All Patient Refined DRGs (APR-DRGs)

May 2016

Brief history of inpatient classification systems

In the beginning….

Early patient classification systems, such as the Medicare DRGs and All Patient (AP) DRGs were developed to provide patient classification systems that relate the types of patients treated to the resources they consume.

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In the beginning….

Some drawbacks of these systems:

- Medicare DRGs were designed for the Medicare population only. They do not adequately address care for pediatric and young adult populations.

- Neither system is severity adjusted and therefore does not provide an incentive to care for higher need patients.

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APR-DRG address these deficiencies

- All APR DRGs have 4 severity levels.

- Patient age is used in severity leveling.

- Significant pediatric and adult problems have a separate APR-DRG.

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APR-DRGs Meet Key Requirements of a Payment System

- Comprehensive coverage for all demographic groups and provided services.

- Acuity is a factor in payment.

- Flexibility to decide payment parameters locally.

- Use of local data for weight development.

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APR-DRG Development and Use

APR-DRG Base/Severity

- Each APR-DRG is subdivided into four severity of illness subclasses and four risk of mortality subclasses.

- In addition there are two error APR-DRGs (955,956) that are not subdivided into subclasses.

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What makes APR-DRG's Relevant?

- APR-DRGs make clinical sense. The clinical logic of APR-DRGs has undergone the most intensive scrutiny of any severity system on the market.

- The logic is open and available. APR-DRGs are not a "black box".

- The system was designed to be fully comprehensive and account for all payers, patients, and ages (including pediatrics).

APR-DRGs: Classification Details

Key Principles

- APR-DRGs are a clinical, rather than statistical model.

- The underlying clinical principle of the APR-DRGs is that the severity of illness and risk of mortality of a patient depends on the patient's underlying co-morbidities as well as the reason for admission.

- The determination of the severity of illness (SOI) and risk of mortality (ROM) is disease-specific.

- The addition of SOI and ROM provide an accurate evaluation of both resource use and outcomes.

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APR-DRG Severity of Illness Assignment

APR-DRG Assignment, Two Distinct Clinical-Based Steps

1. A patient is first assigned to a base APR-DRG (e.g.: APR 139, Other Pneumonia)

2. The patient is then separately assigned two distinct subclasses: severity of illness and risk of mortality. Each subclass has four possible assignment levels:
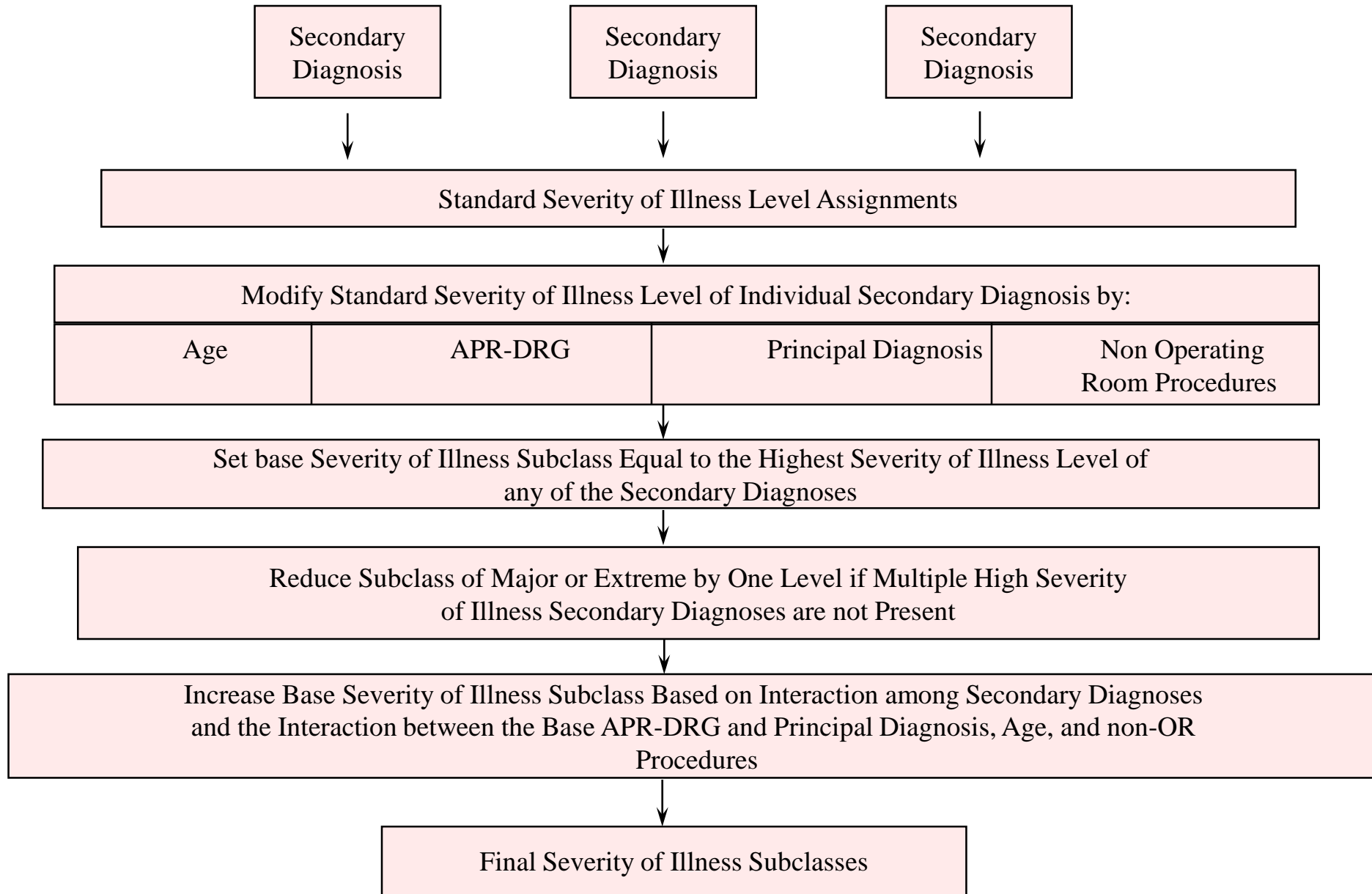
    1 = Minor   3 = Major

    2 = Moderate   4 = Extreme

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┌──────────────┐    ┌──────────────┐    ┌──────────────┐
│  Secondary   │    │  Secondary   │    │  Secondary   │
│  Diagnosis   │    │  Diagnosis   │    │  Diagnosis   │
└──────────────┘    └──────────────┘    └──────────────┘
        │                   │                   │
        ▼                   ▼                   ▼
┌────────────────────────────────────────────────────────────┐
│         Standard Severity of Illness Level Assignments       │
└────────────────────────────────────────────────────────────┘
                            │
                            ▼
┌────────────────────────────────────────────────────────────┐
│  Modify Standard Severity of Illness Level of Individual     │
│                  Secondary Diagnosis by:                     │
├────────────┬─────────────────┬──────────────────┬───────────┤
│    Age     │     APR-DRG     │ Principal Diagnosis│ Non Operating│
│            │                 │                  │ Room Procedures│
└────────────┴─────────────────┴──────────────────┴───────────┘
                            │
                            ▼
┌────────────────────────────────────────────────────────────┐
│ Set base Severity of Illness Subclass Equal to the Highest   │
│  Severity of Illness Level of any of the Secondary Diagnoses │
└────────────────────────────────────────────────────────────┘
                            │
                            ▼
┌────────────────────────────────────────────────────────────┐
│ Reduce Subclass of Major or Extreme by One Level if Multiple │
│  High Severity of Illness Secondary Diagnoses are not Present│
└────────────────────────────────────────────────────────────┘
                            │
                            ▼
┌────────────────────────────────────────────────────────────┐
│ Increase Base Severity of Illness Subclass Based on          │
│ Interaction among Secondary Diagnoses and the Interaction    │
│ between the Base APR-DRG and Principal Diagnosis, Age, and    │
│ non-OR Procedures                                            │
└────────────────────────────────────────────────────────────┘
                            │
                            ▼
┌────────────────────────────────────────────────────────────┐
│            Final Severity of Illness Subclasses              │
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APR-DRG 165 Coronary bypass with cardiac catheterization
Severity of Illness Subclass Assignment

Secondary Diagnosis

I9710	J90	I2510	I10

Standard Severity of Illness Level Assignments

2	2	2	1	1

Modify Standard Severity of Illness Level of Individual Secondary Diagnosis by:

Age	APR-DRG	Principal Diagnosis	Non Operating
56	165	I2119	Room Procedures: 30233P1

Severity Level:

2	2	2	1	1

Set base Severity of Illness Subclass Equal to the Highest Severity of Illness Level of any of the Secondary Diagnoses:
Severity Level 2

Reduce Subclass of Major or Extreme by One Level if Multiple High Severity of Illness Secondary Diagnoses are not Present:
Severity Level 2

Increase Base Severity of Illness Subclass Based on Interaction among Secondary Diagnoses and the Interaction between the Base APR-DRG and Principal Diagnosis, Age, and non-OR Procedures:
Severity Level 3

Final Severity of Illness Subclasses: Severity Level 3

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Severity Adjustment: An Example

Source: NYS SPARCS Inpatient Hospital Discharge Data Base/ Treo Services, CMS Historical Weight Files

	PRINCIPLE DIAGNOSIS: Congestive Heart Failure	
	CASE 1	CASE 2
Secondary Diagnoses	Chest pain Other primary cardiomyopathies Acute upper respiratory infections Alcohol dependence Cardiac defibrillator	Acute myocardial infarction Systolic heart failure Malnutrition Hyper chronic kidney disease Mitral and aortic valve insufficiency Chronic ischemic heart disease Atrial fibrillation Diabetes mellitus Asthma Coronary atherosclerosis Hypertrophy (benign) of prostate Long-term (current) use of insulin
MS- DRG	293: Heart Failure and Shock w/o CC/MCC	293: Heart Failure and Shock w/o CC/MCC
MS-DRG Relative Weight	0.7101	0.7101
APR-DRG	194: Heart Failure	194: Heart Failure
APR-DRG Severity of Illness	1: Minor	3: Major
2011 NYS Avg Length of Stay	3.35	6.71
2011 NYS Avg Codes per case	6.98	13.61
2011 NYS Avg Cost	$ 6,805	$13,667

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APR-DRGs: Coding Elements

Quality of Coding is Important

- Data going into the system should be comprehensive and specific.

- Full and accurate coding not only equals full payment, it is also a strong foundation for quality measurement.

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Quality of Coding is Important

- The success of APR-DRGs ultimately depends on:

    - Complete and accurate coding
    - Clinical specificity = coding specificity

- Documentation and coding must be done for all diagnoses and procedures, not just to the point of full reimbursement.

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Coding Elements

The following discharge data elements are used for APR-DRG subclass assignment:

- Principal diagnosis
- Principal procedure
- Secondary diagnoses
- Secondary procedures
- Age
- Sex

- Birth weight (value or code)
- Admit Date
- Discharge Date
- Status of discharge
- Days on mechanical ventilator (value or code)