Lunch and learn:
Meet the experts: CRGs and PFEs

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Lisa Turner, 3M HIS

July 26, 2022

Health Policy Executive Summit 2022

Agenda

- Meet the speakers
- Clinical Risk Groups (CRG)/Patient Focused Episodes (PFE)
  - Overview and use case
  - Intro to methodology
  - Recent developments and what's next
- Q&A

Meet the speakers

Lisa Turner – Clinical Analyst

Lisa has been working on 3M patient classification methodologies dating back to 1994 with National Association of Children's Hospital and Related Institutions (NACHRI). Lisa joined 3M in 2014 and in 2016 joined the team that actively manages longitudinal software development for CRG, PFE and PPR.

David Gannon - Product Owner and Engineer

David has been working on 3M patient classification methodologies dating back to 1996 when he joined 3M. In 2016 he formed the team that actively manages longitudinal software development for CRG, PFE and PPR. He has been serving as product owner of 3M Population Health methodologies since 2019.

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CRGs
Clinical Risk Groups

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Overview and use case

3M Clinical Risk Groups – Overview and use case

- A population-based classification system that describes the health status and burden of illness of individuals in an identified population based on diagnoses and procedures reported from patient claims and encounters during an extended time period, such as a year. Suitable for all populations

- More specifically, a categorical clinical classification system that generates mutually exclusive groupings for both very detailed and more highly aggregated diagnostic categories, including explicitly defined severity levels.

- The grouping output also includes a full profile of all individual chronic and acute conditions, available for further drill-down or supplemental analyses by users.

- CRGs can be used for population health analysis and risk adjusting in policies for payment and quality measures

3M Clinical Risk Groups – Overview and use case

3M CRGs can be used by payers, managed care organizations, hospitals, disease management and similar firms, researchers from academic and government organizations, and anyone else who seeks to understand or manage population-wide patterns of utilization, cost and quality.

Use

Population Health Management

- Identifying total disease burden and prevalence of individual chronic and acute conditions to manage
- Population segment analysis
- Understand enrolled non-user population
- Examine high-cost outlier patients for reasons

Risk Adjusted Payment

- Capitated payment rate setting
- Shared savings programs
- Bundled payment using 3M's Patient-Focused Episodes

Quality Measurement

- Total service utilization and cost of care
- Risk adjusted value-based measures of potentially preventable events using 3M's Population-Focused Preventables (PPA, PPV, PPS)
- Tracking and evaluating services, costs and outcomes for defined clinical subgroups of the population (e.g., CHF, COPD, diabetes, mental health, substance abuse)
- Measuring disease progression

3M Clinical Risk Groups use in risk adjustment

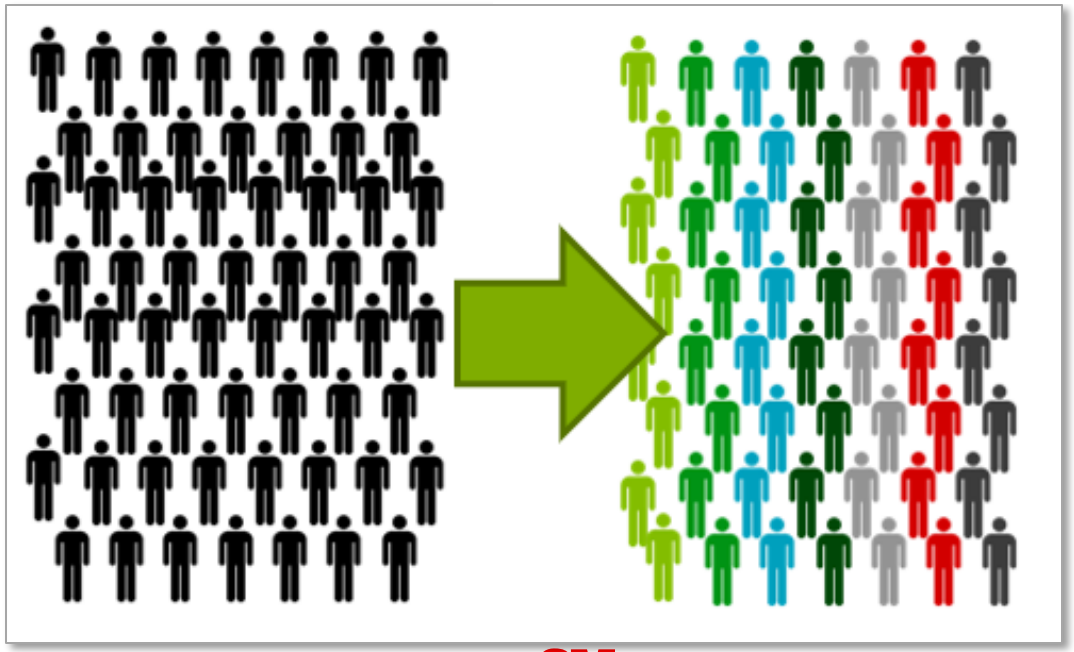
Risk Adjustment

- "the **statistical process** that takes into account the underlying health status and health spending of the **enrollees** in an insurance plan when looking at their health care outcomes or health care costs" – healthcare.gov

+

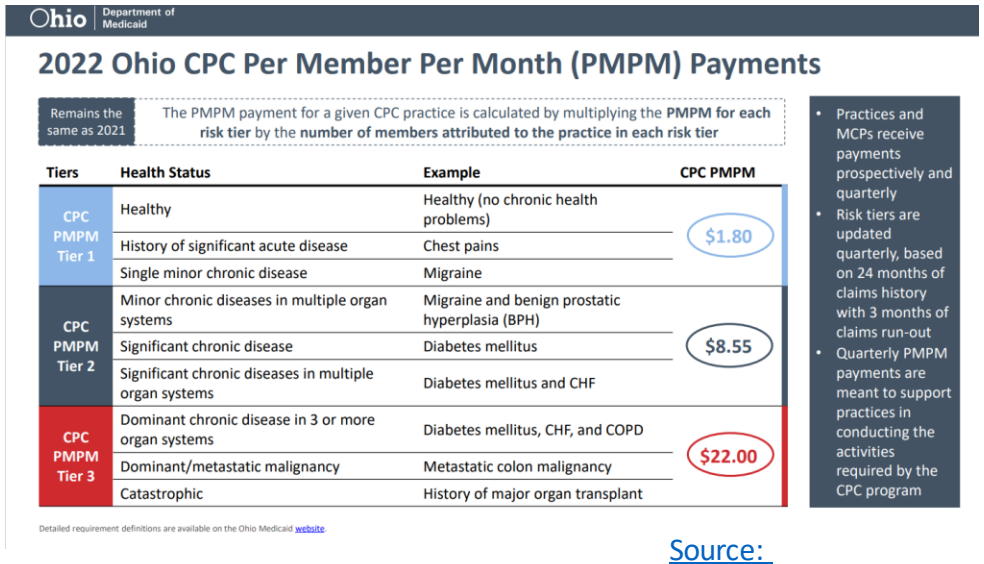
CRGs

- a clinically-driven, whole-person approach to measuring a patient's burden of illness
- assigns each patient into a single, mutually exclusive category,
- supports risk adjusted comparisons with clinical and financial similar individuals – *"compare apples with apples"*



3M Clinical Risk Groups use in Shared Savings Program

- Ohio has implemented the Comprehensive Primary Care (CPC) program, a team-based care delivery model led by a primary care practice that comprehensively manages a patient's health needs. Practices must adhere to activity requirements as well as efficiency and quality metrics
- Practices receive quarterly PMPM base payments to support activities that are required for the CPC that are risk adjusted based on CRG
- Practices can get additional rewards for managing total cost of care (TCOC) relative to their peers and to their own past performance, risk adjusted comparisons using CRG



Ohio | Department of Medicaid

2022 Ohio CPC Per Member Per Month (PMPM) Payments

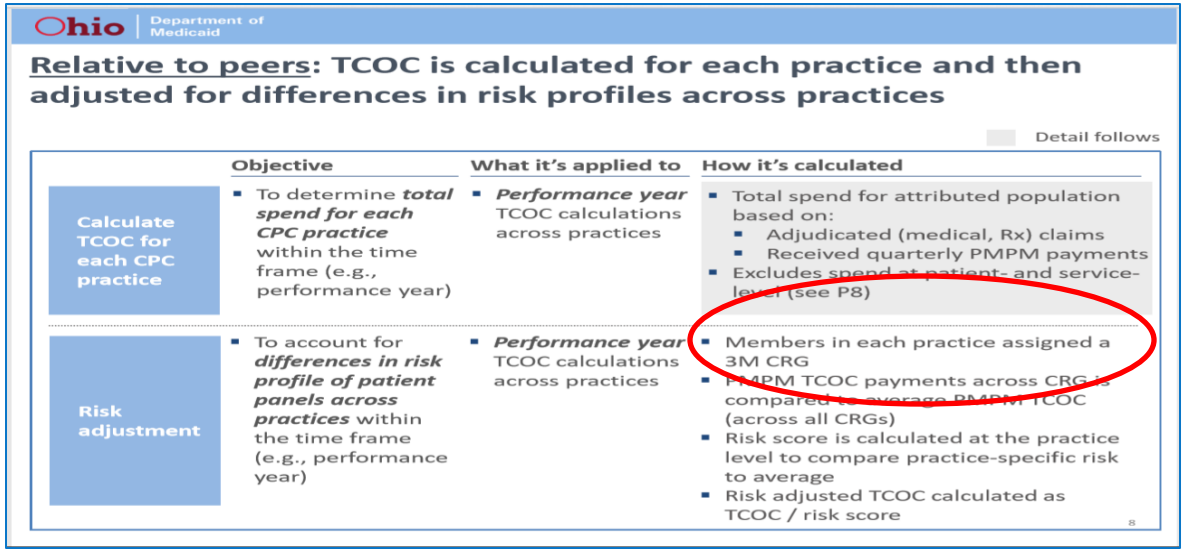
Remains the same as 2021

The PMPM payment for a given CPC practice is calculated by multiplying the **PMPM for each risk tier** by the **number of members attributed to the practice in each risk tier**

Tiers	Health Status	Example	CPC PMPM
CPC PMPM Tier 1	Healthy	Healthy (no chronic health problems)	$1.80
	History of significant acute disease	Chest pains	
	Single minor chronic disease	Migraine	
CPC PMPM Tier 2	Minor chronic diseases in multiple organ systems	Migraine and benign prostatic hyperplasia (BPH)	$8.55
	Significant chronic disease	Diabetes mellitus	
	Significant chronic diseases in multiple organ systems	Diabetes mellitus and CHF	
CPC PMPM Tier 3	Dominant chronic disease in 3 or more organ systems	Diabetes mellitus, CHF, and COPD	$22.00
	Dominant/metastatic malignancy	Metastatic colon malignancy	
	Catastrophic	History of major organ transplant	

- Practices and MCPs receive payments prospectively and quarterly
- Risk tiers are updated quarterly, based on 24 months of claims history with 3 months of claims run-out
- Quarterly PMPM payments are meant to support practices in conducting the activities required by the CPC program

Detailed requirement definitions are available on the Ohio Medicaid website.



Ohio | Department of Medicaid

Relative to peers: TCOC is calculated for each practice and then adjusted for differences in risk profiles across practices

Detail follows

	Objective	What it's applied to	How it's calculated
Calculate TCOC for each CPC practice	▪ To determine ***total spend for each CPC practice*** within the time frame (e.g., performance year)	▪ ***Performance year*** TCOC calculations across practices	▪ Total spend for attributed population based on: ▪ Adjudicated (medical, Rx) claims ▪ Received quarterly PMPM payments ▪ Excludes spend at patient- and service-level (see P8)
Risk adjustment	▪ To account for ***differences in risk profile of patient panels across practices*** within the time frame (e.g., performance year)	▪ ***Performance year*** TCOC calculations across practices	▪ Members in each practice assigned a 3M CRG ▪ PMPM TCOC payments across CRGs is compared to average PMPM TCOC (across all CRGs) ▪ Risk score is calculated at the practice level to compare practice-specific risk to average ▪ Risk adjusted TCOC calculated as TCOC / risk score

Source:
https://medicaid.ohio.gov/static/Providers/PaymentInnovation/CPC/CPC-Program-Updates.pdf
https://medicaid.ohio.gov/static/Providers/PaymentInnovation/CPC/SharedSavingsMethodology.pdf

3M Clinical Risk Groups use in quality measures – PPA

https://thlcportal.com/home

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Intro to methodology

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3M Clinical Risk Groups - Definition and examples

Definition

The 3M™ Clinical Risk Groups classification methodology describes the health status and burden of illness of individuals in an identified population.

Risk Adjustment

CRGs adjust for differences in patient acuity:

- Capitation payment to MCOs and similar
- Risk stratification
- Shared savings programs
- Measuring population health status
- 3M Potentially Preventable Admissions
- 3M Potentially Preventable ED Visits
- 3M Potentially Preventable Services

Examples v2.2

11900 Pregnancy without Delivery, without Other Significant Illness

20800 Major Trauma Diagnosis, with or without Other Significant Illness

31411 Chronic Bronchitis Level -1

40002 Multiple Other Minor Chronic Diseases Level – 2

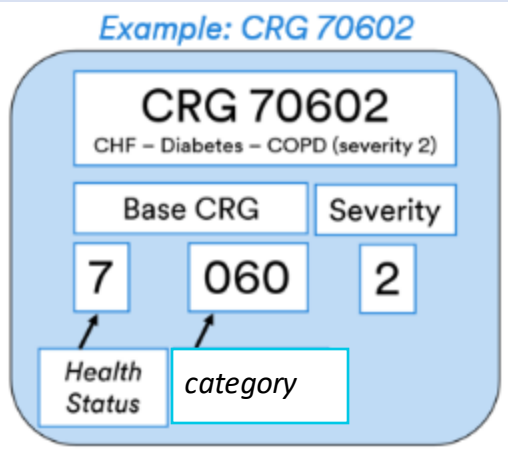
57474 Bipolar Disorder Level 4

62605 Dominant Chronic Developmental Disability and Other Moderate Chronic Disease Level – 5

70602 Congestive Heart Failure - Diabetes - Chronic Obstructive Pulmonary Disease Level – 2

86472 Lung Malignancy – Under Active Treatment Level - 2

90103 Dialysis with Diabetes Level - 3



3M Clinical Risk Groups – Assignment process

Phase I. Claims and encounter information is processed and edited or "validated for use," and a disease profile and history of past medical interventions is created.

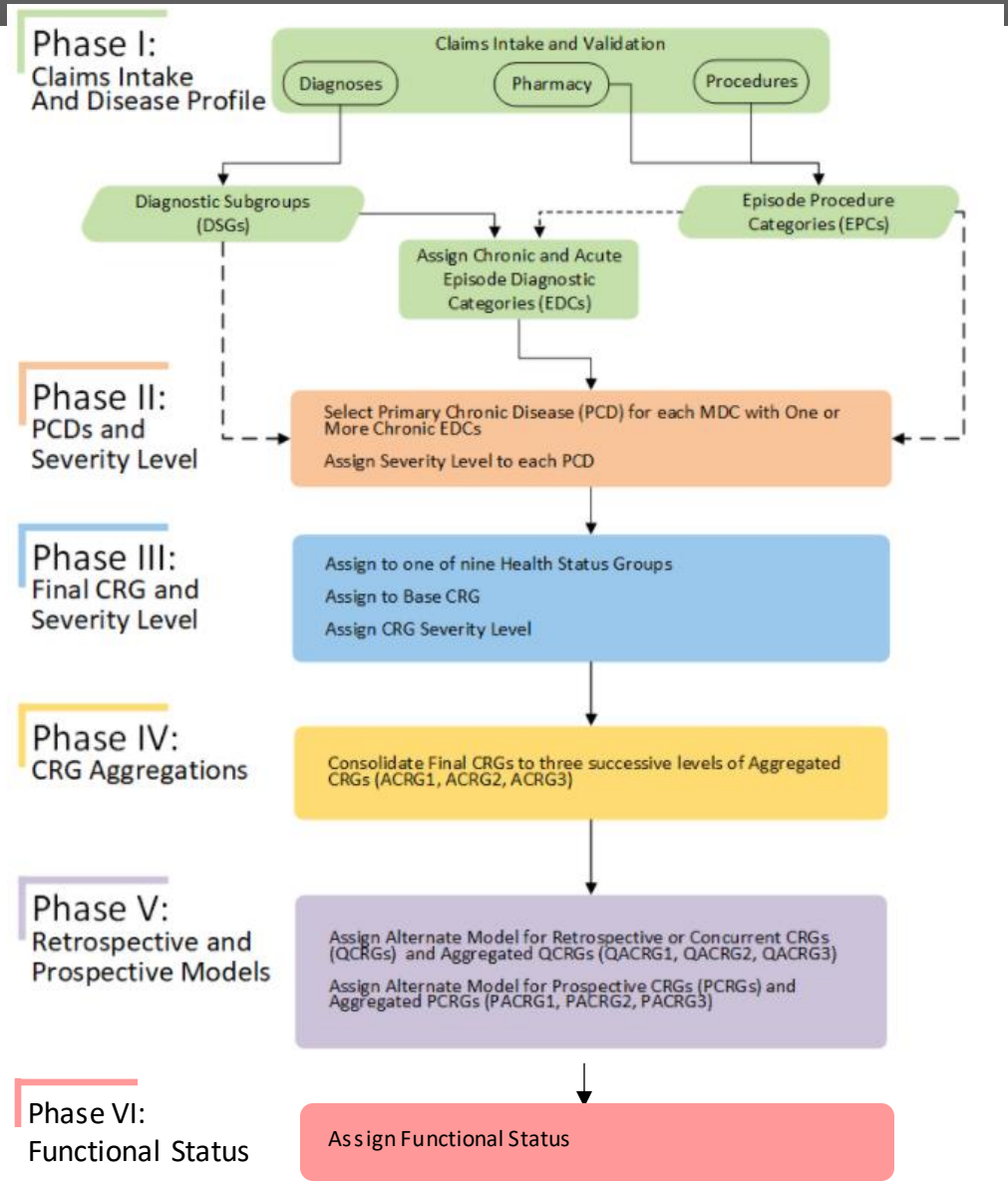
Phase II. For each organ system, the most significant primary chronic disease is identified, if one exists, and its severity of illness level is determined.

Phase III. The primary chronic disease(s) and its (their) associated severity of illness level(s) are used to determine the CRG category and severity level. Absent chronic disease, assignment to CRG category takes into account the presence of one or more significant acute illnesses.

Phase IV. The initial CRGs are consolidated into three successive tiers of aggregation, referred to as Aggregated CRGs or ACRGs.

Phase V. Final CRG assignments are made for prospective or concurrent/retrospective applications. The final assignments take into account additional information, and in particular for the Concurrent CRGs, the presence of significant health events such as pregnancy, delivery, and newborn births.

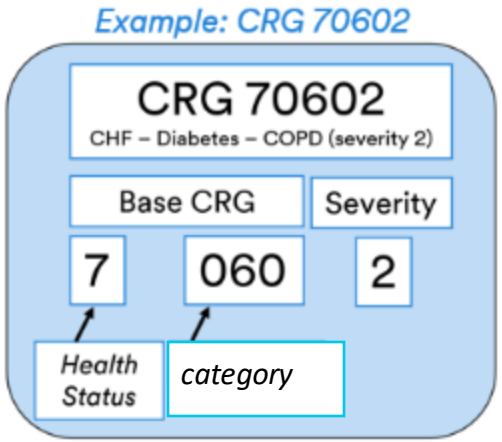
Phase VI. 3M™ Functional Status Grouper (FSG) logic is called and delivered as part of the CRG output. The output does not impact CRG assignment but is made available as additional information for analytic and risk-adjustment purposes.



3M Clinical Risk Groups – Assignment process

At the broadest level, the 3M CRGs are organized into ten health status groups:

3M CRG health status group	Example(s)	Base 3M CRGs	Severity levels	Number of 3M CRGs
9 – Catastrophic Conditions	History of Major Organ Transplant	10	4	40
8 – Malignancy, Under Active Treatment	Lung malignancy + chemotherapy	19	4	76
7 – Significant Chronic Disease in Three or More Organ Systems (Triplets)	CHF + Diabetes + COPD	25	6	150
6 – Significant Chronic Disease in Multiple Organ Systems (Pairs)	CHF + Diabetes	70	6	420
5 – Single Dominant or Moderate Chronic Disease	Diabetes	115	4	460
4 – Multiple Minor Chronic	Hypertension + Migraine disease	4	4	16
3 – Single Minor Chronic Disease	Hypertension	53	2	106
2 – History of Significant Acute Disease	Pneumonia, Premature Newborns	39 (Concurrent) 33 (Prospective)	0	39 (Concurrent) 33 (Prospective)
1 – Healthy	Upper Respiratory Infections, Newborns	30 (Concurrent) 26 (Prospective)	0	30 (Concurrent) 26 (Prospective)
0 – Non-Users	Non-users	1	0	1



Total Base CRGs 366 (Concurrent)
356 (Prospective)

Total Number of 3M CRGs **1,338 (Concurrent)**
1,328 (Prospective)

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Recent developments and what's next

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3M Clinical Risk Groups – Recent developments

- V2.2 most recent and new version in 2021 includes:
  - Reclassification of Hypertension
  - Reclassification of Diabetes
  - Revised criteria for health status group 8, Malignancy in Active Treatment
  - Other revised or new Diagnostic Subgroups (DSGs), Episode Procedure Categories (EPCs), Episode Diagnostics Categories (EDCs) and Clinical Risk Groups (CRGs)
  - New logic for processing and validating DSGs and EDCs
  - Updates to diagnosis code sets and procedure code sets
  - Consolidation of low volume CRGs and new CRG additions
  - Other revised CRGs
  - Renumbering of CRGs in Status 1 and 2
  - New Status 0 for Non-Users
  - Revised Aggregated CRGs (ACRGs)
  - Other software logic updates for claims data input and processing
- Activities toward future development includes:
  - Enhance the stratification of the aggregated CRG groups (ACRGs)
  - Additional International code set support

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PFEs
Patient Focused Episodes

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Overview and use case

3M Patient Focused Episodes – Overview and use case

- A population-based classification system that identifies episodes based on diagnoses and procedures reported from patient claims and encounters during an extended time period

- More specifically, a categorical clinical classification system that is patient-focused. An episode includes all costs of patient-provider encounters during the user defined episode period. This is important because patients with comorbidities account for most health care spending

- The grouping output contains episodes, with aggregated costs and services that relate to various time segments that make up the episode period (e.g., post acute, pregnancy term).

- PFEs can be used for population health analysis, episode of care payment policy, and quality measures or to gain insights on where to reduce cost and improve outcomes.

Patient Focused Episodes – Overview and use case

3M PFEs can be used by organizations interested in improving system-wide health care performance, provider profiling and payment reform. Examples include large integrated delivery systems, payers, accountable care organizations, government agencies, employers and research groups

Use

Population Health Management

- Identifying cohorts and prevalence of individual chronic and acute conditions, to manage
- Episode focused areas of research on targeted chronic disease or other episode areas

Risk Adjusted Payment

- Event-based bundled payment using 3M's Patient-Focused Episodes, risk adjusted by 3M's Clinical Risk Groups

Quality Measurement

- Total episode service utilization and cost of care
- Post-acute care measures (rates, cost)
- Episode Drill Down (overlay PPEs)
- Public Reporting and transparency of episode price

3M Patient Focused Episodes - Post acute care service rates

Researchers used PFEs to report PAC facility admission rates by geographical location, identifying variation and potential areas for improvement

"Hospitals are responsible for arranging an appropriate post-discharge setting for a patient…

To consider a PAC facility admission to be associated with a prior hospitalization, it should occur within a reasonable period of time following hospital discharge. A 4-day post-acute window was selected…

Based on a risk-adjusted comparison to the national 4-day PAC facility admission rate, there was substantial variation in the 4-day PAC facility admission rate across census regions and states with the northeastern states having higher risk adjusted 4-day PAC facility admission rate"

-- Averill, Fuller, Mills 2021
https://multimedia.3m.com/mws/media/2051382O/report-geographic-variation-in-post-acute-care-facility-admissions.pdf

Geographic Variation

Table 2 contains the %(A-E)/E for 4-day PAC facility admissions using the national norm for the nine census regions. The Mountain and the West South Central census regions have the best performance at 11.09% and 10.65% below expected, respectively. New England and the Middle Atlantic region have the poorest performance at 19.88% and 13.77% above expected, respectively. The East North Central was also above expected (3.60%) while all other census regions were below expected.

Table 2: %(A-E)/E for 4-day PAC Admissions using national norm by census region

Census Region	States	Eligible Discharges	4-day PAC Facility Admissions	%(A-E)/E National Norm
New England	ME, VT, NH, CT, MA, RI	416,227	115,755	19.88
Middle Atlantic	NY, NJ, PA	1,019,489	268,978	13.77
South Atlantic	FL, GA, SC, NC, VA, WV, DC, MD, DE	1,674,877	373,473	-2.99
E North Central	IL, WI. MI, IN. OH	1,193,552	290,139	3.60
E South Central	KY, TN, AL, MS	550,162	122,034	-2.76
W South Central	TX, OK, AR, LA	769,032	158,852	-10.65
W North Central	MN, IA, MO, KS, NE, SD, ND	573,044	133,976	-1.11
Mountain	AZ, NM, UT, CO, NV, WY, ID, MT	413,032	88,087	-11.09
Pacific	CA, OR, WA, HI, AK	825,821	185,415	-7.69
Nation		7,435,236	1,736,709	0.0

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3M Patient Focused Episodes – Definition and examples

Definition

Patient-focused Episodes (PFEs) are a categorical clinical model that defines episodes of care to reflect a patient's total burden of illness, not merely the presence of a single disease. The PFEs simultaneously quantify the patient's acute and post-acute resource needs, taking into account both the immediate need for care and baseline health status. The methodology was designed for purposes of payment, utilization analysis, and clinical insight.

Risk Adjustment

After episodes have been defined, they are cross-tabulated by 3M Clinical Risk Group (ACRG) to capture the impact of a patient's baseline health status on resource use during an episode of care.

PFE Examples (n = 453)

Event-Based Episodes (n = 330)

Inpatient Surgical Event (n = 120)
- 1622 Aortic Valve Procedures

Inpatient Medical Event (n = 127)
- 1381 Bronchiolitis & RSV Pneumonia

Outpatient Procedure Event (n = 74)
- 0470 Level II Arthroplasty

Outpatient Medical Event (n = 9)
- 1454 Status Asthmaticus

Cohort Episodes (n = 123)

Chronic Cohort (n = 93)
- 0020 Parkinson's Disease

Acute Cohort (n = 23)
- 0420 Cerebrovascular Infarction

Pregnancy Cohort (n = 6)
- 5401 High Risk Pregnancy w Delivery

Population Cohort (n = 1)
- 0000 Population

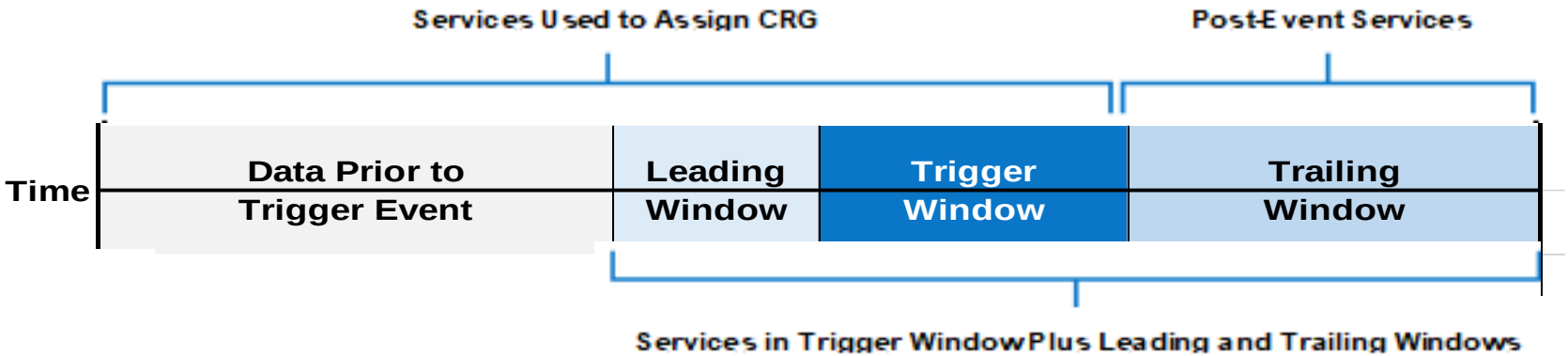
3M Patient Focused Episodes – Event-based episodes

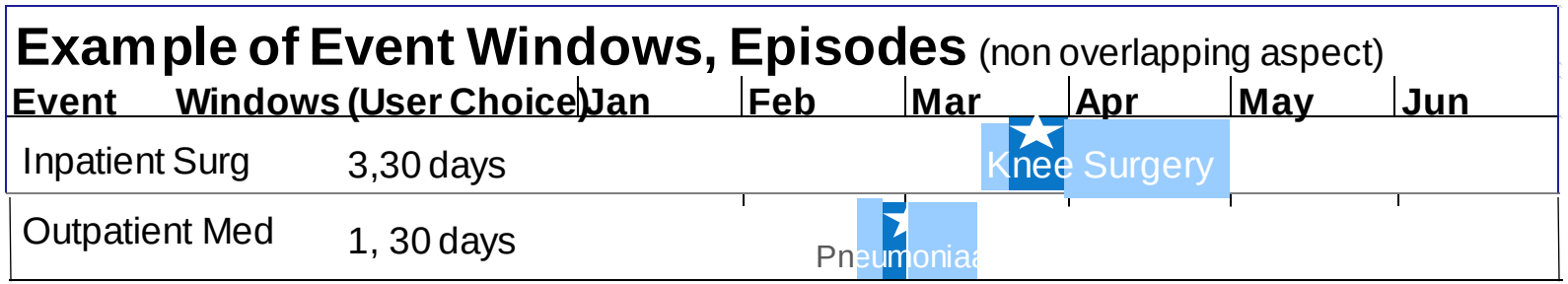
Triggered by a significant healthcare event

- Hospital inpatient event classified by APR DRG
  - May be split into separate PFEs by diagnosis or procedure when patterns of post-acute care differ
  - Example: APR DRG 021 Craniotomy → PFEs 0211, 0212, 0213, 0214
- Outpatient event (hospital outpatient or physician clinic) classified by EAPG
- Episode length is defined by user to include leading, trigger, and trailing windows
- A patient is in only one episode at a time

Inpatient Surgical Event (n = 120)	Inpatient Medical Event (n = 127)	Outpatient Procedure (n = 74)	Outpatient Medical Event (n = 9)
Examples • 1622 Aortic Valve Procedures • 2251 Laparoscopic Procedures for Appendix	**Examples** • 1381 Bronchiolitis & RSV Pneumonia • 7531 Bipolar Disorders	**Examples** • 0990 Coronary Angioplasty • 1910 Level I Fetal Procedures	**Examples** • 1454 Status Asthmaticus • 7320 Cellulitis

3M Patient Focused Episodes – Event Based Episodes





Options for PFE specification

- Leading window: 0, 1, 3, or 7 days or user-specified days
- Trailing window: 7, 15, 30, 60, 90 or user specified days
- Window for CRG: 90, 180, 365, or user-specified days
- Financial options: Aggregate, Estimate, Outlier indications
- Readmission logic: none, all-cause, potentially preventable
- Adjustment options for truncated episodes

Choose Services

Institutional Services
- □ Inpatient Hospital Facility (FI)
- □ Skilled Nursing Facility (FN)
- □ Extended Care Facility (FX)
- □ Hospice Facility (FH)
- □ Other Facility (FM)

Outpatient Hospital Services
- □ Emergency ER Facility (FE)
- □ Outpatient Hospital Facility (FO)
- □ Outpatient Surgery Facility (FS)

Professional Services
- □ Professional Office (PZ)
- □ Professional Inpatient (PI)
- □ Professional Outpatient (PO)
- □ Professional Ancillary Service (PA)
- □ Professional Extended Care (PX)

Other Services
- □ Home Health (HH)
- □ Outpatient/Professional Pharmacy (DD)
- □ Retail pharmacy (DX)
- □ Outpatient/Professional Laboratory (LL)
- □ Outpatient/Professional Radiology (RR)
- □ Outpatient/Professional DME (EE)

3M Patient Focused Episodes – Cohort-based episodes

Includes members who share a common disease, condition, or characteristic

- Cohort episodes are defined in a time window
  - Includes all costs – no arbitrary attempt to divide costs into comorbidities
  - Cohort PFEs therefore suitable for the most complex and most expensive patients
- Episode Diagnostic Categories (EDCs) and Diagnostic Subgroups (DSGs) used to assign cohort episodes
- Members can be assigned to more than one cohort during the analysis period

Chronic (n = 93)

- Occurs when specific EDCs appear in CRG results
- Enables analysis over, e.g., 180 days
- All chronic PFEs have the same start date (e.g., January 1)

Examples
- 4240 Diabetes
- 6060 Sickle Cell Anemia

Acute (n = 23)

- Starts when the progression of a chronic disease results in a major acute manifestation
- Enables analysis over, e.g., 180 days, unlike event-based PFEs that may be terminated by a new event

Examples
- 0420 Cerebrovascular Infarction
- 3260 Hepatitis

Pregnancy (n = 6)

- Starts with first pregnancy DSG
- Ends with delivery or termination
- Post-pregnancy time (e.g., 30 days) can be included

Examples
- 5401 High Risk Pregnancy w Delivery
- 5461 Normal Pregnancy w Delivery

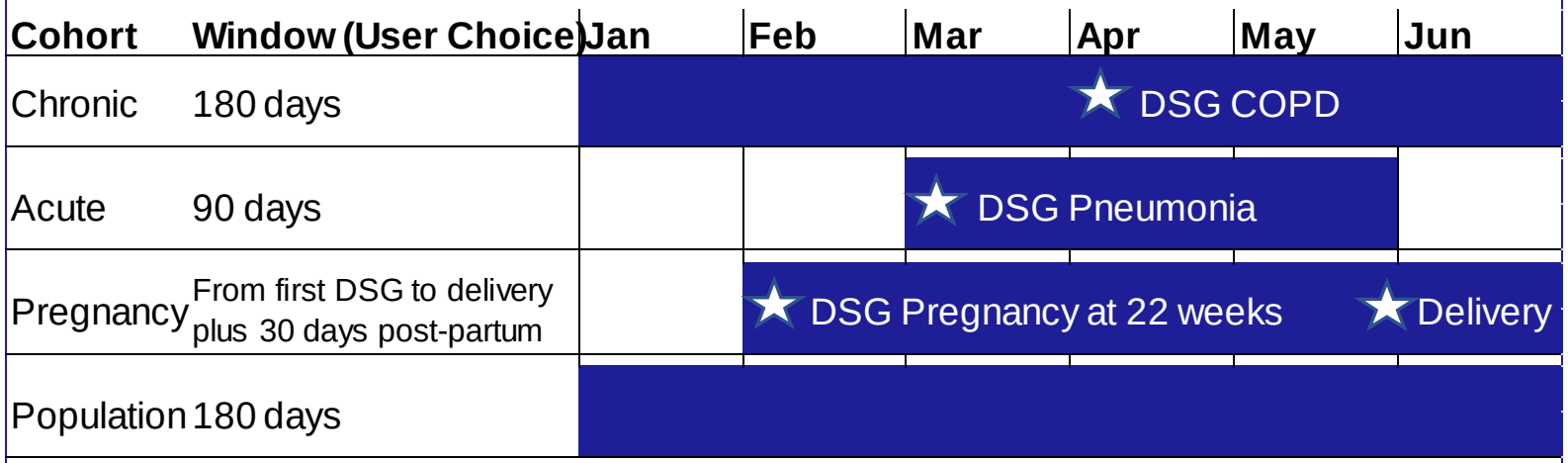
Population (n = 1)

- All individuals are included in the population cohort, regardless of whether or not they had other episodes
- Enables analysis across the entire population

Example
- 0000 Population

3M Patient Focused Episodes – Cohort-based episodes

Example of Cohort Windows, Episodes



Notes

1. DSG = Diagnostic Subgroup. EDC = Episode Diagnostic Category. COPD = chronic obstructive pulmonary disease

2. The CRG analysis window is not shown. Its relationship to the cohort window depends on whether the analysis is concurrent or prospective. See the PFE Setup Guide for details.

Options for PFE Specification

- Cohort selection: Chronic, Acute, Pregnancy, Population
- Window length: Acute-15, 30, 60, 90; Chronic, Population–90, 180, 365; Pregnancy-Term, Term + 30
- Prospective or concurrent and window for CRG: 90, 180, 365
- Financial options: Aggregate, Estimate, Outlier indications
- Adjustment options for truncated episodes

Choose Services

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- □ Extended Care Facility (FX)
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- □ Retail pharmacy (DX)
- □ Outpatient/Professional Laboratory (LL)
- □ Outpatient/Professional Radiology (RR)
- □ Outpatient/Professional DME (EE)

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Recent developments and what's next

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3M Patient Focused Episodes – Recent developments

- v2.0.1 new in 2022:
  - New Episode flag to identify Post Acute Care Facility SNF Admissions
- Activities toward future development includes:
  - Expanded weights across episodes, by payer type
  - Additional Post Acute Care event useful metrics
  - Targeted Episode Cohort research
    - Maternity
    - Oncology
    - Chronic Kidney Disease

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Q & A

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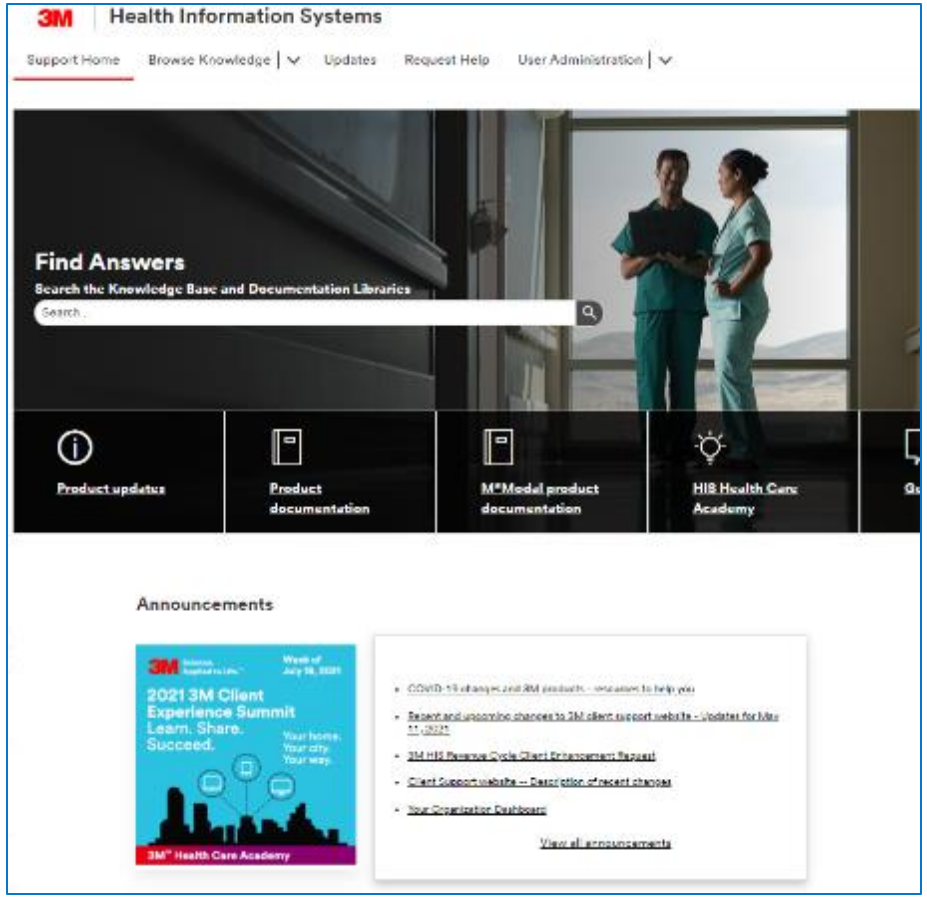
Resources

Detailed patient classification material for customers at support.3mhis.com



Search for "Patient Classification Methodologies"

3M HIS patient classification methodologies

Answer ID	49713	Document ID	PRD960
Created Date	01/25/2019	Last Modified	10/01/2021
Usergroups	Non-Compete Vendors, Customers		

Description

The methodology overview documents and webinar recordings for 3M HIS patient classification methodologies listed in the first and last columns below are available to all users regardless of license. To access other documents and content linked here you must license a software component that uses the associated classification methodology.

- Click here to access more information about our methodologies on the public 3M HIS website.
- Overview of Claims and Code Sets in Health Care (webinar - 37 minutes)
- Overview of 3M Patient Classification Methodologies (webinar - 34 minutes)
- Recommendations for updating 3M APR DRG and 3M EAPG payment methods

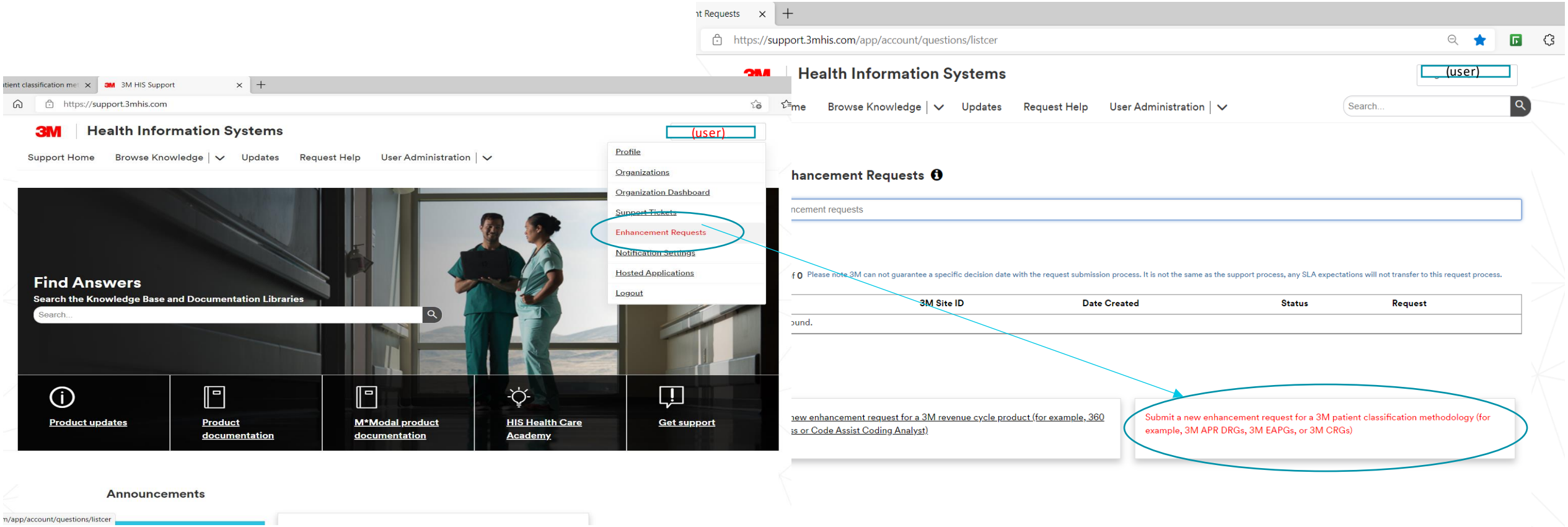
*Software license required for access

APR DRG (includes Risk of Mortality - ROM)
Methodology overview: v39.0
*Definitions manual: v39.0 vol. 1 | v39.0 vol. 2 | v39.0 vol. 3 | More versions
*Summary of changes: v39.0 | More versions
*Statistics files: v39.0 HSRV | v39.0 Traditional | More versions
Webinar recordings: 3M APR DRGs 101
*Methodology training: Go to the HIS Health Care Academy, click on the Catalog, then search for the course ID: 0225
Release cycle: new version released annually

EAPG
Methodology overview: v3.16 | v3.15
*Definitions manual: See all versions
*Summary of changes: v3.16 | v3.15 | More versions
*Statistics files: EAPG weights | EAPG code listings
Webinar recordings: 3M EAPGs 101
*Methodology training: Go to the HIS Health Care Academy, click on the Catalog, then search for the course ID: 0227
Release cycle: quarterly code update; new version released annually

CRG
Methodology overview: v2.2 | v2.1 | v2.0
*Definitions manual: v2.2 | v2.1 | v2.0 | More versions
*Summary of changes: v2.2 | v2.1 | v2.0 | v1.12 | More versions
*Statistics files: v2.2 | v2.1
Webinar recordings: 3M CRGs 101
*Methodology training: Go to the HIS Health Care Academy, click on the Catalog, then search for the course ID: 0228
Release cycle: annual code update

Methodology enhancement requests for customers at support.3mhis.com



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Contact Information

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Appendix CRGs – Additional use and logic detail

3M Clinical Risk Groups use in capitated payment

- Since 2008, NY Medicaid has used CRGs to calculate case mix-adjusted MCO capitation rates
- PMPM base rate x risk score = PMPM payment
  - FY base rate reflects historical average cost by region and eligibility group, trended forward with adjustments
  - FY risk score is the historical average CRG case mix
- Example: TANF children in Mid-Hudson region
  - Plan A: $188.86 x 0.9452 = $178.51
  - Plan B: $188.86 x 1.0732 = $202.68
  - Each plan may also receive plan-specific add-ons, e.g., quality incentives
- Creates strong incentive to economize while paying more to plans that serve sicker members

Why Pay by CRG?

- More fairly reimburse plans with a more severe case mix of members
- Variation in reimbursement from plan to plan is based on member health status rather than inefficiencies

-- NY Department of Health submission to CMS, 3/31/2009

Source: 3M. Total spending and membership are 2019 data from the CMS-64 report and the Kaiser Family Foundation

3M Clinical Risk Groups use in children's hospital research

- Researchers used CRGs to conclude that the greatest growth in inpatient growth at 28 children's hospitals was in the cohort of children with chronic conditions in two or more body systems

  -- Berry et al., *JAMA Pediatrics*, 2012

- "The CRG grouper is a powerful tool for identifying and tracking patients over time."

  -- Children's Hospital Association, *Coordinating All Resources Effectively for Children with Medical Complexity,* 2016

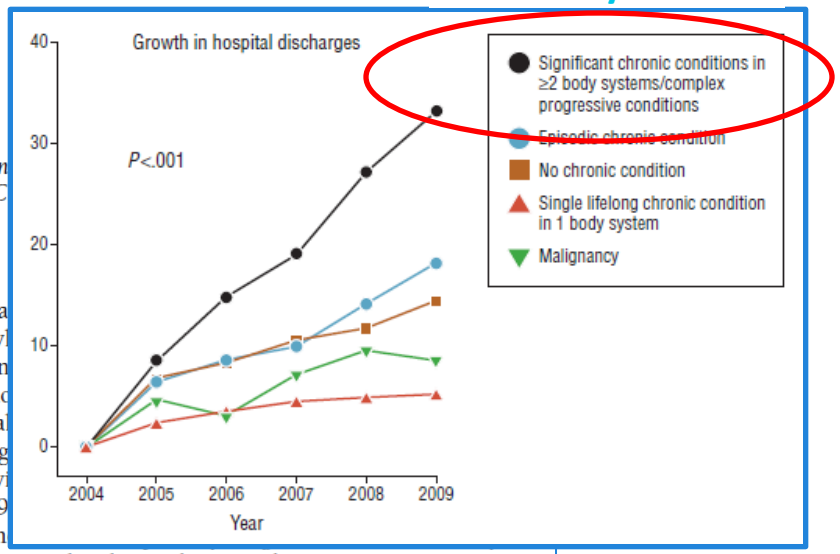
ARTICLE

Inpatient Growth and Resource Use in 28 Children's Hospitals

A Longitudinal, Multi-institutional Study

Jay G. Berry, MD, MPH; Matt Hall, PhD; David E. Hall, MD; Den
Rishi Agrawal, MD, MPH; Kenneth D. Mandl, MD, MPH; Holly C

Defined by CRG



Objective: To compare inpatient resource use trends for healthy children and children with chronic health conditions of varying degrees of medical complexity.

Design: Retrospective cohort analysis.

Setting: Twenty-eight US children's hospitals.

Patients: A total of 1 526 051 unique patients hospitalized from January 1, 2004, through December 31, 2009, who were assigned to 1 of 5 chronic condition groups using 3M's Clinical Risk Group software.

Intervention: None.

Main Outcome Measures: Trends in the number of patients, hospitalizations, hospital days, and charges analyzed with linear regression.

Results: Between 2004 and 2009, hospitals experienced a greater increase in the number of children hospitalized with vs without a chronic condition (19.2% vs 13.7% cumulative increase, $P<.001$). The greatest cumulative increase (32.5%) was attributable to children with a signifi-

spectively, observed among these patients.

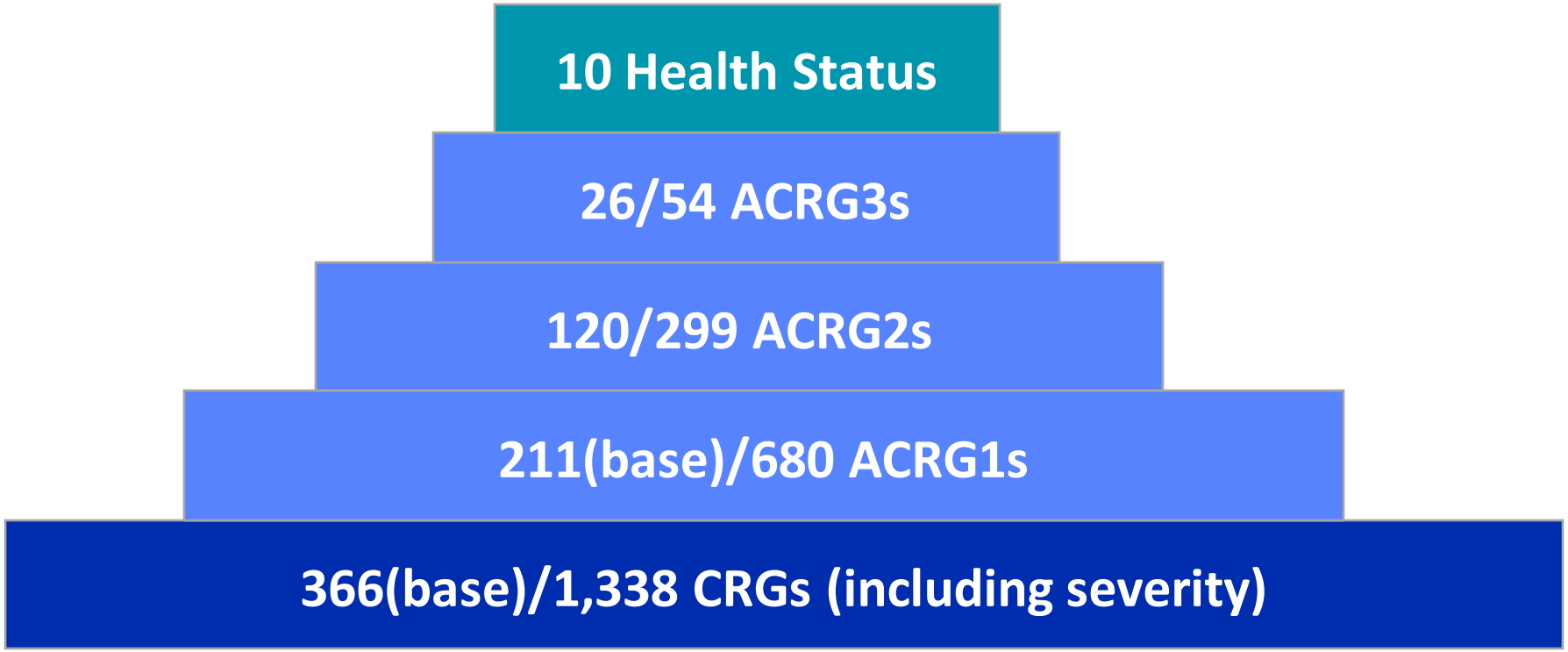
Conclusions: Patients with a chronic condition increasingly used more resources in a group of children's hospitals than patients without a chronic condition. The greatest growth was observed in hospitalized children with chronic conditions affecting 2 or more body systems. Children's hospitals must ensure that their inpatient care systems and payment structures are equipped to meet the protean needs of this important population of children.

JAMA Pediatr. 2013;167(2):170-177.
Published online December 24, 2012.
doi:10.1001/jamapediatrics.2013.432

3M Clinical Risk Groups – Aggregations for flexibility in use

CRG Aggregations

v2.2 Concurrent



3M Clinical Risk Groups – Aggregation example

- CRGs can be rolled up at several levels of aggregation, at either the base or base + severity level

Aggregation level	Example: person with illnesses in 3 body systems			CRG v2.2: number of groups			
	CRG assignments for this individual			Concurrent Version		Prospective Version	
	Base	Base + Severity	Description	Base	Base + Severity	Base	Base + Severity
CRG	7060	70602	CHF - diabetes – COPD (severity 2)	366	1,338	356	1,328
ACRG1	70100	701002	Triple – CHF and COPD and diabetes (severity 2)	171	680	179	670
ACRG2	700	7002	CHF and two other dominant chronic diseases (severity 2)	93	299	102	289
ACRG3	72		Dominant chronic disease in three or more organ systems (severity 2)	20	54	23	50
Health Status Group	7		Dominant chronic disease in three or more organ systems	10		10	

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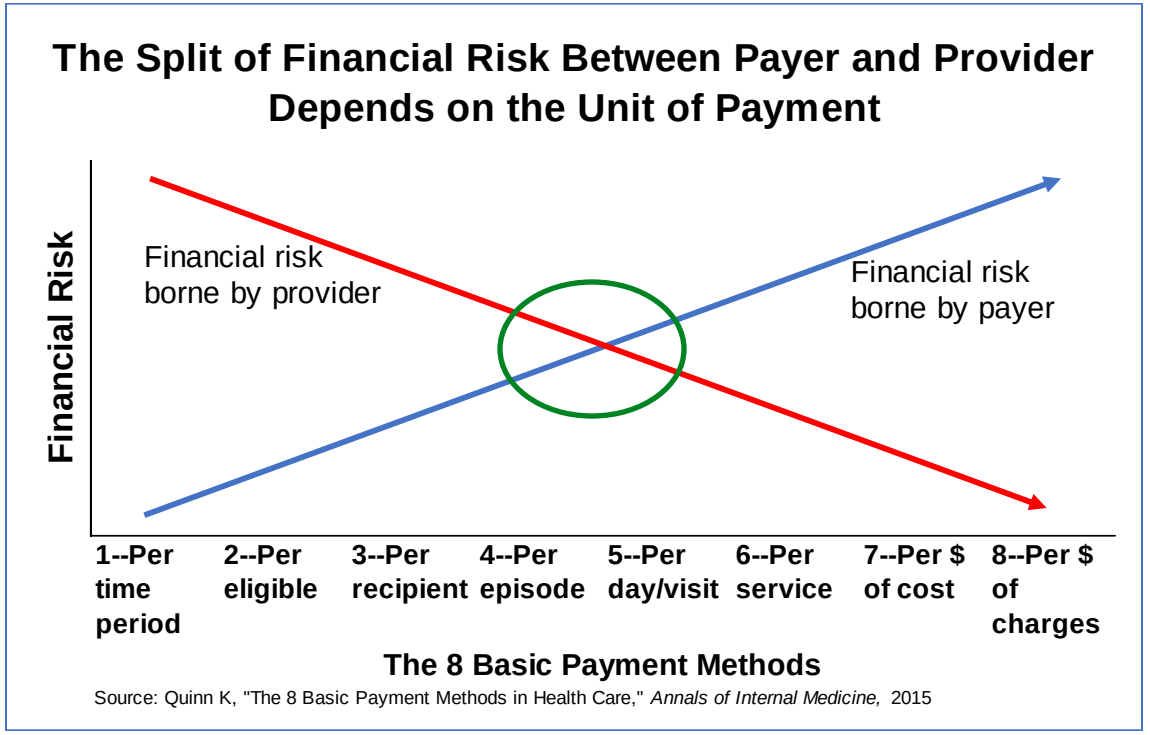
Appendix PFEs – Additional use and logic detail

3M Patient Focused Episodes – payment middle ground

- Episode = A single comprehensive unit of service for the treatment of a patient
- Episodes rendered:
  - Across a specified time interval
  - Across multiple settings
  - Across multiple providers
- Episode bundled payment is middle ground of financial risk between payer and provider



3M Patient Focused Episodes – Post acute care service cost

"How do I calculate casemix-adjusted expected values? Where are we doing well and where could we do better?

"We multiply our volume of episodes times the benchmark spending per episode. Let's look at health status 7 as an example. We see that spending on hospital outpatient care is $224,350 less than expected (that's good) but readmission spending is $609,130 more than expected. That's an opportunity"

Actual = 30 x $2,700
Expected = 30 x $2,841

Our Health Plan: Total Spending for Post-Event Care, Actual vs Expected												
ACRG4	Service Type	Act & Exp	Severity 1		Severity 2		Severity 3		Severity 4		Severity 5		Total	
Status 7:	**Total episodes**		**10**		**30**		**100**		**110**		**300**		**550**	
Three or More Dominant Chronic Diseases	Hosp outpatient	Actual	$	40,000	$	81,000	$	280,000	$	319,000	$	1,050,000	$	1,770,000
		Expected	$	66,450	$	85,230	$	296,400	$	318,670	$	1,227,600	$	1,994,350
		Act - Exp	$	(26,450)	$	(4,230)	$	(16,400)	$	330	$	(177,600)	$	(224,350)
	Readmissions	Actual	$	89,000	$	420,000	$	1,300,000	$	1,540,000	$	7,800,000	$	11,149,000
		Expected	$	89,030	$	381,690	$	1,260,900	$	1,478,950	$	7,329,300	$	10,539,870
		Act - Exp	$	(30)	$	38,310	$	39,100	$	61,050	$	470,700	$	609,130

3M Patient Focused Episodes – Logic process

- 330 event-based episodes based on APR-DRG, EAPG grouping concepts
- 123 cohort episodes based on CRG grouping concepts

- Based on Clinical Risk Groups (CRG)

- Based on type of financial indicator you choose

- Dynamically calculated based on benchmark database and user choices
- Breaks costs by 19 service types