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Measuring Hospital Readmission as an Outcome for Care Management Programs

DMAA: The Care Continuum Alliance
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Reducing Hospital Readmission

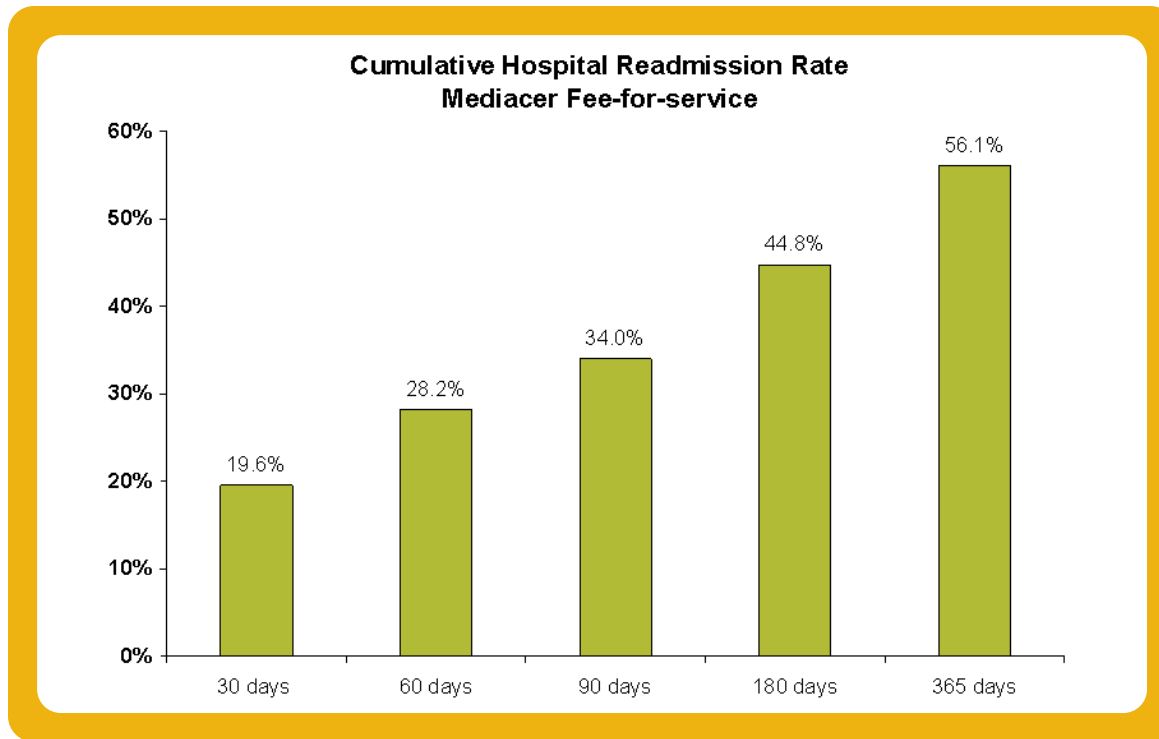
An important area in managing increasing healthcare costs

- According to the Medicare Payment Advisory Commission, the government spends an estimated **\$12 billion a year on “potentially preventable” readmission** for Medicare patients.
- According to Department of Health and Human Services Secretary Kathleen Sebelius, the Obama administration and Congress have both named the **reduction of readmissions as a target area for health reform**.
- Proposals on how to drive down readmission range from **cutting Medicare reimbursement** for hospitals with high readmission rates to funding **follow up educational efforts** for discharged patients.
- The **readmission issue is also cited frequently in media** coverage of healthcare, reflecting increased general interests.
 - *Cutting Repeat Hospital Trips - Simple Idea, Hard to Pull Off*, The Wall Street Journal, July 28, 2009

More than Half of the Medicare FFS Patients Were Rehospitalized Within One Year*

■ ■ ■ For Medicare Fee-for-Service Program

- 30 day readmission rate is 19.6%
- One-year readmission rate is 56.1%

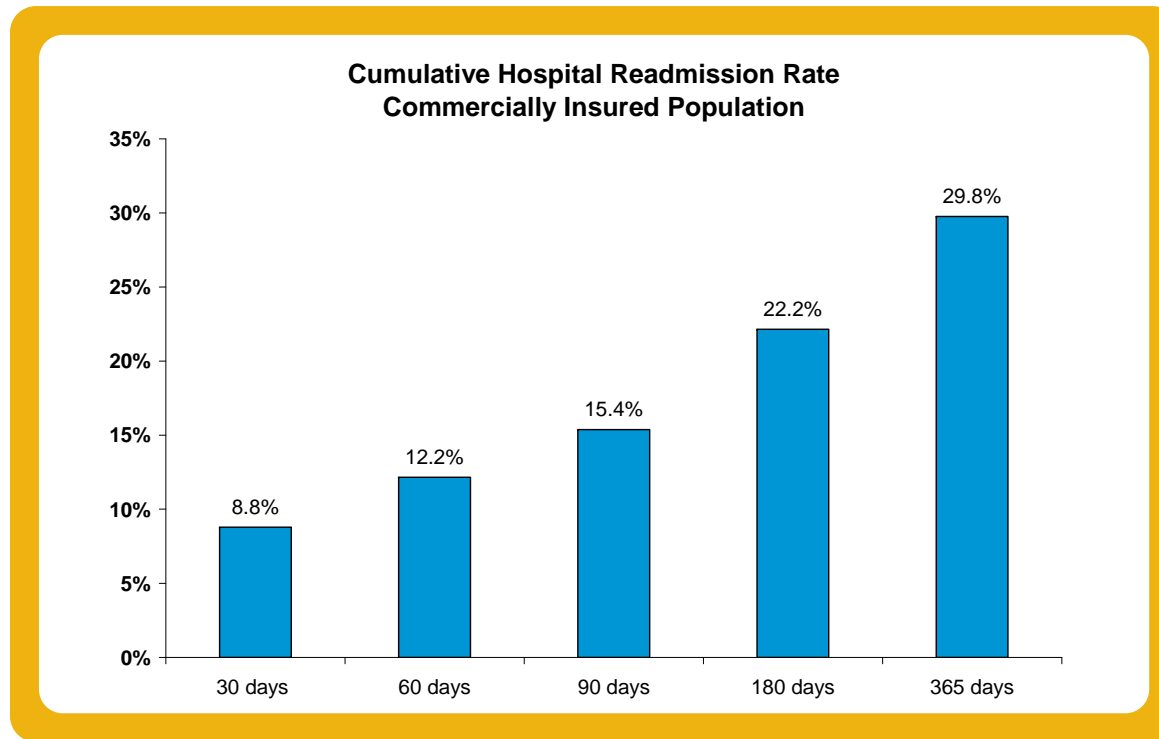


* **Rehospitalization among patients in the Medicare Fee-for-Service Program**, by Jencks, etc. New England Journal of Medicine 2009 360.

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Readmission is also an Issue for the Commercially Insured Population



- For a commercially insured client
 - 30 day readmission rate is 8.8%
 - One-year readmission rate is 29.8%



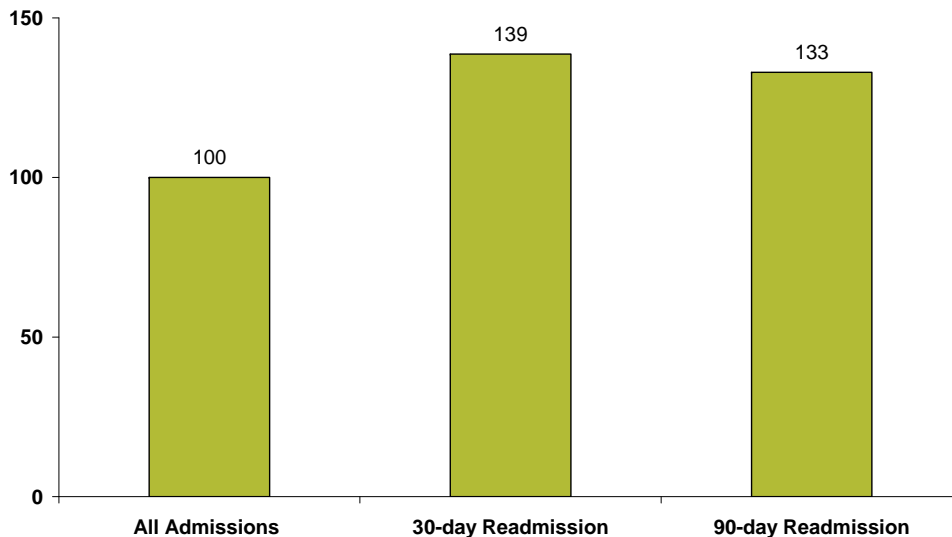
Unless otherwise noted, all data shown from this point on are based on a commercial clients of HMC with 1.31 million total members.

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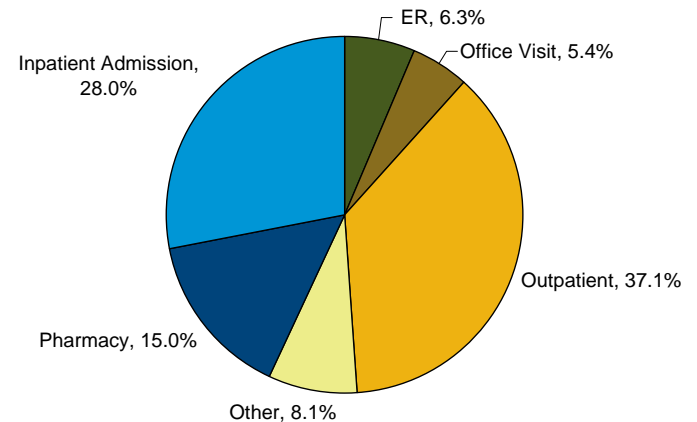
The Readmission Cost is High

-  The average costs for readmissions is 30-40% higher than the average cost of acute hospital admissions
-  For commercially insured population, the acute inpatient cost accounts for 28% of the total claims cost while the 90-day hospital readmission cost accounts for 4.8% of the total claims costs.

Average Costs per Admission
Indexed to Average Cost of All Acute Inpatient Admissions

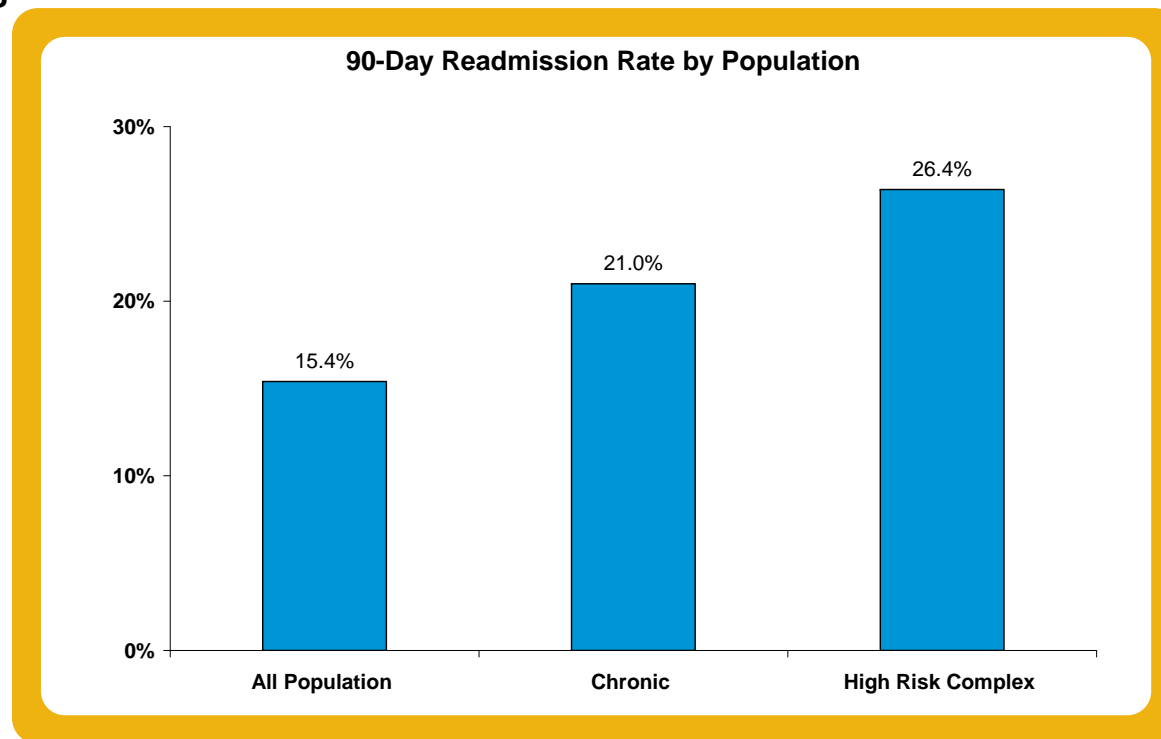


Claims Cost by Service Type



Many Care Management Programs Attempt to Reduce Hospital Readmission

- The readmission rate is high in the targeted populations for typical care management programs
- Reducing admissions in these segments is an essential to achieving cost savings



The chronic population consists of members who meet HMC Disease Management program criteria. The High Risk Complex population are those members with top 1% high cost risk and high hospitalization risk.





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CMS is Taking Steps to Reduce “Unnecessary and Avoidable” Hospital Readmissions

- CMS sought public comment on three proposals to take the financial reward out of readmissions:
 - Direct adjustments to DRG payments for preventable readmissions
 - Adjustments to DRG payments through a performance-based payment methodology
 - Public reporting of readmission rates, according to the IPPS rule
- Starting in July, 2009, CMS began publishing three readmission measures (30-day readmission rates for patients admitted for heart failure, acute MI and pneumonia) to its Hospital Compare website.
- In May, 2009, CMS announced the 14 communities around the nation that have been chosen for the Agency’s Care Transitions Project, seeking to eliminate unnecessary hospital readmissions through targeted interventions.

Measuring the Readmission Rate

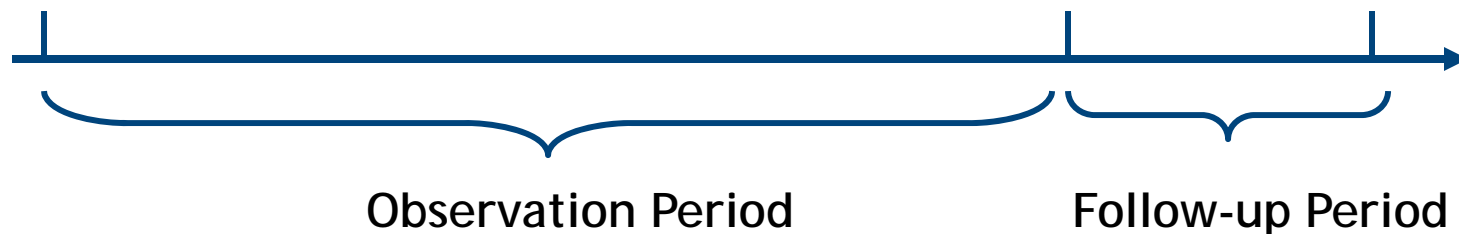
As programs are developed to address the readmission issue, the readmission rate should be considered one of the potential outcome measures. There is not a universally acceptable way to measure readmission as an outcome measure. Many factors could impact the measurement of readmission rate. A few key factors are examined:

-  The definition of readmission rate
-  The length of time from the index admission to readmission
-  All readmission vs. related readmission
-  The inclusion and exclusion criteria

The First Definition of Readmission Rate



- Based on number of admissions

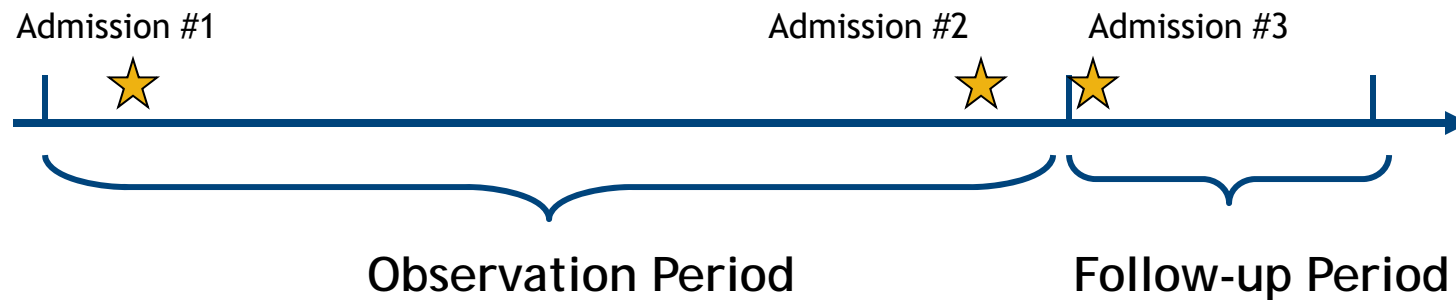
- The denominator: all acute hospital admissions in a defined period that meet the inclusion criteria.
 - These admissions serve as the *Index Admissions*, or the initial admissions.
 - For practical purpose, all acute admissions within a defined period are used as denominator. This period, which could range from a quarter to a year, is called the *Observation Period*.
- The numerator: the number of acute admissions within the defined number of days following an index admission of the same member
 - *Only one* readmission is counted for each index admission
 - Claims in a certain period following the observation period are needed to provide an equal chance to observe readmission for every index admission. This additional time period is called the *Follow-up Period*



The Second Definition of Readmission Rate

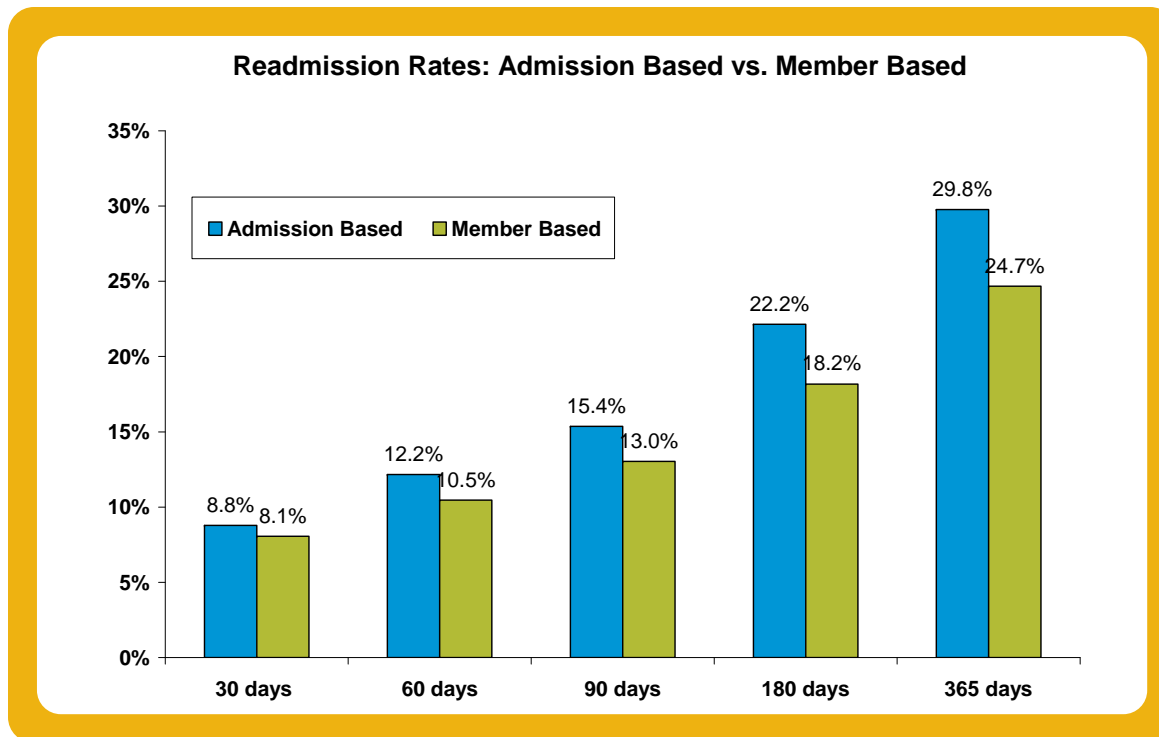
- Based on number of members

-  The denominator: all members with at least one acute hospital admission in a Observation Period that meet the inclusion criteria.
 - All admissions for the same member in the Observation Period could serve as the Index Admissions for the member
-  The numerator: the number of members with an acute admission within the defined number of days following any index admission of the same member



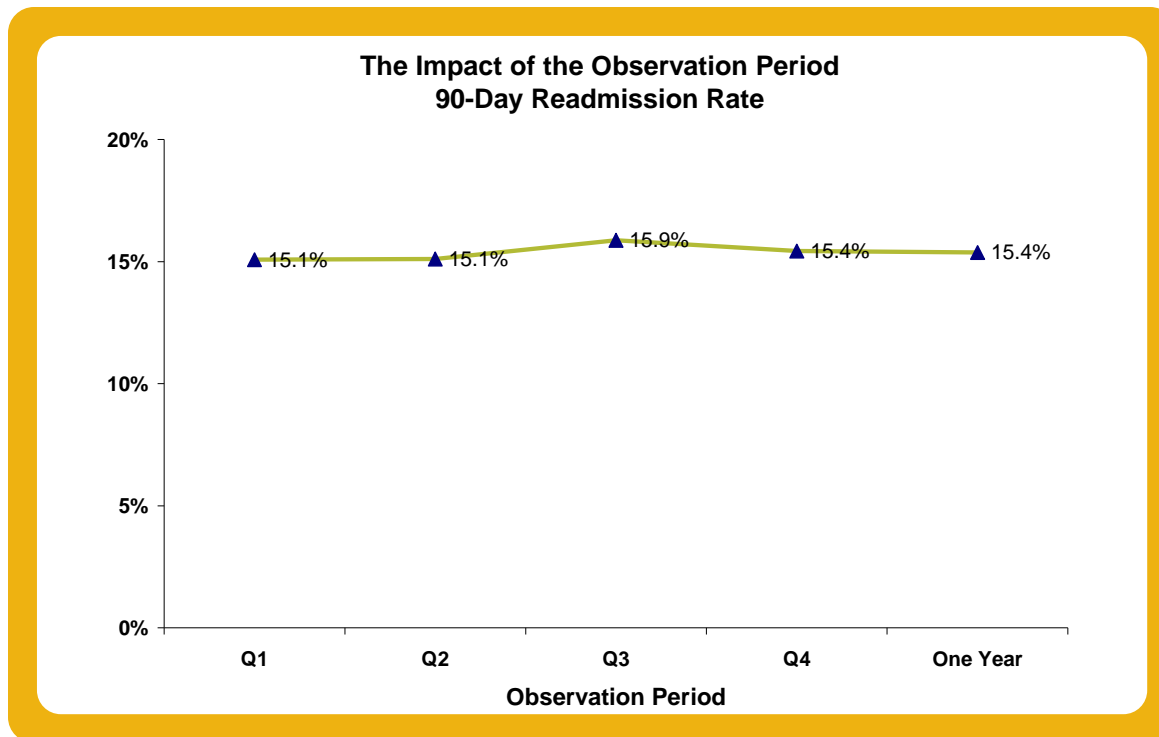
Comparison of Admission-Based and Member-Based Readmission Rates

- As expected, the admission-based definition yields higher readmission rates than the member-based readmissions
- 90-day readmission rate is 15.4% for admission-based definition and 13.0% for member-based definition



The Impact of Choosing an Observation Period

- Using a three-month observation period seems to yield very similar readmission rates compared to using a one-year observation period
- Further more, it appears that there is little seasonality impact. The readmission rates remain pretty steady regardless of which three-month period is chosen



The Time to Readmission

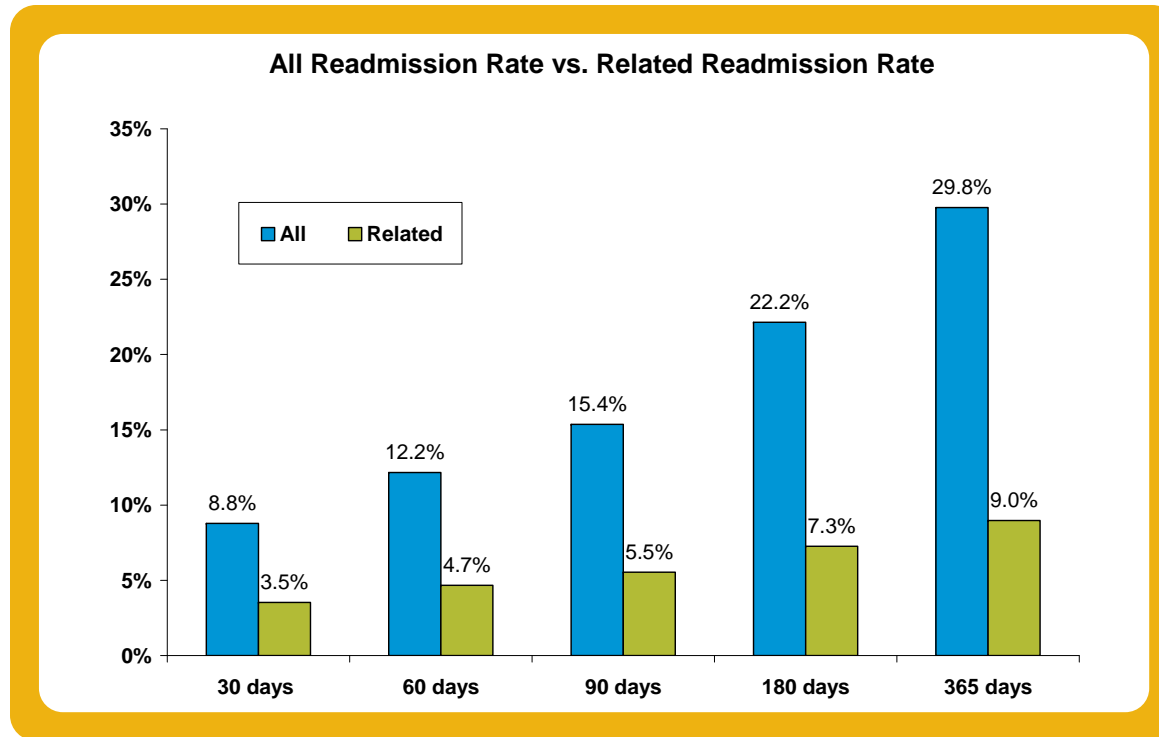
- For most conditions the readmission rate is only relevant within a finite period. The 30-day readmission is the focus on most policy consideration thus the focus in most literature.
- To measure the effectiveness of a care management program, however, the time to readmission may depend on the design of the program.
 - For a retrospective Case Management program designed specifically to manage hospitalizations with complex care needs, a 30-day readmission may be the best measure of the program impacts.
 - For a proactive complex care program designed to manage members with predicted high risk, however, 30 days may be too short a period due to the latency of claims. 90-day readmission rate may be more appropriate.

All-Cause Readmissions vs. Related Readmissions

- Greatest focus on readmissions concerns all-cause readmissions.
- For certain programs, it may be appropriate to only measure those readmissions that have the same or related diagnoses/conditions as the index admission
- There is limited research in the literature on how to define related readmissions
- We explored a simple method to define related readmission based on The Clinical Classification Software (CCS)
 - The index admission and readmission have the same CCS principal diagnosis categories or the same primary procedure categories
 - The principal diagnosis of readmission is a complication code

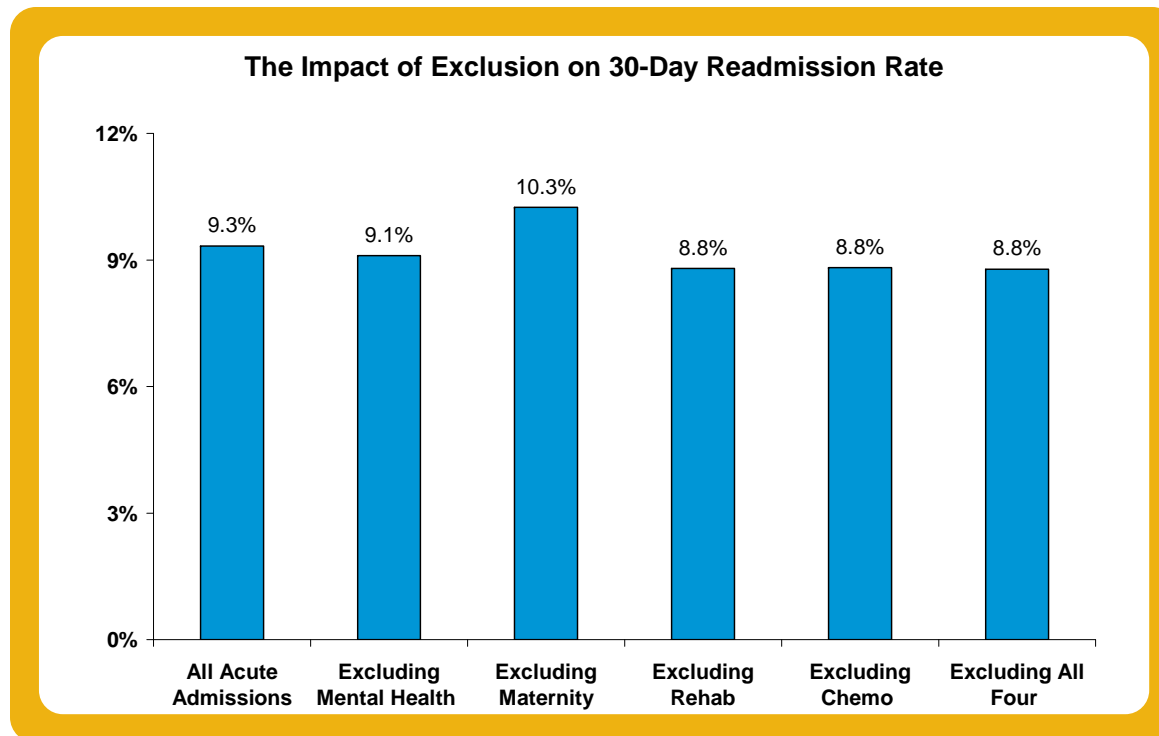
Comparison of All-Cause Readmission Rate and Related Readmission Rate

- As expected, all-cause readmission rates are much higher than related admission rates for the same population
- This definition of related admission, however, has its limitation in that it does not take into account multiple diagnoses/procedures associated with an inpatient admission.






The Inclusion/Exclusion Criteria

- Greatest interests in hospital readmission is for admissions to acute care hospitals.
- Admissions related to certain special conditions or treatments may also be excluded depending on the purpose of the assessment
 - Chemo- or radiotherapy related, Rehabilitation, Maternity or Mental Health



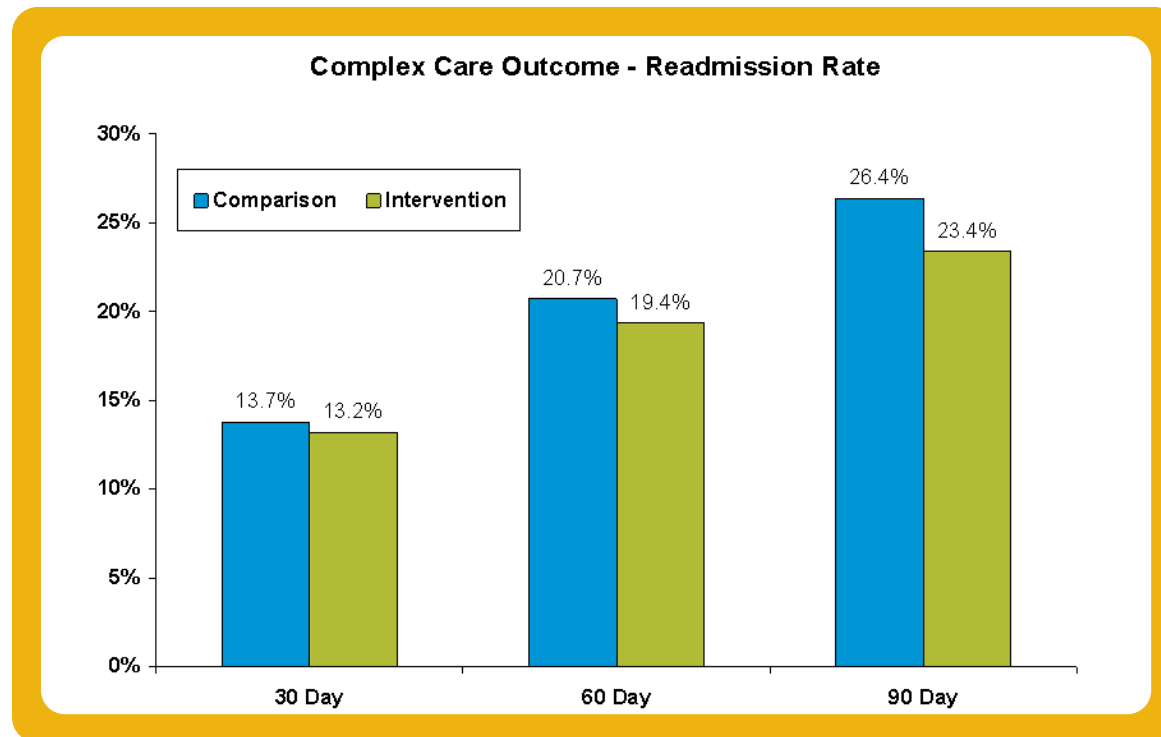
Case Study #1 – Complex Care Program

-  The program is designed to manage members with high predicted costs and high predicted likelihood of inpatient admission (excluding the members with major chronic conditions).
-  One of the primary outcomes is reducing cost of care by reducing ER visits, inpatient admissions and certain outpatient procedures
-  The result is from a Complex Care program for an HMC client with about 410,000 eligible members
 - The Intervention group consists of all intent-to-treat members, including both engaged and not engaged.
 - The Comparison group is a pseudo-control group that consists of members identified for the program, but who were not outreached due to operational limitations

The Complex Care Program Readmission Rate

- The specification of readmission rate
 - Admission based readmission rate, over one year observation period
 - 90-day all-cause readmission rate
 - Excluding chemo, rehab, mental health and maternity

■ The 90-day readmission rate in the Intervention Group is lower.



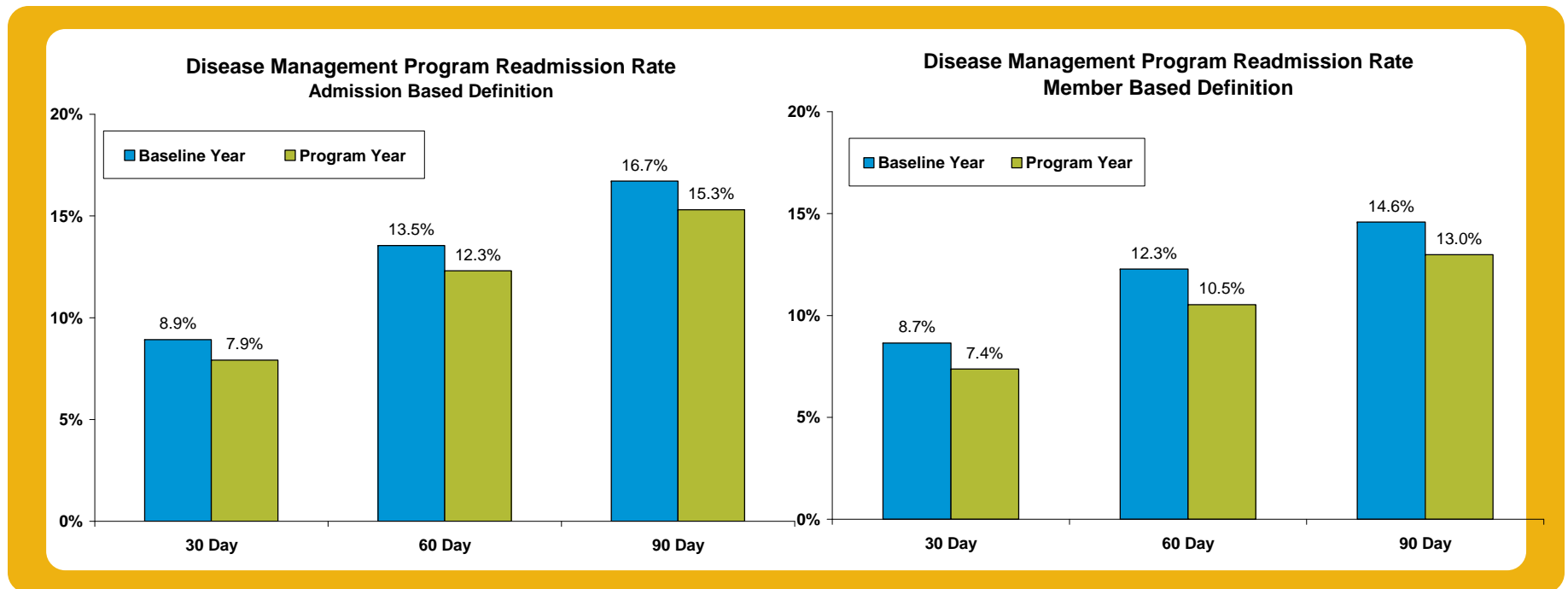
Case Study #2 – The Chronic Disease Management Program

- The program is designed to manage members with five chronic conditions - diabetes, asthma, congestive heart failure, coronary artery disease and COPD.
- The expected program outcome is improved clinical adherence through member education and reduced utilization of service and cost of care
- The result is from a Disease Management program for an HMC client with about 324,000 eligible members
 - A pre/post methodology consistent with the DMAA Guidelines was used to measure the outcome.
 - The Baseline Year (prior to the implementation of the DM program) is used as a comparison to the Program Year, when the DM program was introduced.


The Disease Management Readmission Rate


- The specification of readmission rate
 - Using claims based definition with one year observation period
 - Using 30, 60 or 90-day readmission rate with all-cause readmission
 - Excluding chemo, rehab, mental health and maternity


■ The readmission rate is lower for the program year






Potential Limitations of Measuring Readmissions

-  The program objectives: It is appropriate to measure readmission as an outcome only if it is part of the program's objectives to reduce inpatient admissions

-  Sample size concerns
 - The number of readmissions is low although the cost impact is very high
 - It may need a very large sample size (hundreds of thousands of eligible members) to measure a meaningful reduction in readmission rates
 - It may be best measured at book-of-business level instead of client level

-  Limitations of using readmission rate to measure readmission
 - For some programs the denominator (number of Index Admissions) could be impacted by the program intervention as well as the numerator (number of readmissions)
 - It is possible to use other alternative readmission measures to mitigate this limitation

Summary Results

-  Hospital readmission accounts for a significant portion of healthcare costs and a great deal of effort is being taken to reduce unnecessary and avoidable readmissions.
-  Readmission rate could be used as an outcome measure for programs designed to reduce inpatient admission or readmission. However, there are many factors, such as readmission rate definition, length to readmission, and type of readmission, that can influence the readmission rate. Understanding the impact of these factors is important when measuring readmission rate.
-  Depending on the nature of the program and its objectives, different readmission rates may be appropriate for measuring the outcome



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Questions?

and

Thank You!