Severity-of-Illness and Risk-of-Mortality Adjustment

3M Health Information Systems

3M *Innovation*

Welcome

Agenda & Presenters

Which of the following best describes your role?

Polls are closed.

Medical Director 🟥

Quality/Performance Management 🟦

Decision Support 🟨

Utilization/Case Management 🟩

Payer/Health Plan 🟪

Consulting/Data Processing/Software 🟧

Other ⬜

Poll

Severity of Illness and Risk of Mortality Adjustment

Definition:
Severity and Risk Adjustment

- To account for variances related to the patient's severity of illness and risk of mortality leaving the residual differences to reflect quality of care[1]

  - **Severity of Illness**: The extent of physiologic decompensation or organ system loss of function

  - **Risk of Mortality**: The likelihood of dying

  - **Resource Intensity**: The relative volume and types of diagnostic, therapeutic and bed services used in the management of a particular disease

[1] Iezzoni, L: The Risks of Risk Adjustment. JAMA, 278(19): 1600-1607, 1997

3M *Innovation*

Definition: Severity & Risk Adjustment

APR-DRGs Are A Categorical Clinical Model

- APR-DRGs are a clinical model that has been extensively refined with historical data
  - Different clinical models are developed for 316 different types of patients
  - Clinical models verified with data
  - Final decisions were always clinical
  - Clinical logic updated in May, 2003 (version 20)
  - Version 20 enhancements:
    - Relative weights, Indicators for effect of secondary diagnoses on SOI and / or ROM

3M *Innovation*

APR-DRGs Are A Categorical Clinical Model

APR-DRGs are an Open System

- Complete definitions manual containing all clinical logic is provided to all users
- User review and comment is encouraged
- As opposed to some severity of illness systems, APR-DRGs are not a "black box"
- We encourage your feedback on any aspect of the logic

3M *Innovation*

APR-DRGs are an Open System

Underlying Principle of APR-DRGs

Severity of illness and risk of mortality is dependent on the patient's underlying problem

High Severity of Illness and Risk of Mortality are characterized by multiple serious diseases and the interaction of those disorders

3M Innovation

Underlying Principle of APR-DRGs
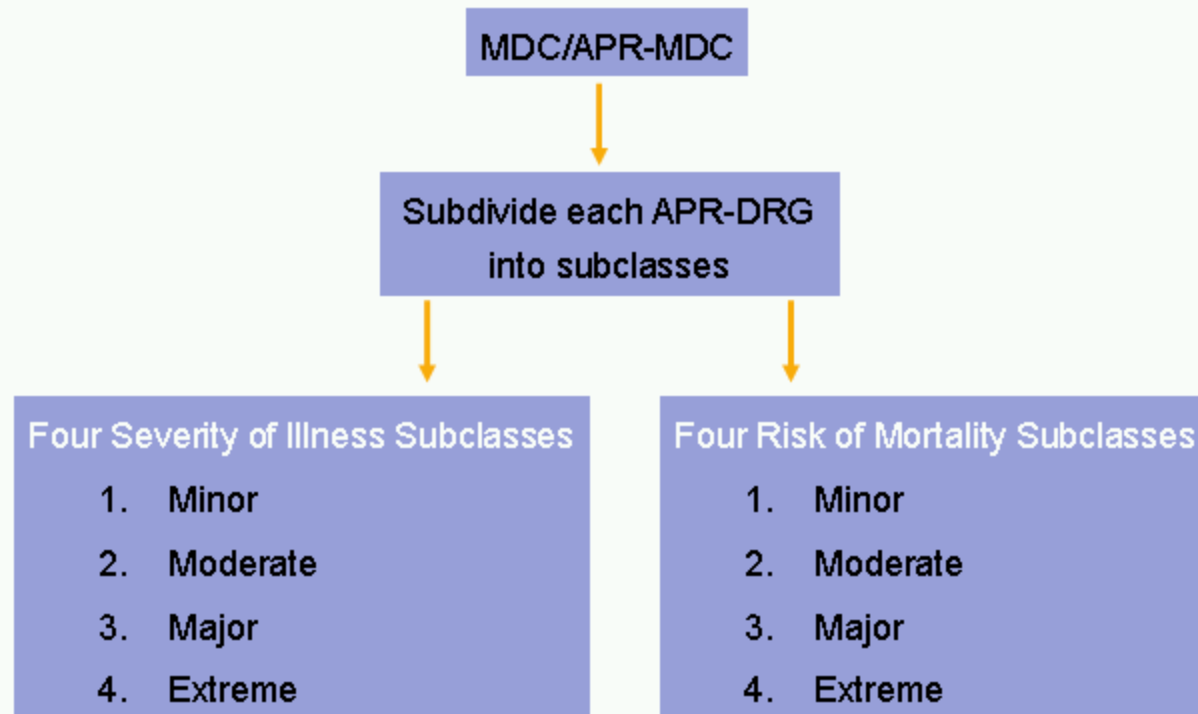
Summary of APR-DRGs

SOI and ROM are Independent

The severity of illness and risk of mortality subclass are calculated separately and may be different from each other.

Acute Cholecystitis

SOI = 3
Significant Organ Decomposition

ROM = 1
Low risk of mortality

3M *Innovation*

SOI and ROM are Independent

Dr. XXX Attending Length of Stay Profile with Outliers Excluded Adjusted by Severity

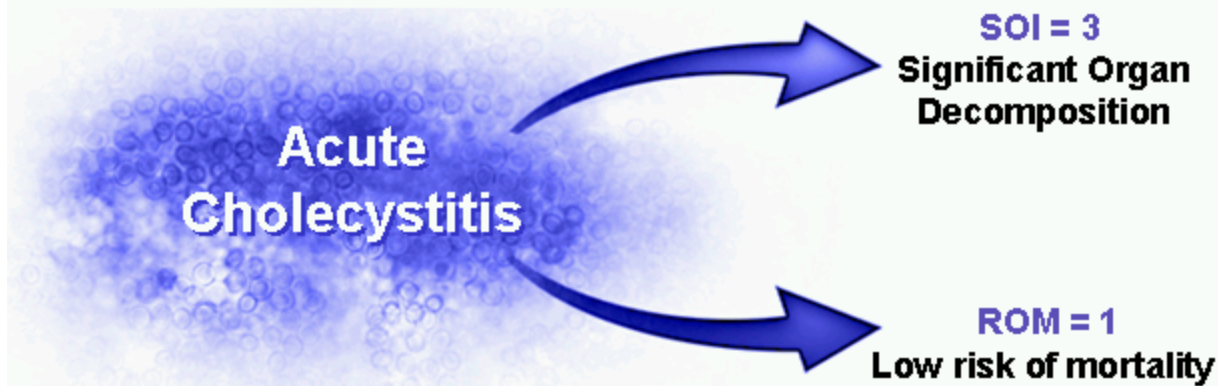|	Cases	APRDRG Sev. Index	% of Total Cases	ALOS	Risk Adj Expected ALOS	ALOS Variance
Pat. Sev. 1 Minor	174	0.5265	29.85	3.56	2.76	-0.8
Pat. Sev. 2 Mod.	263	0.6394	45.11	5.95	4.14	-1.61
Pat. Sev. 3 Major	117	1.4884	20.07	11.48	6.91	-4.57
Pat. Sev. 4 Exreme	29	5.4157	4.97	25.52	1688	-8.84

3M *Innovation*

Dr. XXX Attending Length of Stay Profile with Outliers Excluded Adjusted by Severity

Do Severity and Risk Adjustment Really Make a Difference?

	CASE 1	CASE 2
Principal Diagnosis	CONGESTIVE HEART FAILURE	
Secondary Diagnosis	Chronic Obstructive Pulmonary Disease Atrial Fibrillation	Chronic Obstructive Pulmonary Disease Atrial Fibrillation Respiratory Failure Acidosis Decubitus Ulcer Malnutrition Cardiogenic Shock
Medicare DRG	127 Heart Failure and Shock	127 Heart Failure and Shock
APR-DRG	194 Heart Failure	194 Heart Failure
APR-DRG Severity of Illness	2 Moderate	4 Extreme
APR-DRG Risk of Mortality	1 Minor	4 Extreme
Medicare Relative DRG Weight	1.0039	1.0039
APR-DRG Relative Weight	0.7930	3.0052
National Mortality Rate (APR Adjusted)	0.04%	32.02%

3M *Innovation*

Do Severity and Risk Adjustment Really Make a Difference?

Current APR-DRG Research

- Updated clinical logic – APR-DRG Version 20.0 released in May, 2003
- Potentially Preventable Complications
- Readmission Index

3M *Innovation*

Current APR-DRG Research

Potentially Preventable Complications: Objectives

- Identify Potentially Preventable Complications (PPCs) from the secondary diagnoses not present at admission

- Determine whether the complication was potentially preventable given the patient's reason for admission

- Determine a patient's expected risk of a complication based on the reason for admission and severity of illness at admission

- Compute actual and expected rates of Potentially Preventable Complications

3M *Innovation*

Potentially Preventable Complications: Objectives

Current APR-DRG Research: Readmission Module

- Hannan et al (August 13,2003 JAMA) published a CABG study in which 15.3% of approximately 16,000 patients were readmitted within 30 days after discharge following CABG surgery
  - Of these readmissions, 85% were readmitted for purposes that were identified as complications directly related to the CABG

- Readmissions – e.g., within 30 days are useful for two purposes
  - Identify opportunities for quality improvement in the index hospitalization and / or
  - Identify good candidates for care management after hospital discharge

3M *Innovation*

Current APR-DRG Research: Readmission Module

Applications of APR-DRG Data

- To identify utilization patterns
- Begin continuous quality improvement and outcome studies
- Provide a more effective basis for communicating with medical staffs
- Evaluating resources and outcomes data
- New applications of APR-DRGs are continually being evaluated and improved

3M *Innovation*

Applications of APR-DRG Data

How often does your organization distribute severity adjusted data to physicians?

Polls are closed.

Quarterly

Semi-Annually

Annually

Bi-Annually

Not at All

Poll

The Importance of Standardizing the Measurement of Severity and Risk Adjustment

Bruce Boissonnault

3M *Innovation*

3M Health Information Systems
from the 3M Health Care family

The Importance of Standardizing the Measurement of Severity and Risk Adjustment

Public Reporting Arrives

Interest In Quality Measures Rises With Spiraling Health Care Costs

- IOM
- Public Reporting
- Pay For Performance
  - CMS / Premier Quality Incentive Demonstration Project
- Other Initiatives

3M *Innovation*

Interest In Quality Measures Rises With Spiraling Health Care Costs

Standardized Quality Measures

- Agency for Healthcare Research and Quality (AHRQ)
- Core Measures (Joint Commission on Accreditation of Healthcare Organizations or JCAHO)
- Center for Medicare & Medicaid Services (CMS)
  - American Hospital Association / CMS Process Measures
  - Larger Initiative (Measures Consolidation)
  - Seventh Scope of Work
- National Quality Foundation

3M *Innovation*

Standardized Quality Measures

Examples:
Risk Adjustment Methods

- Administrative
  - APR-DRGs
  - R-DRGs
- Manual / Custom Design
  - Project / report specific (e.g., Veteran's Administration CABG vs. NY CABG)
  - Homegrown

3M *Innovation*

Examples: Risk Adjustment Methods

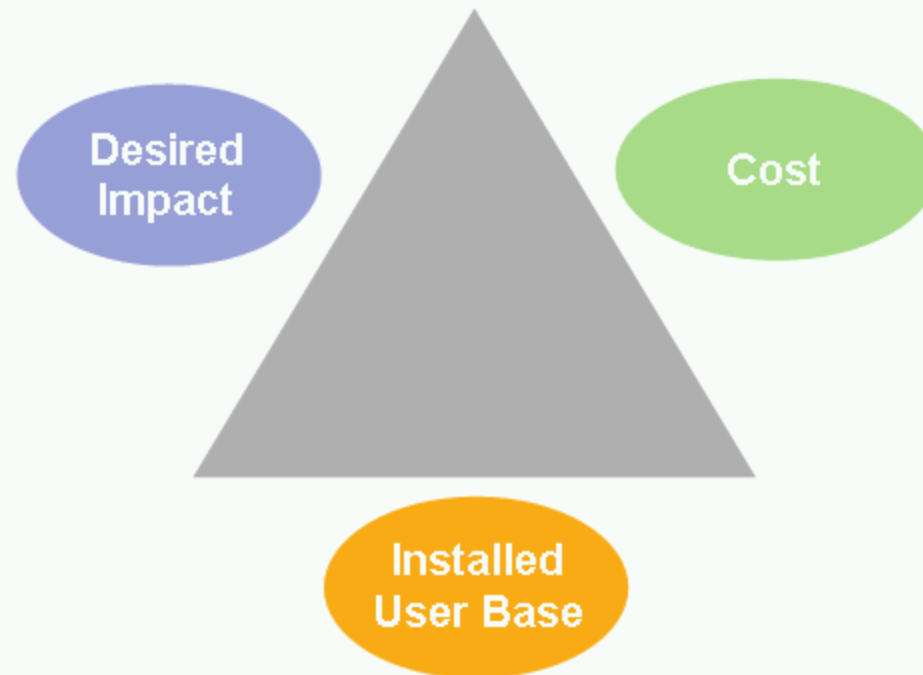# How To Select A Severity and Risk Adjustment Method

- Desired Impact
  - Statistical performance (Has method been objectively tested?)
  - Supports rapid cycle improvement (age and frequency of reports)
  - Open architecture (not a black box)
  - Replicable by outsiders
  - Systematic methodology evolution
  - Longstanding

- Cost
  - Data collection cost
  - Data collection complexity
  - Cost of software or custom risk adjustment method

- Large installed base of users (in and outside system)

3M *Innovation*

How To Select A Severity & Risk Adjustment Method

The Goal in Selecting a Severity and Risk Adjustment Tool is Balance

Desired Impact

Cost

Installed User Base

3M *Innovation*

The Goal in Selecting a Severity and Risk Adjustment Tool is Balance

Has your organization attempted to compare internal data and findings to external performance results published about your organization?

Polls are closed.

Yes ☐ (red)

No ☐ (blue)

Plan to within the year ☐ (yellow)

Poll

APR-DRGs: The Standard

APR-DRGs: The Standard

- APR-DRGs are the most widely used method for severity-of-illness and risk-of-mortality adjustment because the method is:
  - Clinically based, statistically valid
  - Cost-effective
  - Logistically feasible – data is widely accessible
  - Open for detailed logic review

3M *Innovation*

APR-DRGs...The Standard

APR-DRG Clients

- >1600 Customers (Including providers and payers)
- Major healthcare information providers and payers
  - 3M Health Information Systems
  - McKesson: Trendstar, Pathways Decision Support
  - QuadraMed
  - ACS Midas
  - Solucient
  - Three of the top five payers
- Used in state-based performance reporting
- Used in "Pay for Performance" demonstration projects:
  - CMS and Premier, "The Hospital Quality Incentive Project"

3M *Innovation*

APR-DRG Clients

APR-DRG Clients

- AHRQ
  - Conducted an extensive evaluation of methods and selected APR-DRGs as the severity and risk adjustment method for use in the Inpatient Quality Indicators
- JCAHO
  - Visit JCAHO's web site regarding Shared Visions New Pathways: The Priority Focused Process
    - Includes general information, resources, and FAQs, one of which address the use of APR-DRG adjusted data
- University HealthSystem Consortium
  - APR-DRGs used in their consortium benchmarking software
- Premier
  - APR-DRGs used in the Perspective Online benchmarking software
- *US News & World Report*
  - APR-DRGs used in ranking "America's Best Hospitals" for the 10 years

3M *Innovation*

APR-DRG Clients

Summary

Consistency in measurement and method is the key to accurate performance comparisons

and

APR-DRGs are the most widely used method for severity-of-illness and risk-of-mortality adjustment

3M *Innovation*

Summary

Does your organization currently have internal access to severity adjusted data?

Polls are closed.

Yes

No

We do not have internal access but receive severity adjusted reports from an outside agency or vendor.

Poll