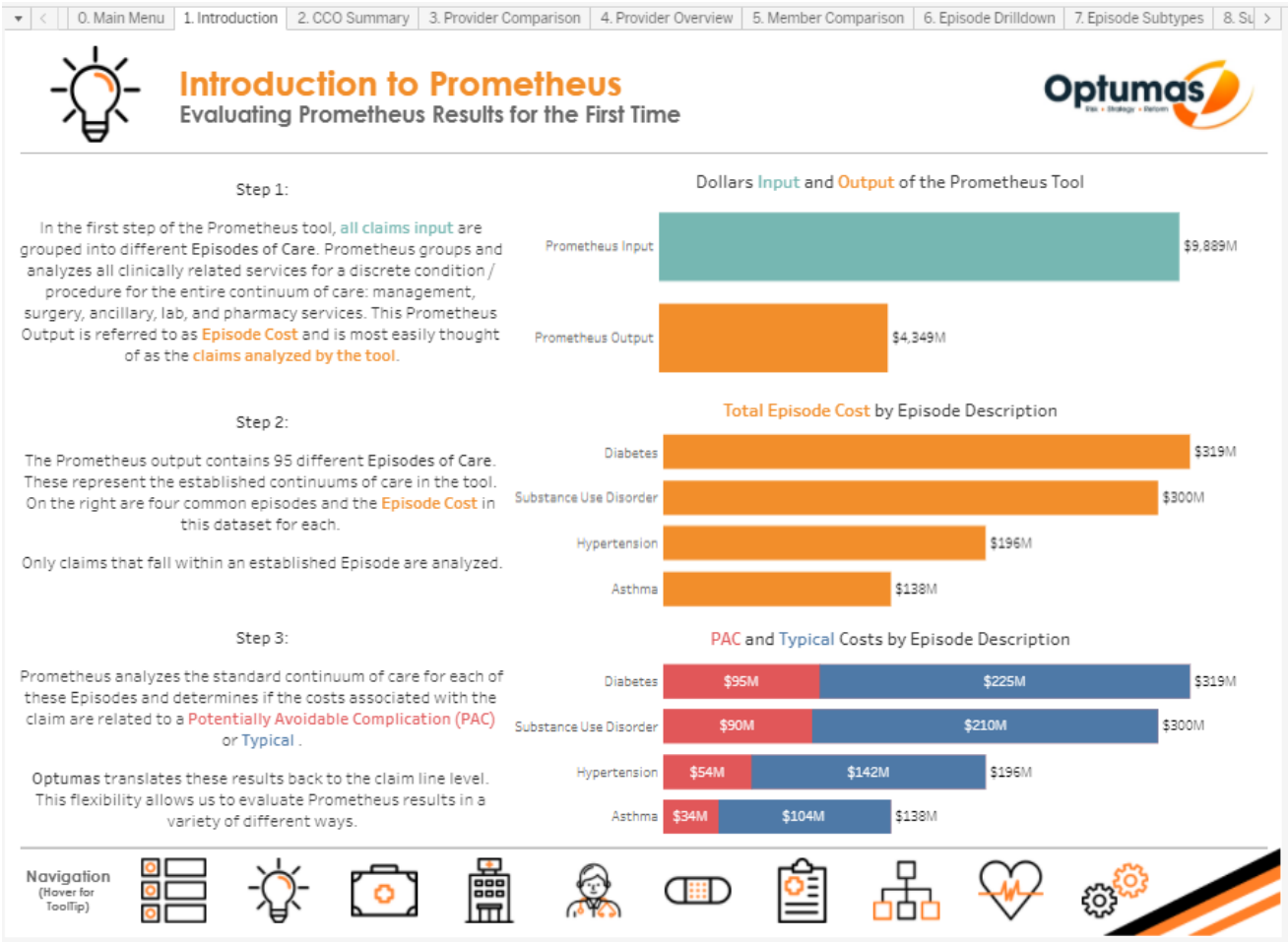
CCO Questions

How does OHA plan to use the PAC statistic as an accountability mechanism for the CCOs? There are multiple scenarios to think through in terms of how the PAC moves even when a CCO is successful.

Dashboards


0. Main Menu
1. Introduction
2. CCO Summary
3. Provider Comparison
4. Provider Overview
5. Member Comparison
6. Episode Drilldown
7. Episode Subtypes
8. Su
All
Explore CCO Specific CY16-CY18 Prometheus Results
Optumas
Introduction to Prometheus
CCO Summary
Provider Comparison
Provider Overview
Member Comparison
Episode Drilldown
Episode Subtype
Substance Use Disorder
Download Data
CCO Toggle
(All)
Version: 5.3 9/29/2020
All

Dashboards


0. Main Menu
1. Introduction
2. CCO Summary
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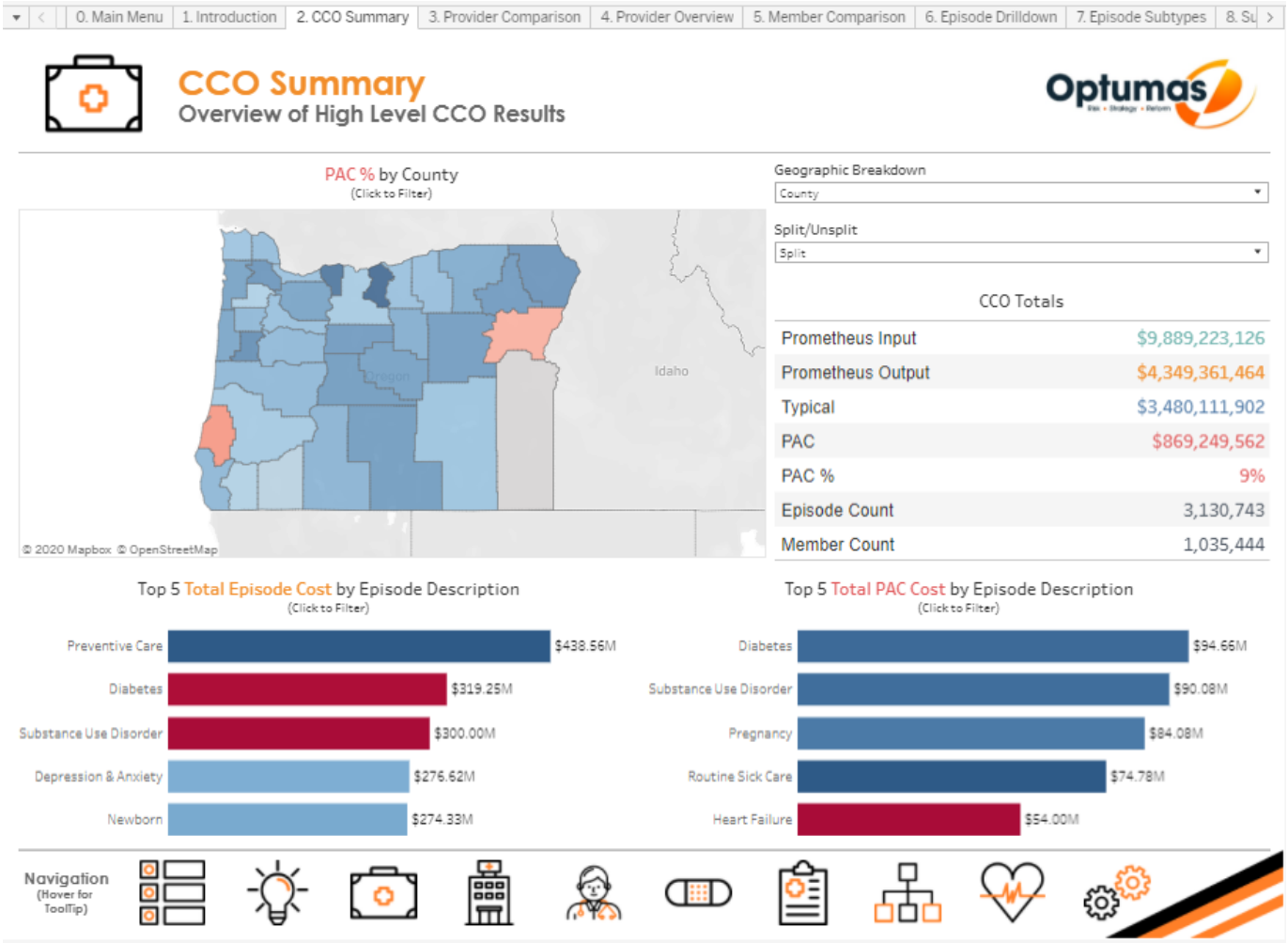
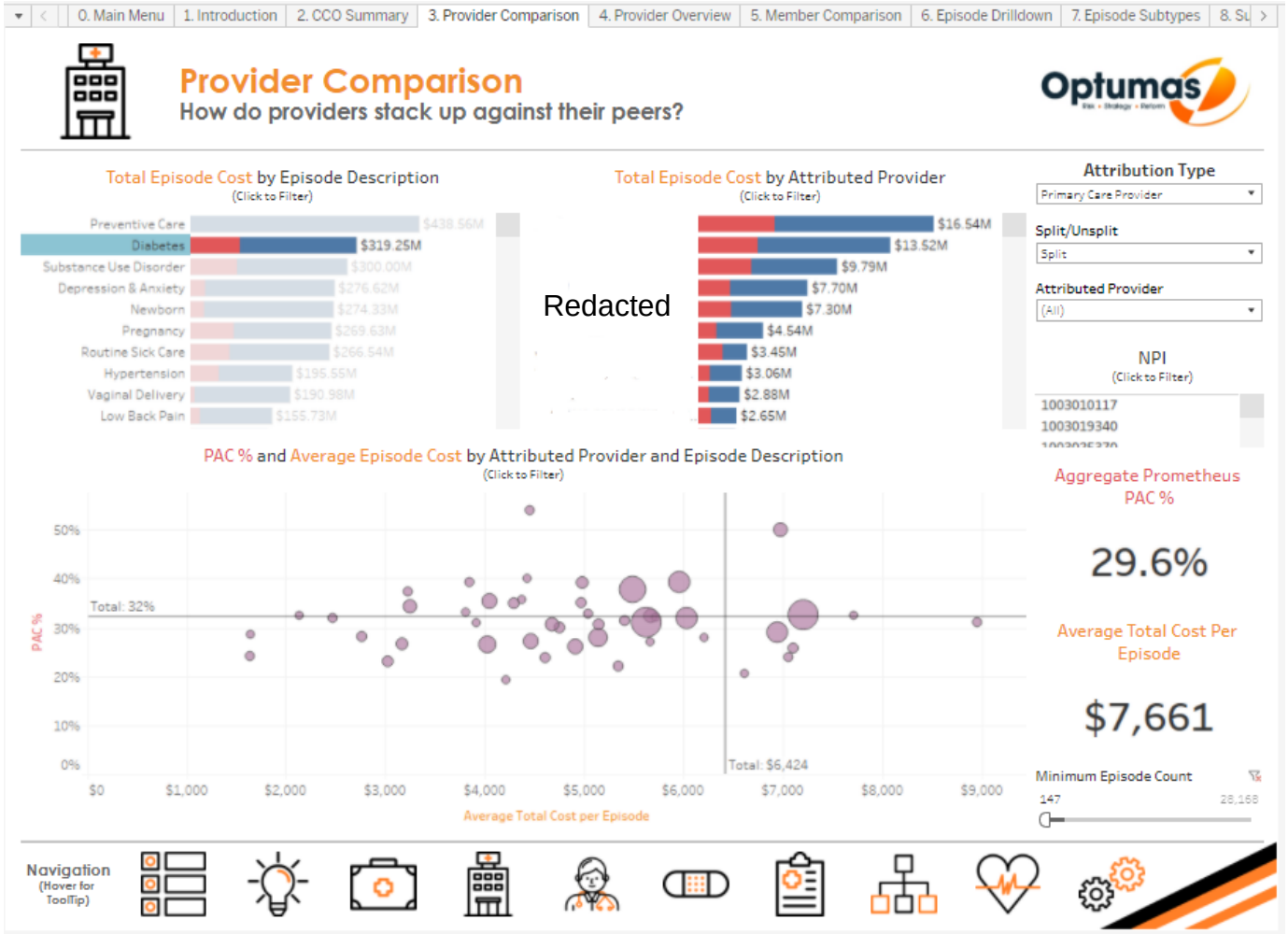
4. Provider Overview
5. Member Comparison
6. Episode Drilldown
7. Episode Subtypes
Introduction to Prometheus
Evaluating Prometheus Results for the First Time
Step 1:
In the first step of the Prometheus tool, all claims input are grouped into different Episodes of Care. Prometheus groups and analyzes all clinically related services for a discrete condition / procedure for the entire continuum of care: management, surgery, ancillary, lab, and pharmacy services. This Prometheus Output is referred to as Episode Cost and is most easily thought of as the claims analyzed by the tool.
Dollars Input and Output of the Prometheus Tool
Prometheus Input
$9,889M
Prometheus Output
$4,349M
Step 2:
The Prometheus output contains 95 different Episodes of Care. These represent the established continuums of care in the tool. On the right are four common episodes and the Episode Cost in this dataset for each.
Only claims that fall within an established Episode are analyzed.
Total Episode Cost by Episode Description
Diabetes
$319M
Substance Use Disorder
$300M
Hypertension
$196M
Asthma
$138M
Step 3:
Prometheus analyzes the standard continuum of care for each of these Episodes and determines if the costs associated with the claim are related to a Potentially Avoidable Complication (PAC) or Typical .
Optumas translates these results back to the claim line level. This flexibility allows us to evaluate Prometheus results in a variety of different ways.
PAC and Typical Costs by Episode Description
Diabetes
$95M
$225M
$319M
Substance Use Disorder
$90M
$210M
$300M
Hypertension
$54M
$142M
$196M
Asthma
$34M
$104M
$138M
Navigation
(Hover for ToolTip)

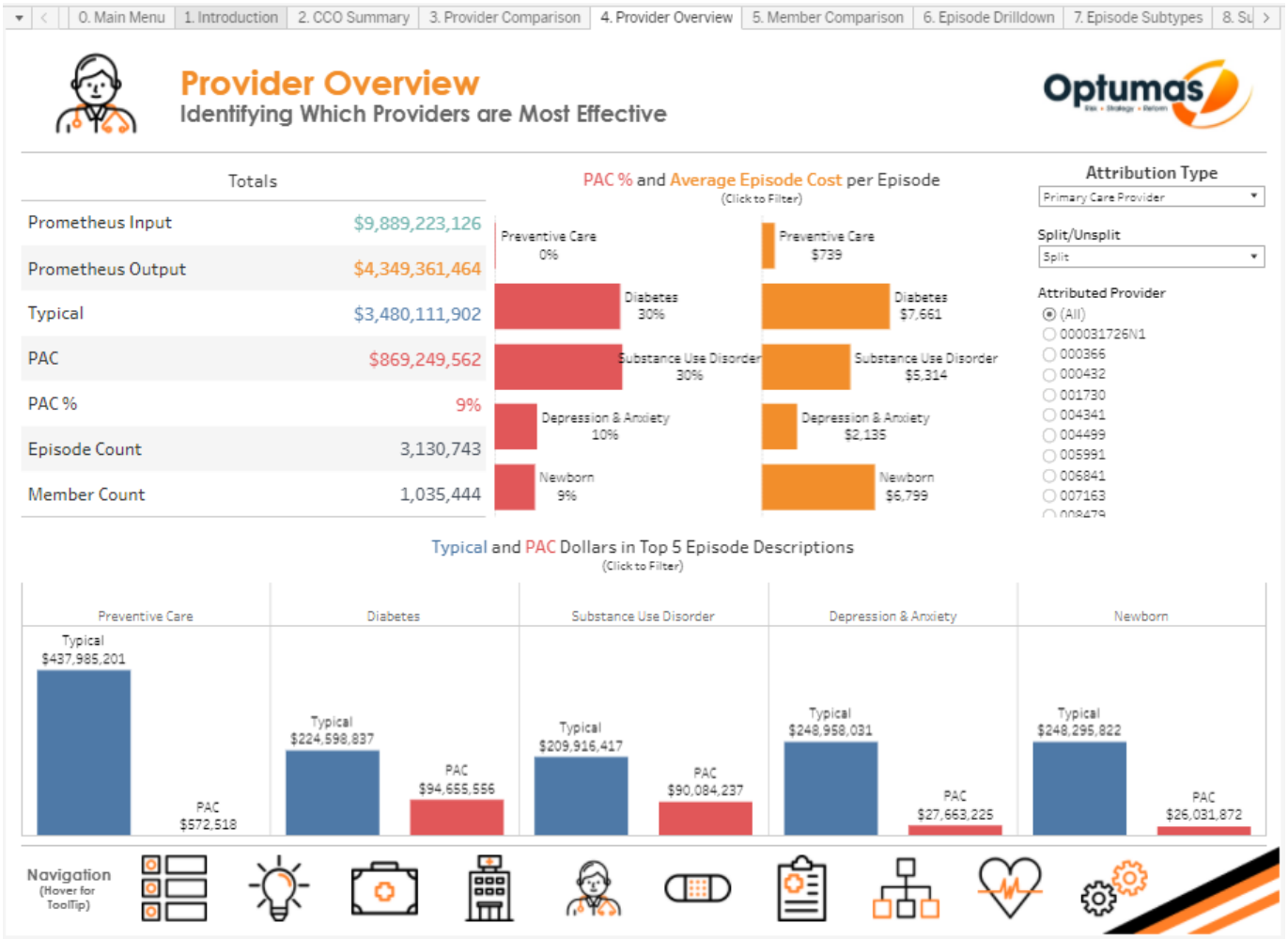
Dashboards


0. Main Menu
1. Introduction
2. CCO Summary
3. Provider Comparison
4. Provider Overview
5. Member Comparison
6. Episode Drilldown
7. Episode Subtypes
CCO Summary
Overview of High Level CCO Results
PAC % by County
(Click to Filter)
Oregon
Idaho
© 2020 Mapbox © OpenStreetMap
Geographic Breakdown
County
Split/Unsplit
Split
CCO Totals
Prometheus Input $9,889,223,126
Prometheus Output $4,349,361,464
Typical $3,480,111,902
PAC $869,249,562
PAC % 9%
Episode Count 3,130,743
Member Count 1,035,444
Top 5 Total Episode Cost by Episode Description
(Click to Filter)
Preventive Care $438.56M
Diabetes $319.25M
Substance Use Disorder $300.00M
Depression & Anxiety $276.62M
Newborn $274.33M
Top 5 Total PAC Cost by Episode Description
(Click to Filter)
Diabetes $94.66M
Substance Use Disorder $90.08M
Pregnancy $84.08M
Routine Sick Care $74.78M
Heart Failure $54.00M
Navigation
(Hover for ToolTip)

Dashboards


0. Main Menu
1. Introduction
2. CCO Summary
3. Provider Comparison
4. Provider Overview
5. Member Comparison
6. Episode Drilldown
7. Episode Subtypes
Provider Comparison
How do providers stack up against their peers?
Total Episode Cost by Episode Description
(Click to Filter)
Preventive Care $438.56M
Diabetes $319.25M
Substance Use Disorder $300.00M
Depression & Anxiety $276.62M
Newborn $274.33M
Pregnancy $269.63M
Routine Sick Care $266.54M
Hypertension $195.55M
Vaginal Delivery $190.98M
Low Back Pain $155.73M
Redacted
Total Episode Cost by Attributed Provider
(Click to Filter)
$16.54M
$13.52M
$9.79M
$7.70M
$7.30M
$4.54M
$3.45M
$3.06M
$2.88M
$2.65M
Attribution Type
Primary Care Provider
Split/Unsplit
Split
Attributed Provider
(All)
NPI
(Click to Filter)
1003010117
1003019340
PAC % and Average Episode Cost by Attributed Provider and Episode Description
(Click to Filter)
PAC %
50%
40%
30%
20%
10%
0%
Total: 32%
$0
$1,000
$2,000
$3,000
$4,000
$5,000
$6,000
$7,000
$8,000
$9,000
Total: $6,424
Average Total Cost per Episode
Aggregate Prometheus PAC %
29.6%
Average Total Cost Per Episode
$7,661
Minimum Episode Count
147
28,168
Navigation
(Hover for ToolTip)

Dashboards

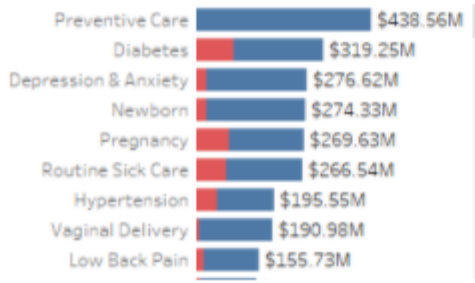

0. Main Menu
1. Introduction
2. CCO Summary
3. Provider Comparison
4. Provider Overview
5. Member Comparison
6. Episode Drilldown
7. Episode Subtypes
Provider Overview
Identifying Which Providers are Most Effective
Totals
Prometheus Input $9,889,223,126
Prometheus Output $4,349,361,464
Typical $3,480,111,902
PAC $869,249,562
PAC % 9%
Episode Count 3,130,743
Member Count 1,035,444
PAC % and Average Episode Cost per Episode
(Click to Filter)
Preventive Care 0%
Diabetes 30%
Substance Use Disorder 30%
Depression & Anxiety 10%
Newborn 9%
Preventive Care $739
Diabetes $7,661
Substance Use Disorder $5,314
Depression & Anxiety $2,135
Newborn $6,799
Attribution Type
Primary Care Provider
Split/Unsplit
Split
Attributed Provider
(All)
000031726N1
000366
000432
001730
004341
004499
005991
006841
007163
Typical and PAC Dollars in Top 5 Episode Descriptions
(Click to Filter)
Preventive Care
Typical $437,985,201
PAC $572,518
Diabetes
Typical $224,598,837
PAC $94,655,556
Substance Use Disorder
Typical $209,916,417
PAC $90,084,237
Depression & Anxiety
Typical $248,958,031
PAC $27,663,225
Newborn
Typical $248,295,822
PAC $26,031,872
Navigation
(Hover for ToolTip)

Member Comparison

Which members are incurring the most PAC costs?

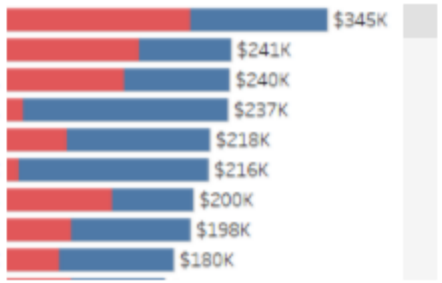
Optumas

Total Episode Cost by Episode Description
(Click to Filter)

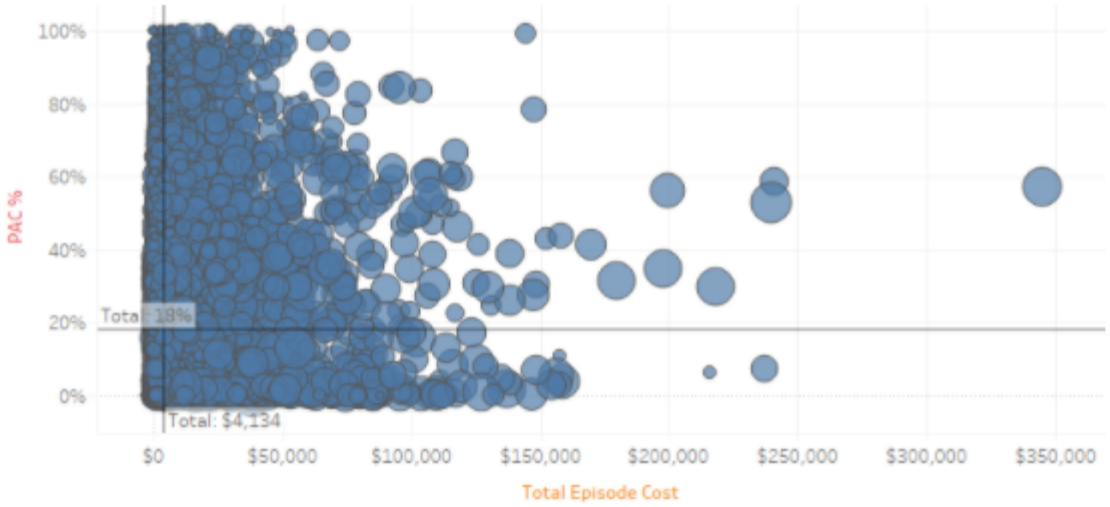


redacted

Total Episode Cost by Member ID
(Click to Filter)



PAC % and Total Episode Cost by Member ID
(Click to Filter)



Split/Unsplit

Split

Member ID

(Multiple values)

Minimum Episode Count

1 — 24

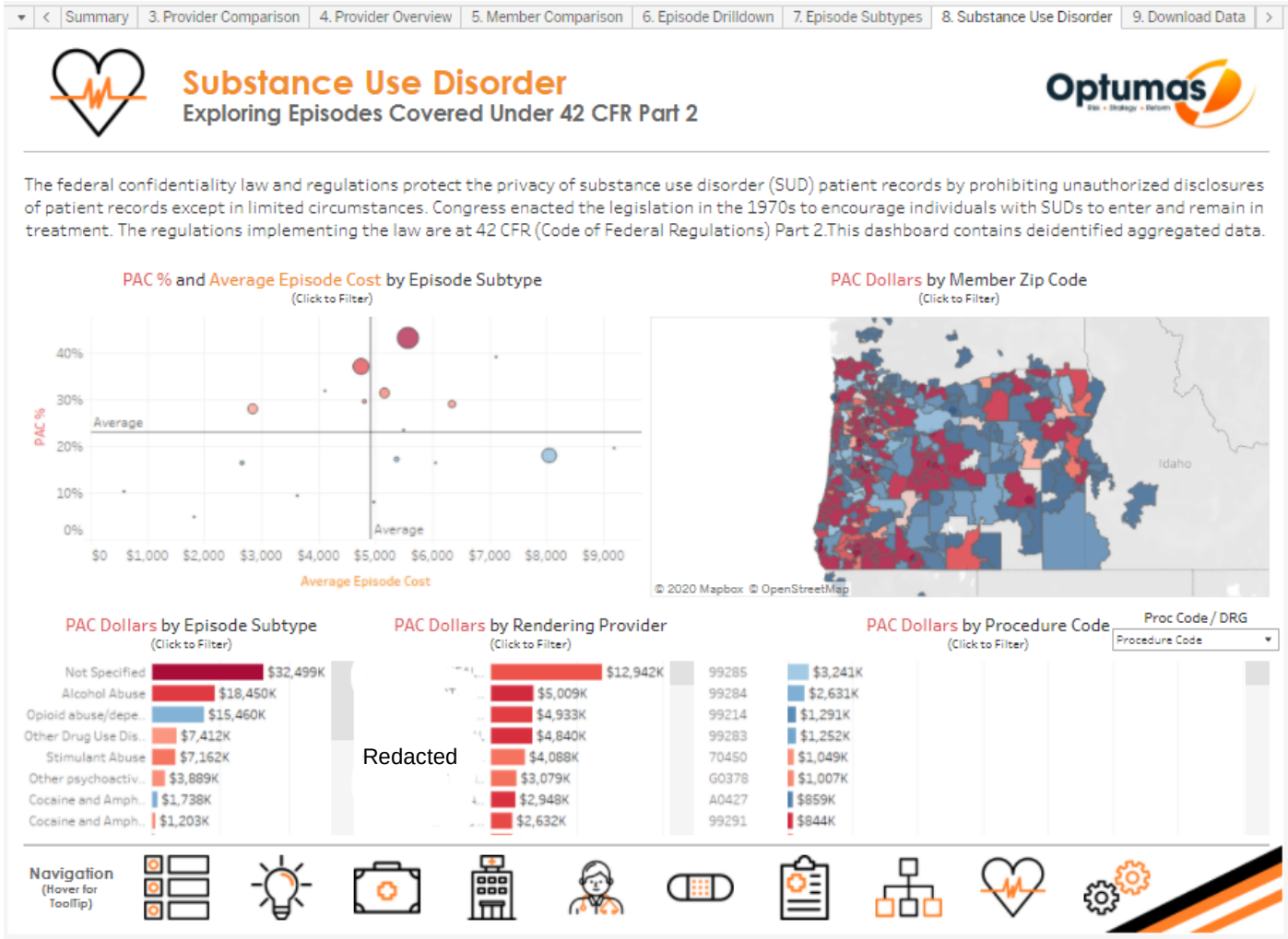
Comorbidities Filter

Off

Allergic Rhinitis	Do not include	GERD	Do not include
Attention Deficit	Do not include	Glaucoma	Do not include
Arrythmia/ Heart Block	Do not include	Heart Failure	Do not include
Asthma	Do not include	Hypertensi...	Do not include
Bipolar Disorder	Do not include	Low Back Pain	Do not include
COPD	Do not include	Osteoarth...	Do not include
Coronary Artery Dis...	Do not include	PTSD	Do not include
Crohn's	Do not include	Schizophre...	Do not include
Depression/ Anxiety	Do not include	Ulcerative Colitis	Do not include
Diabetes	Do not include		

Navigation
(Hover for ToolTip)

Dashboards


Summary
3. Provider Comparison
4. Provider Overview
5. Member Comparison
6. Episode Drilldown
7. Episode Subtypes
8. Substance Use Disorder
9. Download Data
Substance Use Disorder
Exploring Episodes Covered Under 42 CFR Part 2
Optumas
The federal confidentiality law and regulations protect the privacy of substance use disorder (SUD) patient records by prohibiting unauthorized disclosures of patient records except in limited circumstances. Congress enacted the legislation in the 1970s to encourage individuals with SUDs to enter and remain in treatment. The regulations implementing the law are at 42 CFR (Code of Federal Regulations) Part 2.This dashboard contains deidentified aggregated data.
PAC % and Average Episode Cost by Episode Subtype
(Click to Filter)
PAC %
Average
Average Episode Cost
PAC Dollars by Member Zip Code
(Click to Filter)
Idaho
© 2020 Mapbox © OpenStreetMap
PAC Dollars by Episode Subtype
(Click to Filter)
Not Specified $32,499K
Alcohol Abuse $18,450K
Opioid abuse/depe.. $15,460K
Other Drug Use Dis.. $7,412K
Stimulant Abuse $7,162K
Other psychoactiv.. $3,889K
Cocaine and Amph.. $1,738K
Cocaine and Amph.. $1,203K
PAC Dollars by Rendering Provider
(Click to Filter)
Redacted
$12,942K
$5,009K
$4,933K
$4,840K
$4,088K
$3,079K
$2,948K
$2,632K
PAC Dollars by Procedure Code
(Click to Filter)
Proc Code / DRG
Procedure Code
99285 $3,241K
99284 $2,631K
99214 $1,291K
99283 $1,252K
70450 $1,049K
G0378 $1,007K
A0427 $859K
99291 $844K
Navigation
(Hover for ToolTip)

Discussion

The utility of the resources the OHA has provided will ultimately be determined by CCO engagement.

We welcome feedback that will help us refine the tools to best meet your needs.

What additional information can we provide?

What changes to the tools would add value?

Episodes Of Care

October 2020

Francois deBrantes
SVP Episode of Care

Amita Rastogi, MD, MHA, MS, FACHE
VP Medical Director

Sarah Burstein
Director, Episode Partner Implementation

Agenda

- Foreword – Objectives and Oregon's Use Case
- Introduction - The Clinical Basis for Episodes of Care
- Defining EOCs
- Understanding variations within an EOC construct
- The Path forward

Foreword

Objective:

- The goal of this section of the meeting is to help the CCO clinical staff continue to expand their understanding of Episode of Care Analysis and to learn about the clinical input into the model.

Oregon's Use Case

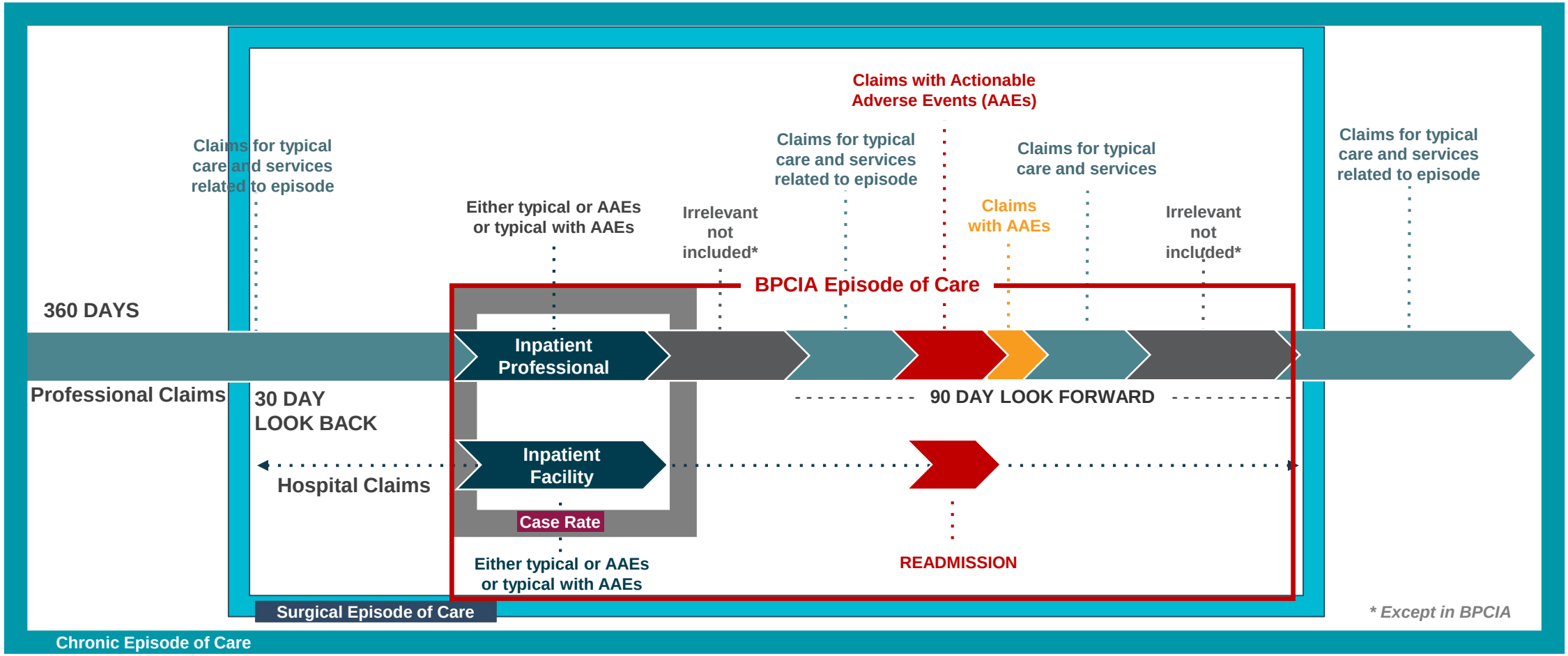
- Episode of Care Analysis is used most widely for to support bundled payments.
- Some of the concepts you hear about during this session are more applicable to bundled payments than Oregon's current use case.

The Clinical Basis for Episodes of Care

- Where do the episode definitions come from?
- How were they developed?
- What is the ongoing clinical input into the Signify model and episode definitions?
- What does the future hold? Will there ever be a national standard that is vetted with the clinical community?

Episode of Care Components

Episode Construct: BPCIA, Commercial Procedural and Chronic



Components Of An Episode Of Care

Trigger Codes	• Procedure and/or diagnosis codes that clearly identify the presence of a condition, treatment, illness or injury (e.g., Lumbar Spine Fusion procedure code (ICD proc / CPT code), Osteoarthritis diagnosis code)
Trigger Rules	• Helps define the existence of an episode
Time Window	• Helps define the start and end of an episode
Sub Types	• Most episodes have sub-types to distinguish a category of a condition, treatment, illness or injury (e.g., Low Back Pain with radiculopathy)
Relevant Diagnosis	• Typical Dx: signs and symptoms such as low back pain, numbness in feet • Complication Dx: Actionable Avoidable Events (AAEs) for the episode. Directly due to the condition/treatment such as wound infection after surgery and/or patient safety issues such as drug-drug interactions, deep vein thrombosis
Relevant Procedure Codes	• CPT, HCPCS, ICD procedure codes • Core services to measure underuse/gaps in care, Potentially Avoidable services (Choosing Wisely) to identify overuse
Pharmacy	• We consider them as typical service

What Are the Components of a Commercial Episode?

Clinical and financial accountability are defined for each episode. They include cost 30 days prior to the procedure, the cost of the procedure, as well as the cost of the 90-day period after the procedure.

Components	Procedural Episodes
Trigger Rules	• Single trigger claim: IP, OP or professional containing trigger procedure code and qualifying diagnosis code
Episode Duration	• Variable but shorter episode lengths (14-90 day look forward, 3-30 day look back)
Service Assignments	• Procedural carve-out: all relevant services assigned to procedures
Actionable Adverse Events (AAEs)	• All relevant acute readmissions + relevant AAE post-acute IP, OP and prof services • Index stays can be Typical with AAE (T-AAE) but not AAE

Components	Procedural Episodes
Risk Factor Window	• 90 days pre-trigger (280 days for deliveries)
Subtype Window	• Look back and trigger windows
Clinical Terminations Window	• 90 days pre-trigger (280 days for deliveries) + entire episode window
Enrollment Gap	• 0 day enrollment gap allowed for episodes over 30 days in duration • Enrollment gap not applicable to episodes 30 days or shorter
Provider Attribution	• Physician performing the procedure/Facility at which the procedure is performed

Key Differences

Procedural vs. Chronic Condition Commercial Episodes of Care

Components	Procedural Episodes	Chronic Condition Episodes
Trigger Rules	• Single trigger claim: IP, OP or professional containing trigger procedure code and qualifying diagnosis code	• Single trigger claim: IP or OP with trigger diagnosis code (and E&M procedure code for OP) • Dual trigger claims: Professional with trigger diagnosis code and E&M procedure code + an IP, OP or professional confirming claim generally between 30 and 365 days later
Episode Duration	• Variable but shorter episode lengths (14-90 day look forward, 3-30 day look back)	• 30 day look back; episodes remain open until end of data set • Episodes are annualized into 12 month windows for analysis and implementation
Service Assignment s	• Procedural carve-out: all relevant services assigned to procedures over chronics	• Services relevant to both procedural and chronic episodes not included in chronics • Pharmacy bigger driver of costs
Actionable Adverse Events (AAEs)	• All relevant acute readmissions + relevant AAE post-acute IP, OP and prof services • Index stays can be Typical with AAE (T-AAE) but not AAE	• All chronic acute admissions + relevant AAE, post-acute IP, OP, and prof services

Key Differences

Procedural vs. Chronic Condition Commercial Episodes of Care

Components	Procedural Episodes	Chronic Condition Episodes
Risk Factor Window	• 90 days pre-trigger (280 days for deliveries)	• 365 days pre-trigger
Subtype Window	• Look back and trigger windows	• Entire episode window
Clinical Terminations Window	• 90 days pre-trigger (280 days for deliveries) + entire episode window	• 365 days pre-trigger + entire episode window
Enrollment Gap	• 0 day enrollment gap allowed for episodes over 30 days in duration • Enrollment gap not applicable to episodes 30 days or shorter	• 30 day enrollment gap allowed in annualized period
Provider Attribution	• Physician performing the procedure/Facility at which the procedure is performed	• Relevant PCP or specialist with the most professional E&M claims during the annualized period (Analytics) • Relevant PCP or specialist self-identifying as the Episode Initiator (Implementation)
Clinical Levers	• Site of care, facility selection, etc.	• Readmissions, Potentially Avoidable Services (PAS), Super-utilizers, Core services, etc.

Episode of Care Parameters

Episode	Look Back	Look Forward	Age Range	Enrollment Gap
Knee Repl	30 days	90 days	18-75+	> 0 days
Colonoscopy	3 days	14 days	18-75+	> 0 days
Diabetes	30 days	End of study period	5-64	> 6 months
GERD	30 days	End of study period	18-64	> 6 months
ASTHMA	30 days	End of study period	2-64	> 6 months

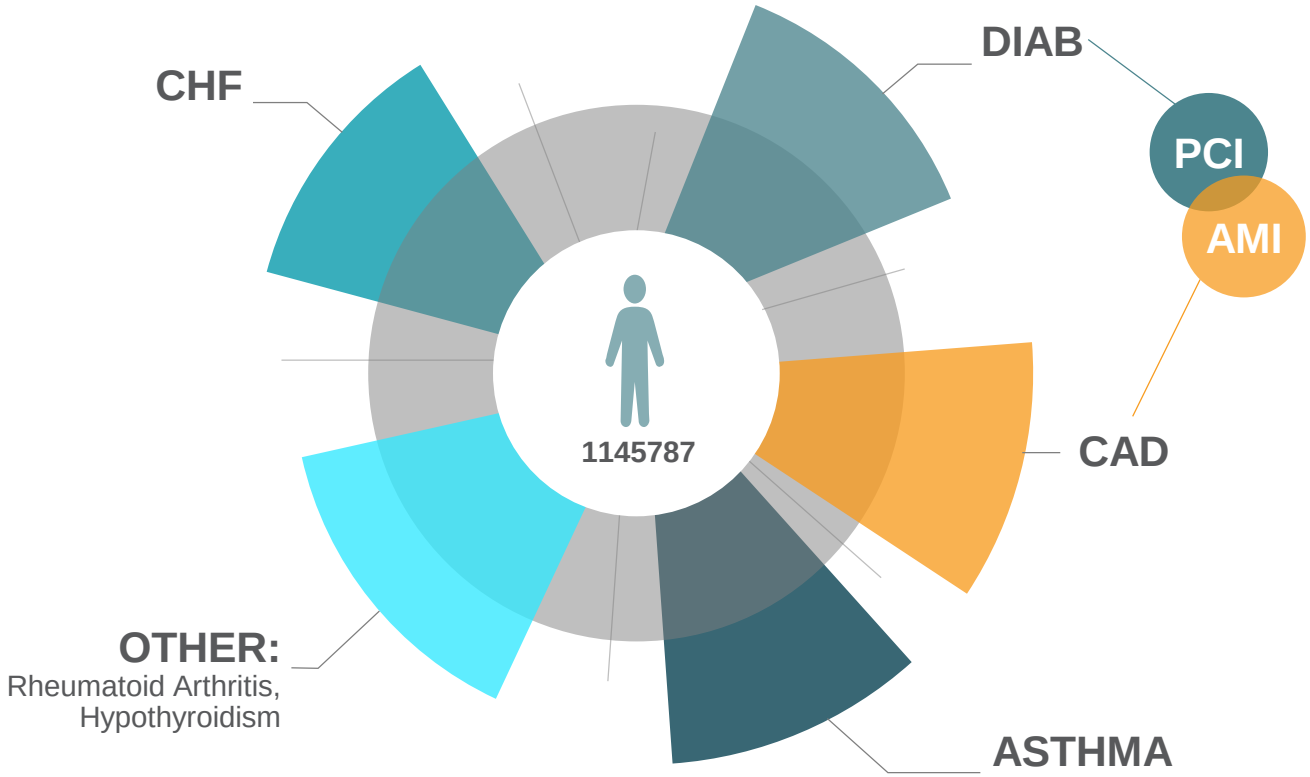
Compared with BPCI-A episodes:

- Age range – much younger population, could vary by episode
- Look back period captures early claims (e.g. claims before surgery / confirmed diagnosis)
- Look back and look-forward period varies by episode
- Enrollment gap is important to look for incomplete episodes

Episode System, Not Stand-Alone's

A Truly Patient-Centered System

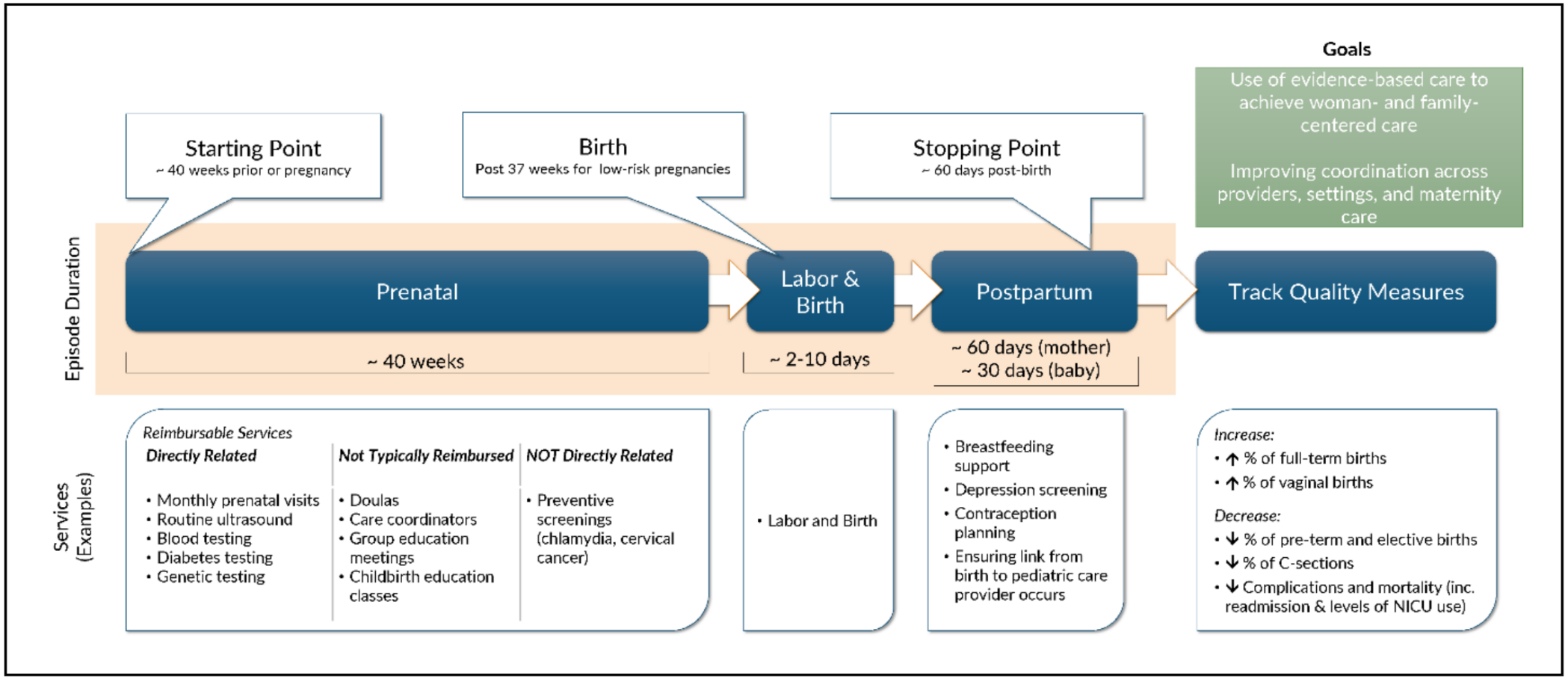
- Each plan member can have multiple concurrent episodes
- Concurrent episodes have multi-assignment of claims; no forced hierarchy
- When claims are multi-assigned, dollars are split; no double counting of dollars happens
- Episodes are related to one another through defined clinical associations, for example the Maternity bundle associates pregnancy episode to the two delivery episodes – vaginal delivery and C-section and also incorporates 30 days of newborn care by associating the newborn episode with maternity.



Example: Maternity Episode

Maternity Episodes – Bundle of Bundles

Maternity Episode Consists of Pregnancy, Vaginal Delivery, C-Section and Newborn Episodes



Triggers in Maternity

Trigger Criteria Differ in Analytic Engine vs. Implementation

Analytics Engine Triggers

- Vaginal delivery
- C-Section

IMPLEMENTATION PHASE TRIGGERS (EARLY INDICATORS)
First and Second trimester triggers
Encounter for pregnancy test, result positive
Ob Ultrasound >/= 14 wks single fetus
Antepartum hemorrhage, unspecified, second trimester
Third trimester triggers
Fetal biophysical profile; with non-stress testing
Low weight gain in pregnancy, third trimester

Relevant Diagnoses in Maternity

Steer Services Into Episode (Dx/Px Logic)

Typical Diagnoses

- Hypertension in pregnancy
- Pre-eclampsia
- Threatened abortion, premature labor
- Kidney disease in mother
- Malpresentation, unstable lie
- Placenta previa, vasa previa

Actionable Adverse Events (AAEs)

- Obstructed labor
- Postpartum hemorrhage
- Obstetrical embolism
- Purpureal sepsis
- Wound infections

Relevant Services in Maternity

Typical Medical Services and Pharmacy Services

Typical Medical Services

- Ultrasound during pregnancy
- Non-stress test, fetal blood sampling
- Amniocentesis
- Repair of obstetrical laceration
- Vaginal delivery after C-section
- Anesthesia services

Pharmacy Services

- Vitamin 12, folic acid, iron supplements
- Antibiotics, gynecological anti-infectives
- Drugs for hypertension, diabetes
- **Estrogens, Progesterone, Oxytocin**
- Antidepressants, antipsychotics

Adjusting Costs in Maternity

Identifying High Risk Patients

Risk Factors/Comorbidities

- Age – teenage mother, elderly mother
- Smoking, substance use, behavior health issues
- Poor obstetric history, previous miscarriages
- Previous C-section
- Anemia, diabetes, hypertension
- Heart disease, kidney disease in mother

Subtypes

- High risk pregnancy
- Multiple gestation, twins
- Elderly multiparous mother

Incorporating AAEs Into Episodes

By building in services for actionable adverse events (AAEs) as part of the episode, we have built in an allowance for historical cost of AAEs creating a strong incentive to minimize them and win in shared savings arrangements

- An AAE is any event that negatively affects the patient and is potentially controllable by the health care delivery system – not just the individual provider or hospital
- The AAE measure focuses on the core outcomes that matter from the patient's perspective, and captures a key goal of care for chronic patients: to attempt to avoid the occurrence of exacerbations (e.g. asthma attack, hospital admission due to uncontrolled schizophrenia), sequelae like diabetic foot or stroke and the development of physical co-morbidities such as liver toxicity in SUDS members
- There are two types of AAEs
  - Type 1 AAEs: directly related to the index condition such as wound infection after surgery
  - Type 2 AAEs: patient safety failures such as line sepsis, DVT, pressure sores
- AAEs may or may not be completely avoidable – goal is not to eliminate them but to reduce them as much as possible

AAEs = Actionable Adverse Events

Maternity - AAE Examples

Actionable Adverse Events (AAEs) sample list

- Obstetrical Embolism, Air, Amniotic Fluid
- Obstetrical Shock
- Obstetrical Trauma
- Obstetrical Wound Complications
- Resp Failure following trauma / surgery
- Urinary Complications
- Disruptive Wound C-Section
- Failed Forceps/Vacuum
- Delayed Delivery after induction
- Malpresentation

- Cord Prolapse
- Cerebral Complications in NB
- Birth Trauma
- Anemia & other Blood Conditions in NB
- Complications of Body Temp in NB
- Extreme Immaturity or < 26 weeks
- Fetal Distress
- Intraventricular Hemorrhage
- Necrotizing Enterocolitis
- Prematurity or < 36 weeks

- Other bacterial infections
- Failed Forceps
- Blood Loss in NB
- Sepsis of Newborn
- Complications of surgical procedures
- Urinary Tract Infection
- Stillbirth, Fetal Death
- Shock / Cardiac Arrest
- Poor Fetal Growth
- Opportunistic Infections
- Adverse effects of drugs
- Complications of medical care

Additional AAE's available

Variations in C-Section Rates

CMQCC (California Maternal Quality Care Collaborative)

Figure 6a. Large Variation of the Total Cesarean Rate Among 251 California Hopsitals: 2014

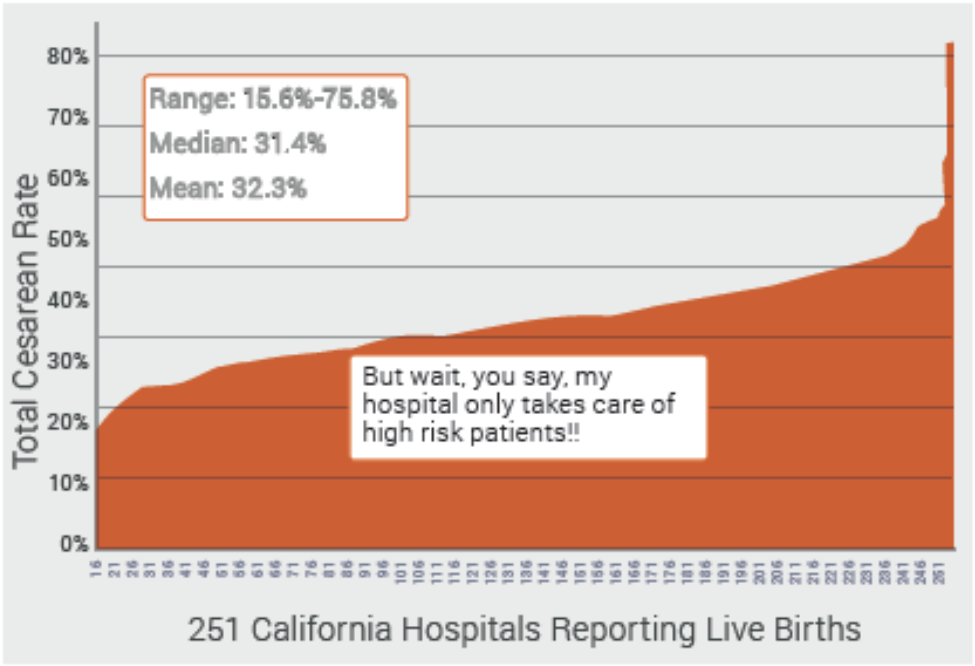
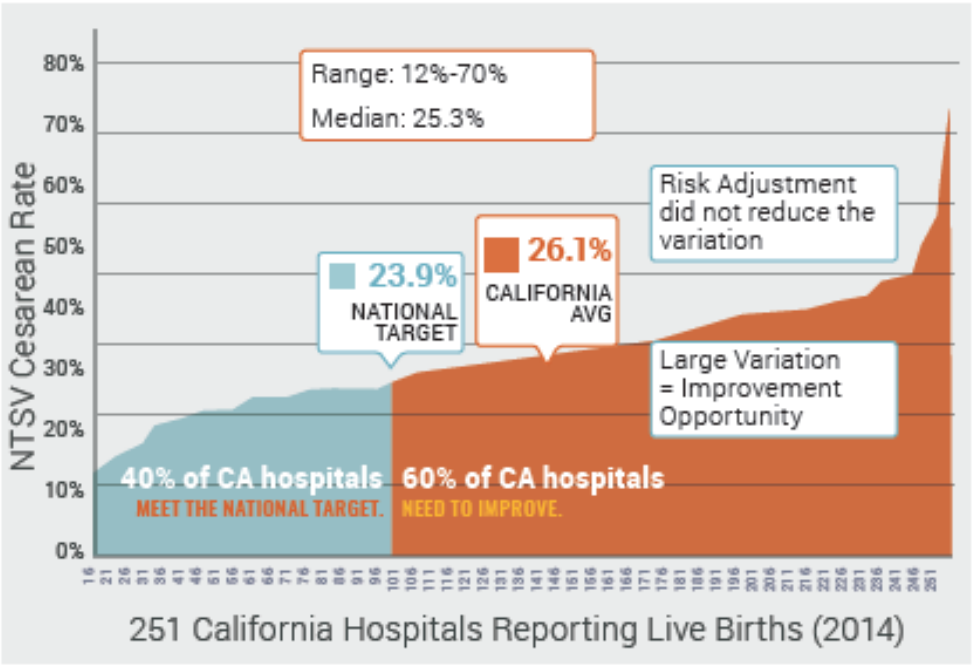


Figure 6b. Large Variation of the NTSV Cesarean Rate Among 251 California Hospitals: 2014



NTSV = Nulliparous, Term, Singleton, Vertex
Dr. Elliott Maine published NQF criteria to reduce C-section rates

Defining Low-Risk C-Sections

SMFM Guidelines Used to Define Low-Risk C-Sections[1]

American Journal of Obstetrics & Gynecology FEBRUARY 2016

TABLE 3
Mean values and range of low-risk cesarean rates in U.S. hospitals with >100 births in 2011, overall and stratified by size, teaching status, and location (N=612)

	All hospitals	Small hospitals[c]	Medium hospitals[c]	Large hospitals[c]	Teaching hospitals[d]	Non-teaching hospitlas[d]	Rural hospitals[e]	Urban hospitals[e]	Predominantly public or individual payers (>50% of births)	Predominantly private payers (>50% births)
	N=612	N=136	N=192	N=277	N=159	N=446	n=194	n=411	n=373	n=239
Number of obstetric deliveries										
Mean	1410	667	1,104	1,977	2,620	973	455	1854	1214	1718
Min	101	101	107	110	107	101	102	101	102	101
Max	13,999	4,414	8,849	13,999	13,999	6,197	1,981	13,999	13,999	13,657
IQR[a]	1,530	811	1,127	2,104	2,164	912	369	1,828	1,171	1,840
% of low-risk women (SMFM definition) with cesarean delivery[b]										
Mean	12.651	13.149	13.199	12.085	16.243	11.406	10.864	13.534	12.693	12.587
IQR[a]	5.959	7.285	6.287	5.342	6.962	5.93	6.619	6.031	5.946	5.752
% of low-risk women (Joint Commission) with cesarean delivery[b]										
Mean	13.123	13.757	13.733	12.452	16.577	11.931	11.407	13.975	13.117	13.133
IQR[a]	6.075	6.774	6.937	5.19	6.583	5.957	6.096	6.034	6.097	6.004
% of low-risk women (AHRQ definition) with cesarean delivery[b]										
Mean	13.294	13.911	13.913	12.622	16.713	12.112	11.583	14.142	13.3	13.285
IQR[a]	6.007	7.093	6.798	5.438	6.815	5.818	6.065	6.194	6.28	5.76

[a] IQR is the interquartile range, a measure of variability, calculated as the difference between the 75th and 25th percentiles. Larger numbers indicate greater variability across hospitals within a column; [b] The low-risk cesarean rate is calculated as the percentage of cesarean deliveries among women with term, singleton, vertex pregnancies and no prior history of cesarean section; [c] Hospital bed size categories are defined by the Healthcare Cost and Utilization Project (HCUP), based on number of short-term acute hospital beds, and are specific to the hospital's U.S. region, rural-urban designation, and teaching status. Thirteen hospitals are missing information for bed size; [d] Hospital teaching status was obtained by HCUP from the AHA Annual Survey of Hospitals; [e] Classification of urban or rural hospital location used Core Based Statistical Area (CBSA) codes based on 2000 Census data; prior to 2004 Metropolitan Statistical Area (MSA) was used. Hospitals residing in counties with a CBSA or MSA type of metropolitan were considered urban, while hospitals with a CBSA or MSA type of micropolitan or non-core were classified as rural.

Armstrong. Hospital rates of cesarean delivery among low-risk women. Am J Obstet Gynecol 2016.

- Society of Maternal Fetal Medicine (SMFM) in their Special Report defined a comprehensive measure to identify low-risk Cesarean Births using medical billing codes.
- It had an added advantage of
- clinical perspective, enhanced face validity, and ease of use.
- Current rates of low risk C-Sections are 12.6% across all hospitals

[1] **SMFM (Society for Maternal Fetal Medicine) Special Report:** DOI: https://doi.org/10.1016/j.ajog.2015.10.935: Comparing variation in hospital rates of cesarean delivery among low-risk women using 3 different measures Armstrong, Joanne C. et al. American Journal of Obstetrics & Gynecology , Volume 214 , Issue 2 , 153 - 163

Defining Low-Risk C-Sections

SMFM guidelines used to define low-risk C-sections[1]

Absolute Indications for C-Section:

- Placenta previa
- Active genital herpes

Strong Indications for C-Section:

- Multiple gestation – locked twins, conjoined twins
- HIV status of mother
- Fetal factors – hydrocephalus, deep transverse arrest
- Conduct of labor – failed forceps, cord prolapse, rupture uterus, inordinate uterine contractions

Relative Indications for C-Section:

- Previous C-section
- Abnormal presentation – transverse / oblique lie
- Maternal factors: cardiovascular disease in mother, epilepsy in mother

[1] **SMFM (Society for Maternal Fetal Medicine) Special Report:** DOI: https://doi.org/10.1016/j.ajog.2015.10.935
Comparing variation in hospital rates of cesarean delivery among low-risk women using 3 different measures
Armstrong, Joanne C. et al. American Journal of Obstetrics & Gynecology , Volume 214 , Issue 2 , 153 - 163

Potentially Avoidable Services (PAS)

PAS Leverage The Choosing Wisely Campaign Launched by the ABIM (American Board of Internal Medicine)

The Choosing Wisely Campaign has enabled patients and providers to choose care that is

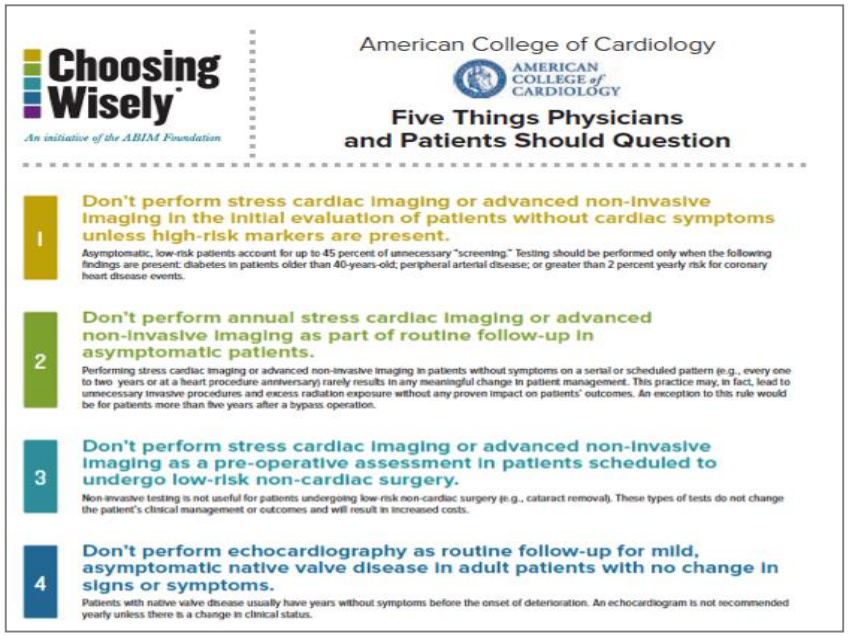
a) Supported by evidence
b) Not duplicative
c) Free from harm and
d) Truly necessary

Total of 520 recommendations across 80 specialty societies

304 unique recommendations were mapped to episodes and flagged as potentially avoidable services (PAS)

- 53 recommendations related to cardiology
- 31 related to musculoskeletal system and connective tissues
- 22 related to nervous system
- 19-20 each related to respiratory, blood, and immunologic disorders, skin and breast, or to the female reproductive system

We calculated overuse and determined the rate at which unnecessary services are being performed, as well as their accumulated costs



Service	Choosing Wisely Recommendation	CPT Codes	CPT Code Description
CV Stress Test	Don't perform stress radionuclide imaging as part of routine follow-up in asymptomatic CAD patients	78451, 78452, 78453, 78454, 78460, 78461, 78464, 78465	Myocardial Perfusion Imaging, at rest or stress

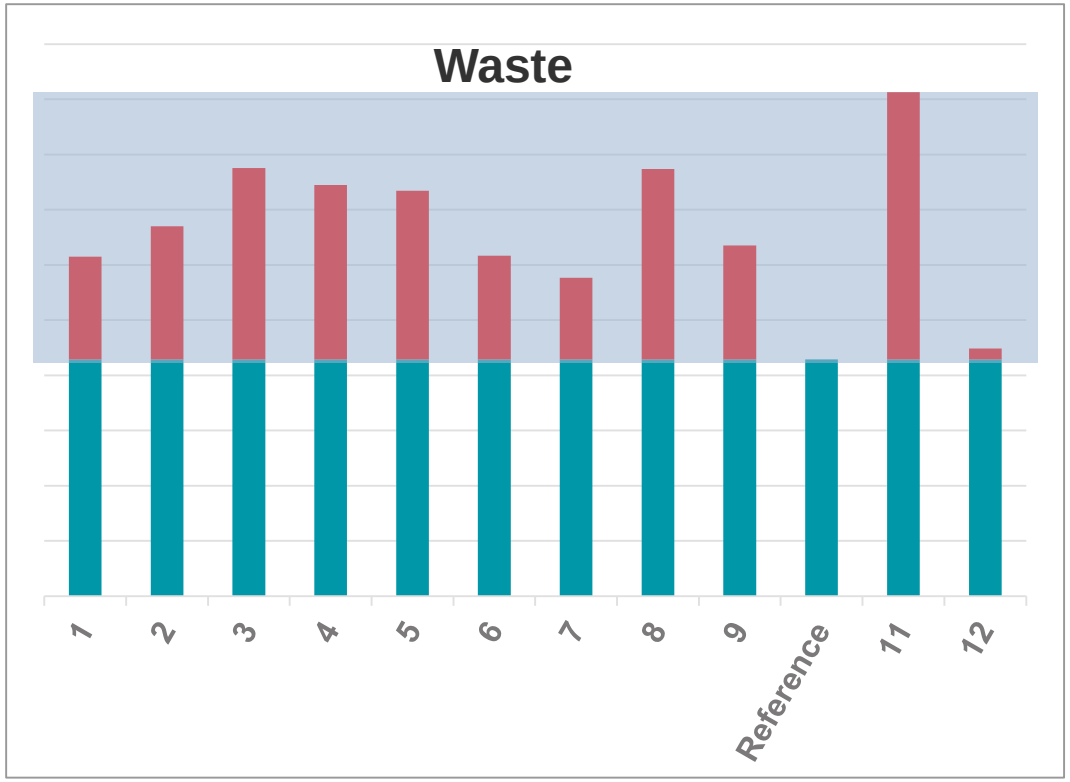
Methodology in Defining Overuse – The Waste Index

The ”Waste Index” Measures the Percent of PAS Services That are Wasteful

PAS Count (Waste Index)

Type of Metric: Outcome Calculation:

- Waste Index = Number of Excess PAS Services / Total Number of PAS Services Examined



PAS Cost

Type of Metric: Outcome Calculation:

- PAS Cost = All PAS excess costs / Total Cost of Episode

- For each PAS service group, the 90th percentile value is calculated
- Services that are in excess of this threshold are defined as “waste”
- The “waste index” looks at all the PAS excess services that were above the 90th percentile value, as a percent of all PAS services examined
- The cost of excess services are aggregated to estimate the “wasted” cost of overused services

PAS = Potentially Avoidable Services

The Path Forward

Episode Development Framework

For the BPCI-A definitions, CMS provides the codes and the logic

For the Commercial episodes – there is no industry standard

- We at Signify initially leveraged the Prometheus episode definitions (default industry standard)
- But now since Prometheus has been acquired by Change Healthcare – we are working to integrate Signify grouper with PACES and develop a common industry standard. Change Healthcare is also requesting to be at the table.

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CHANGE HEALTHCARE

Change Healthcare Acquires PROMETHEUS Analytics®

Change Healthcare acquires industry standard for episode of care definitions used for value-based care plans

August 26, 2020 09:00 AM Eastern Daylight Time

NASHVILLE, Tenn.--(BUSINESS WIRE)--Change Healthcare (Nasdaq: CHNG) today announced it has acquired PROMETHEUS Analytics® from Altarum. PROMETHEUS Analytics is a leading reimbursement approach based on medical episodes of care, used by payer-provider collaborations nationwide, uniquely providing a fair and realistic blueprint for value-based payments. It includes

MOVING TO PACES (Patient Centered Episode System)

PACES:
PAtient **C**entered
Episode **S**ystem

Episode Grouper for Medicare (EGM)

DESIGN REPORT

FINAL

February 29, 2016

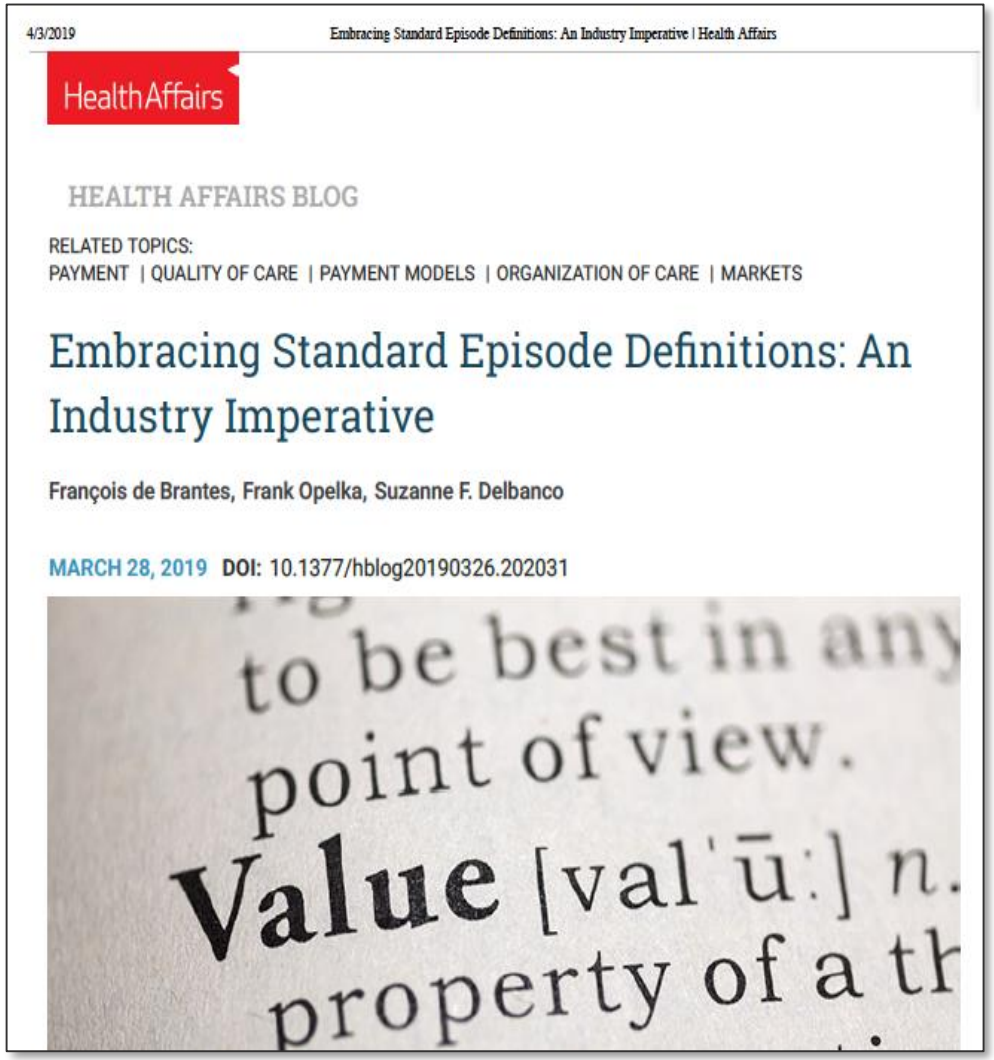
Submitted by
Brandeis University

In collaboration with
American Board of Medical Specialties
American Medical Association Physician Consortium for Performance Improvement
Booz Allen Hamilton
IPRO

Project Director
Christopher P. Tompkins, Ph.D.

CMS
CENTERS FOR MEDICARE & MEDICAID SERVICES

Moving to an Industry Standard For Episode Definitions



4/3/2019 Embracing Standard Episode Definitions: An Industry Imperative | Health Affairs

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Embracing Standard Episode Definitions: An Industry Imperative

François de Brantes, Frank Opelka, Suzanne F. Delbanco

MARCH 28, 2019 DOI: 10.1377/hblog20190326.202031

to be best in any
point of view.
Value [val ˈūː] *n.*
property of a th

PACES (PAtient Centered Episode System)

- PACES is a non-profit entity that houses EGM (Episode Grouper for Medicare)
- Prometheus leveraged many of the learnings from this effort into its episode definitions and business logic
- We are working closely with PACES to integrate the Signify definitions and business rules and logic to conform to the industry standard

Thank You!