

3M Health Information Systems

Inpatient Hospital Reimbursement System Reform using 3M™ APR DRGs

Presented to: Michigan Department of HHS Medical Services Administration

August 05, 2015



Improving Clinical & Financial Performance

3M provides these slides to promote a better understanding of 3M's software and/or services. These slides contain 3M confidential information and are for customer's internal review only.



© 3M 2015. All Rights Reserved.

Agenda

- Introductions
 - Michigan Department of Health & Human Services team
 - 3M Health Information Systems team
- Synopsis of new Inpatient Hospital Reimbursement System
- Major Components of new Hospital Reimbursement System
 - 3M All Patient Refined (APR) DRG classification system
 - Michigan DHHS reimbursement policies
- Considerations for APR DRG implementation
- Additional resources / information

Synopsis of new Hospital Reimbursement System

- Background:
 - March 2013: State announced Hospital Reimbursement Reform Initiative (HRRI)
 - Created Technical workgroup (includes representatives from State, hospitals, other stake holders)
 - Resulting recommendation was to update the system used to price inpatient hospital claims
 - Target implementation date: October 1, 2015
- Over-arching principles / goals that guided the project:
 - More predictability
 - Less volatility
 - Efficiency
 - Cost Effectiveness
 - Simplicity

Payment Concepts:

Facility / service	Key Concepts
PPS Hospital Provider	APR-DRG-SOI x Relative Weight x State Rate #1
Critical Access Hospital	APR-DRG-SOI x Relative Weight x State Rate #2
Long-Term Care Hospital	Hospital Specific Per Diem Rates
Rehabilitation (free standing or distinct unit)	Hospital Specific Per Diem Rates
Transplants	Percent of Charges
Neonatal services	Two sets of weights; alternate set for NBICUs

0010101

100101011010001000

Major Components

3M™ APR DRG Classification System

CMS Developed MS-DRGs for the Medicare Populations

- “As we have stated frequently, our primary focus in maintaining the CMS DRGs is to serve the Medicare population. We do not have the data or the expertise to maintain the DRGs in clinical areas that are not relevant to the Medicare population. We continue to encourage users of the CMS DRGs (or MS-DRGs if adopted) to make relevant adaptations if they are being used for a non-Medicare patient population”

CMS Proposed IPPS Rule April 13, 2007, Pg 91

MS-DRGs are not Applicable to non Medicare Population

- MS-DRGs are fundamentally flawed for non Medicare populations, failing to adequately account for: **newborn birth weight**, many **pediatric illnesses** (sickle cell anemia, cystic fibrosis, hemophilia, lead poisoning, nutritional disorders, congenital anomalies), **high risk pregnancies**, **HIV-related co-morbidities**.
- These limitations are so extensive that a fair and equitable payment system for a non Medicare population can not be achieved using the MS-DRGs.
- For example, hospital admissions for a typical Medicaid population are composed of roughly 16% newborns, 20% pediatric and 25% obstetric patients.

Initial Development of All Patient Refined DRGs (APR DRGs)

Medicare
DRG Updates

NACHRI Pediatric DRG Modifications

New York AP-DRG
Expansion

Yale DRG Refinements

All Patient Refined DRGs (APR DRGs)

- APR DRGs are an extension of DRGs to account for severity of illness and risk of mortality
- Assignment to a “Base” APR-DRG based on:
 - Principal Diagnosis, for Medical patients, or
 - Most Important Surgical Procedure (performed in an O.R.)
- Each Base APR-DRG is divided into 4 subclasses
 - Two types of Subclasses:
 - Severity of Illness (SOI)
 - Risk of Mortality (ROM)
 - SOI and ROM assignment take into account the interaction among principal & secondary diagnoses, age, and, in some cases, procedures

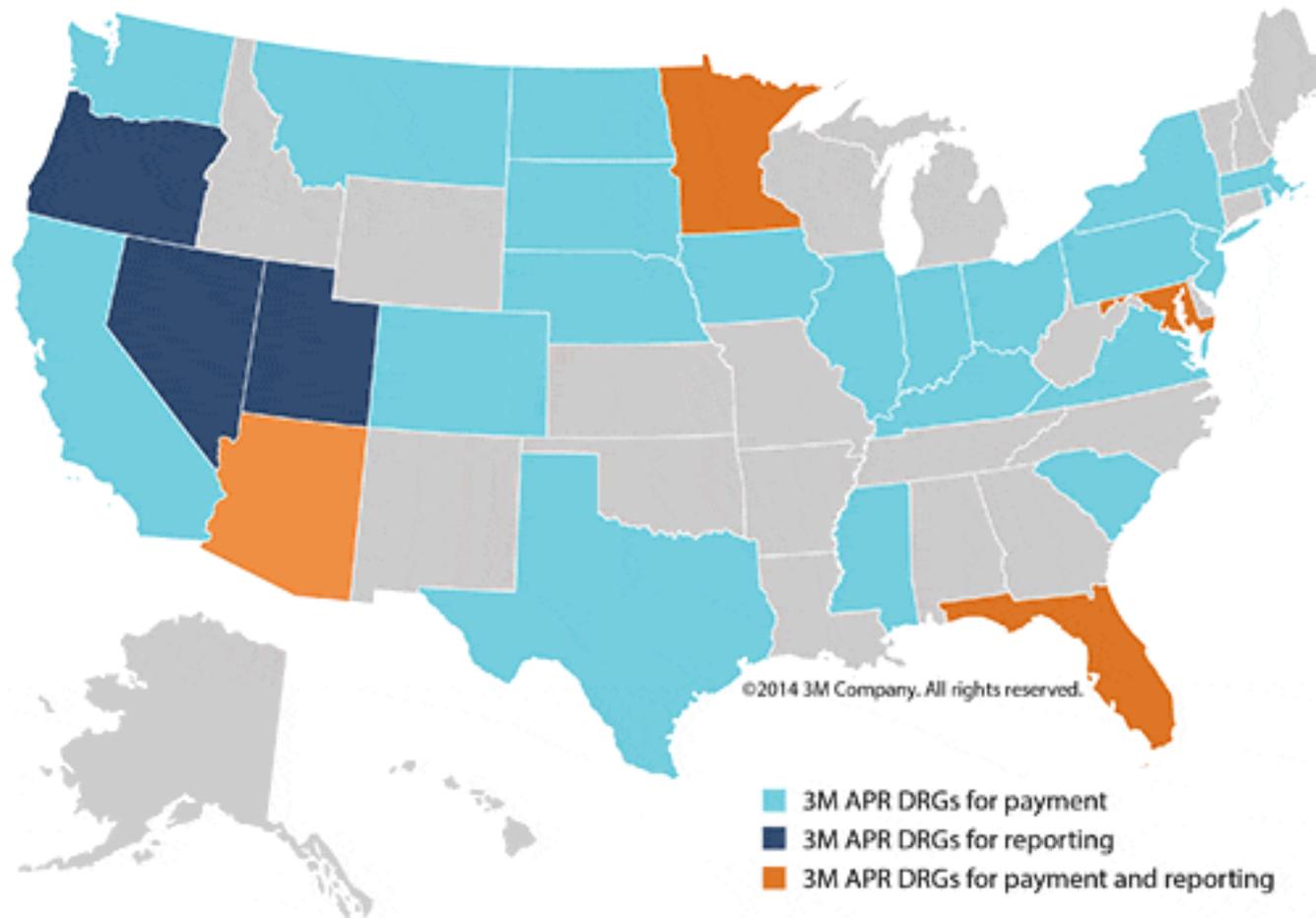
2 types of APR DRG's

- Discharge APR DRG – classification of the reason for admission, severity of illness and risk of mortality of a patient at discharge.
 - Uses all the ICD codes on the record to account for classification
 - Hospital acquired conditions / Complications of care can be excluded for payment
 - Used for prospective payment , risk adjustment for quality reporting
- Admissions APR DRG - classification of the reason for admission and the severity of illness and risk of mortality of a patient when they entered the admission.
 - Uses a subset of ICD codes on the record based on Present on admission indicator +
 - APRs include additional clinical consideration to evaluate the codes used in Admissions APR DRG classification.

3M APR DRG to MS-DRG Comparison

Category	APR DRG	MS-DRG
Data requirements	Diagnoses, procedures, age, sex, discharge status, birth weight	Diagnoses, procedures, age, sex, discharge status
MDCs	Pre-MDC and 25 MDCs	Pre-MDC and 25 MDCs
Number of base DRGs	1,258 (314 base DRGs x 4 subclasses + 2 error DRGs)	751 (749 + 2 error DRGs)
DRG representation	3 byte base DRG field + 1 byte field for SOI +1 byte field for ROM	3 byte DRG field
DRG severity Diagnoses	Base DRG + 4 levels each for SOI and ROM subclasses: 1-Minor, 2-Moderate, 3-Major, 4-Extreme	3 levels: Major CC, CC , Non-CC
Newborns – MDC 15	0-7 days at admission + subset of 8-14 days Total APR DRGs = 108 (27 base DRG x 4 subclasses)	PDX assigned to MDC 15 regardless of the age of the patient
Age splits	Base DRG are not differentiated by age, but SOI and ROM subclasses modified by patient age.	None
Discharge status	MDC 15 (transferred only) MDC 20 (LAMA)	MDC 5 (died) MDC 15 (transferred, died) MDC 20 (LAMA)
Present on admission (POA) indicator	Used for admission APR DRG assignment	Used only for evaluation of HACs

Current Use of 3M Patient Classification Systems





Development of APR-DRGs

Fundamental Principle of APR DRG Clinical Logic:

- Severity of illness and risk of mortality are dependent on the patient's underlying condition (i.e., the base APR DRG).
- High severity of illness and risk of mortality are characterized by multiple serious diseases and the interaction of those diseases.

How were APR DRG developed?

- Formulate Clinical hypotheses to develop separate clinical models for each 'group' or base APR-DRG
 - A core panel of physicians (from the National Association of Children's Hospitals and Research Institutes (NACHRI))
 - Supplemented by specialists and subspecialists by body system
 - Input from medical records specialists, nursing, health services researchers and economics analysts
 - Intensive peer review of all clinical logic processes
- Test hypotheses using historical data
- Iterations of clinical review, revisions and analysis with data to finalize clinical model.

Key Definitions

- 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

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 Decompensation

ROM = 1
Low risk of mortality

Example of Severity of Illness Progression of Diagnoses

Severity Of Illness		Secondary Diagnosis of Diabetes Mellitus
1	Minor	Uncomplicated Diabetes (250.0X)
2	Moderate	Diabetes with Renal Manifestation (250.4X)
3	Major	Diabetes with Ketoacidosis (250.1X)
4	Extreme	Diabetes with Hyperosmolar Coma (250.2X)

Example of Risk of Mortality Progression of Diagnoses

Risk of Mortality		Secondary Diagnosis of Dysrhythmias
1	Minor	Premature Beats
2	Moderate	Sinoatrial Node Dysfunction
3	Major	Paroxysmal Ventricular Tachycardia
4	Extreme	Ventricular Fibrillation

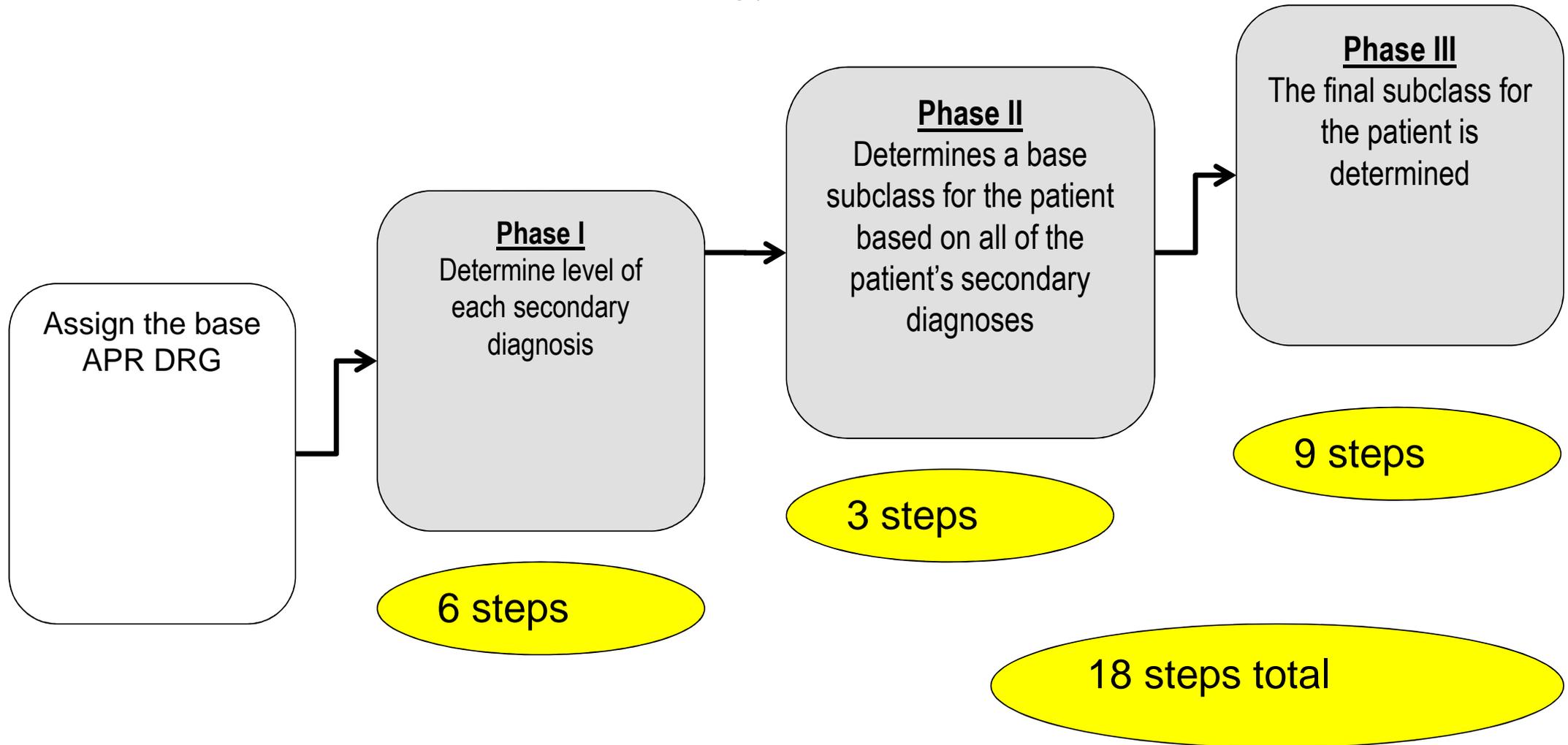
How are APR DRG updated?

- Clinical Panels review clinical logic for needed adjustments
 - Hospitals
 - State Agencies input
 - New literature evaluated
 - New code set
- Data is run to validate changes
- 2 tier Peer review of changes are reviewed
- APR DRG are updated Annually in Oct timeframe

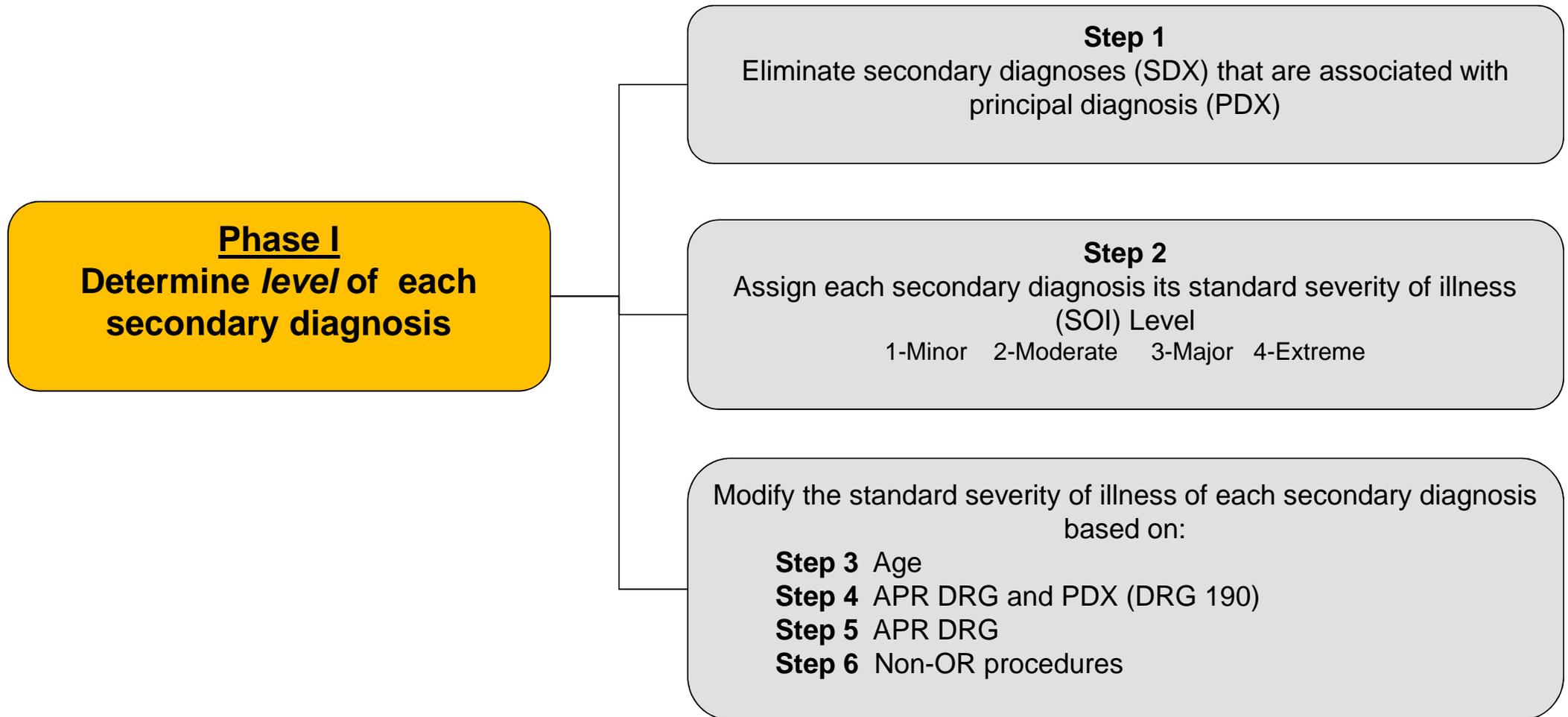
APR DRG ICD-10

- APR-DRG v 32 is the current version
 - Official version is ICD-9
 - ICD-10 pre-release version is available (APR ICD-10 v31 & APR v32)
- APR-DRG v 33 official ICD-10 version
- Anticipate major update of APR DRG coming in ~2016

Explanation of APR DRG Methodology



SOI Phase I:



APR-DRG Definition Transparency

Phase 1: Determine Secondary Diagnosis Level

5715 CIRRHOSIS OF LIVER NOS

STEP 1: PDX / SDX Exclusion

5712-5713, 5715-5719, 5728, 5738-5738

STEP 2: SDX Default SOI 2

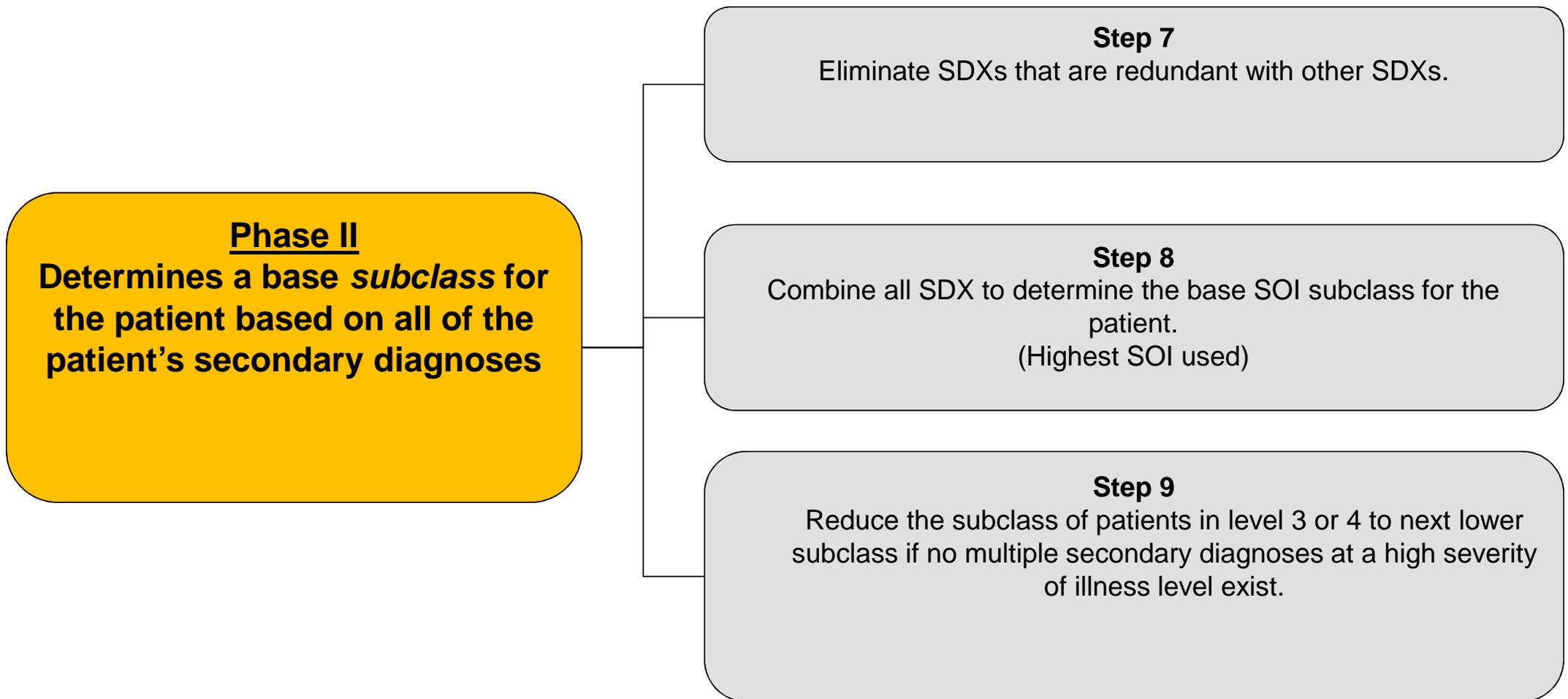
STEP 3: SDX / AGE Exception

0 - 28 days	3
29 - 364 days	3
1 - 3 years	3
4 - 17 years	3

STEP 5: SDX / DRG EXCEPTION

001	Liver Trans &/or Intest Tran	1
279	Hepatic Coma / Oth Maj Liv	1
280	Alcoholic Liver Disease	1
283	Other Disorders of Liver	1
661	Coagulation / Platelet Disorc	1
663	Other anemia / blood disorc	1

SOI Phase II:



SOI Phase III:

Phase III
The final subclass for the patient is determined

Modify patient SOI subclass based on the interaction of:

Step 10 APR DRG and PDX

Step 11 APR DRG and age or APR DRG and PDX and age

Step 12 APR and non-OR procedure

Step 13 APR DRG and OR procedure

Modify patient SOI subclass based on the interaction of:

Step 14 APR DRG and pairs of OR procedures

Step 15 APR DRG and ECMO and presence/absence of certain OR procedures (DRG 583)

Step 16 APR DRG and PDX and non-OR procedures

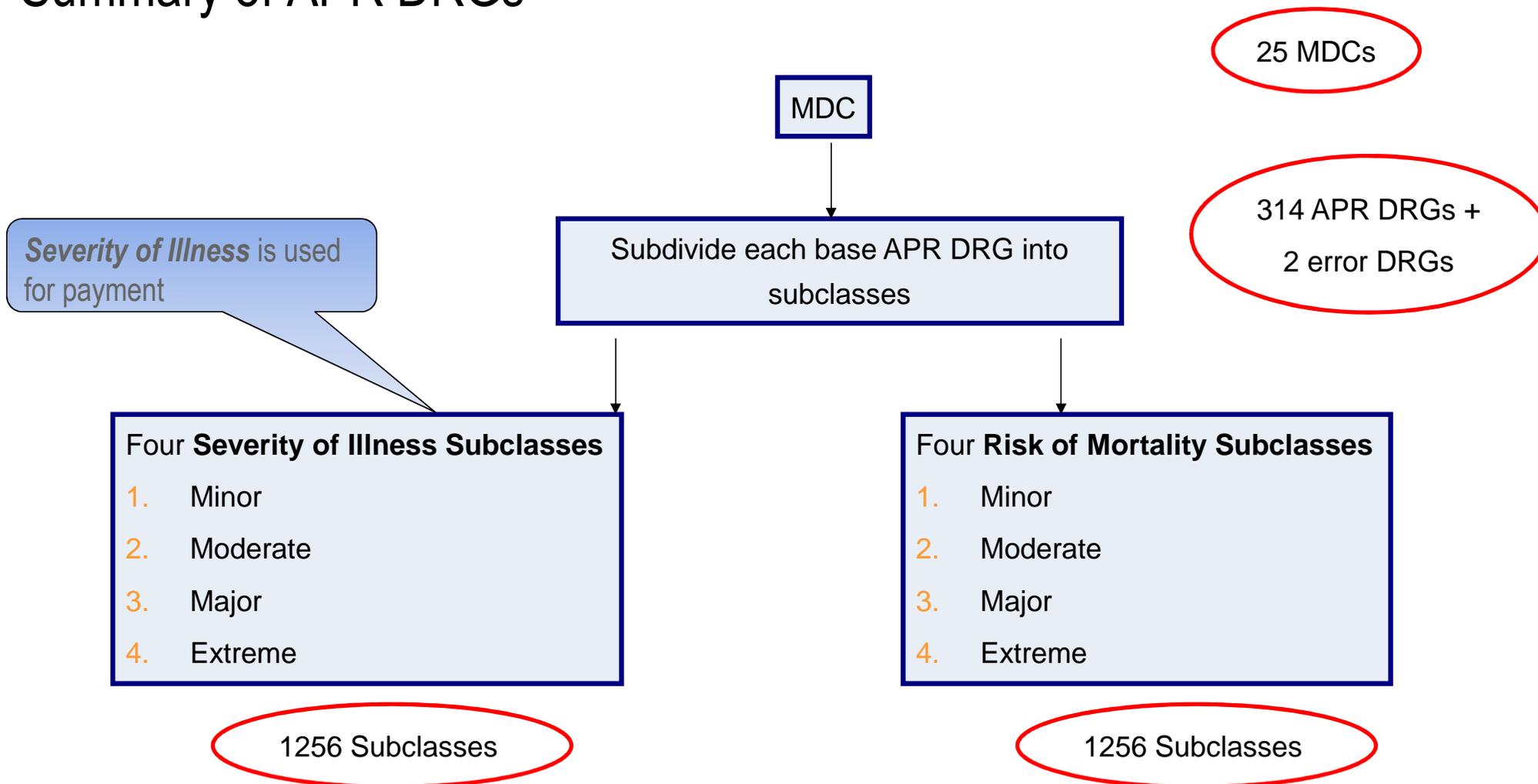
Step 17

Establish a minimum SOI subclass based on the presence of specific combinations of categories of SDXs.

Step 18

Compute the final SOI subclass based on a hierarchy established for steps 9-17

Summary of APR DRGs



0010101

100101011010001000

Major Components

Reimbursement Policy

Proposed Methodologies for Inpatient Reimbursement

■ DRGs

- Grouping structure to be converted from MS-DRG to APR DRG system
- Payment to be prospectively set for Discharge APR DRG and SOI subclass
- Additional policies for cost outliers, short stays

■ Per Diem

- Statewide per diem rates developed for free standing rehabilitation hospitals, distinct part rehabilitation units and Long-Term Acute Care Hospitals (LTACHs)

■ Percent of Charges

- Transplant cases to be reimbursement based upon a percent of charges

DRG Price Calculations

- Basic Formula for payment

(Hospital Rate) x (Relative Weight) = Hospital Reimbursement

- Proposed DRG price calculation inputs

- Hospital Rate

- Prospective Payment System (PPS) Hospitals
- Critical Access Hospitals (CAH)

- Relative Weights

- Based on adjusted costs
- Alternate weights for Neonatal services (APR DRG 580x-640x) provided in NICU

- Wage index

- Applied to recognize geographic differences in labor costs

- Payment based on discharge APR DRG v33 and SOI

Per Diem

- Basic calculation:

$$(Cost\ per\ day\ by\ hospital) = (Sum\ of\ the\ costs) / (number\ of\ days\ for\ the\ hospital)$$

- Calculated statewide operating rate by provider type.
- Adjusted by area wage index

Percent of Charges

- Transplant Service included under percent of charges:
 - APR DRG 001x Liver Transplant &/or Intestinal Transplant
 - APR DRG 002x Heart &/or Lung Transplant
 - APR DRG 006x Pancreas Transplant
 - APR DRG 440x Kidney Transplant
- Reimbursement Formula:
 - Hospital Charges x Hospital cost-to-charge ratio = Hospital Payment
- Organ Acquisition
 - Reimbursed at 100% of acquisition cost

Transplant Claims cannot be high-cost outliers

Policies for special circumstances

- Cost Outliers
- Low day payment
- Transfers
- Transplants
- Organ acquisitions
- Readmission

0010101

100101011010001000

Payment Examples



Case study of how to calculate a reimbursement from APR DRG and SOI.



APR DRG- SOI	APR-DRG Description	Relative Wt for Payment	DRG Base Payment Using Example Discharge Rate
139-1	OTHER PNEUMONIA	0.4022	\$ 3,298.04
139-2	OTHER PNEUMONIA	0.6128	\$ 5,024.96
139-3	OTHER PNEUMONIA	0.9459	\$ 7,756.38
139-4	OTHER PNEUMONIA	1.8787	\$ 15,405.34
220-1	MAJOR STOMACH, ESOPHAGEAL & DUODENAL PROCEDURES	1.3302	\$ 10,907.64
220-2	MAJOR STOMACH, ESOPHAGEAL & DUODENAL PROCEDURES	2.0852	\$ 17,098.64
220-3	MAJOR STOMACH, ESOPHAGEAL & DUODENAL PROCEDURES	3.4859	\$ 28,584.38
220-4	MAJOR STOMACH, ESOPHAGEAL & DUODENAL PROCEDURES	7.2851	\$ 59,737.82
540-1	CESAREAN DELIVERY	0.5400	\$ 4,428.00
540-2	CESAREAN DELIVERY	0.6424	\$ 5,267.68
540-3	CESAREAN DELIVERY	0.9728	\$ 7,976.96
540-4	CESAREAN DELIVERY	2.3023	\$ 18,878.86
541-1	VAGINAL DELIVERY W STERILIZATION &/OR D&C	0.4955	\$ 4,063.10
541-2	VAGINAL DELIVERY W STERILIZATION &/OR D&C	0.5323	\$ 4,364.86
541-3	VAGINAL DELIVERY W STERILIZATION &/OR D&C	0.8258	\$ 6,771.56
541-4	VAGINAL DELIVERY W STERILIZATION &/OR D&C	2.5756	\$ 21,119.92
609-1	NEONATE BWT 1500-2499G W MAJOR PROCEDURE	1.6898	\$ 13,856.36
609-2	NEONATE BWT 1500-2499G W MAJOR PROCEDURE	4.7480	\$ 38,933.60
609-3	NEONATE BWT 1500-2499G W MAJOR PROCEDURE	7.4462	\$ 61,058.84
609-4	NEONATE BWT 1500-2499G W MAJOR PROCEDURE	14.4454	\$ 118,452.28
955-0	PRINCIPAL DIAGNOSIS INVALID AS DISCHARGE DIAGNOSIS	-	\$ -
956-0	UNGROUPABLE	-	\$ -

Comparative example of MS-DRGs vs APR-DRGs

	PDX V3000: Single liveborn, born in hospital, delivered without mention of cesarean section Admission age in days: 0 Discharge status: Home Birthweight: 500G				Description
	Case 1	Case 2	Case 3	Case 4	
Secondary Diagnoses		748.4	748.4 770.8	748.4 770.8 753.0	Congenital Cystic Lung Respiratory Failure of NB Renal Agenesis
MS DRG	391	390	389	389	Normal Newborn / Newborn with other significant problems / Full Term Neonate w/ Maj. Prob.
APR DRG	591 Subclass 1	591 Subclass 2	591 Subclass 3	591 Subclass 4	Neonate, birth weight 500-749G, without major procedure
MS DRG APR DRG	0.2560 0.1134	0.2892 2.6320	0.6430 12.8901	0.6430 23.1141	Payment weights*



Comparative example of MS-DRGs vs APR-DRGs

	PDX: 562.11 Diverticulitis of colon Proc: 45.71 Multiple segmental resection of large intestine				Description
	Case 1	Case 2	Case 3	Case 4	
Secondary Diagnoses	569.41	569.41 560.9	569.41 560.9 422.99 426.0	569.41 560.9 422.99 426.0 584.9	Ulcer of anus and rectum Unspecified intestinal obstruction Acute myocarditis Atrioventricular block, complete Acute renal failure, unspecified
MS DRG	149 wo CC	148 w CC	148 w CC	148 w CC	Major small and large bowel procedures
APR DRG	221 Subclass 1	221 Subclass 2	221 Subclass 3	221 Subclass 4	
MS DRG APR DRG	2.3164 1.3322	4.2303 1.7681	4.2303 2.9531	4.2303 6.3732	Payment weights*

* Payment weights are budget neutral and computed from a national database





Considerations for APR DRG Implementation

Standard of Coding

APR DRGs uses the standard UHDDS coding guidelines. However, you will need to code all the conditions found in the record.

Complete and Accurate documentation

Complete and Accurate coding

3M Product Inputs & Outputs

- Only standard grouping inputs required (Administrative Data)
 - Diagnoses with POA
 - Procedures
 - Patient age
 - Patient sex
 - Discharge status
 - Birthweight
- No change to grouper outputs
- Changes to reimbursement outputs not yet known, expected to be simplified.

Key APR Outputs:

Core Grouping Software (CGS) & Grouper Plus System (GPS) and Mainframe Groupers

- **DRG**
- MDC
- **SOI (subclass)**
- ROM (subclass)
- Diagnosis SOI (level)
- Diagnosis ROM (level)
- Diagnosis Affect DRG Flag
- Diagnosis Affect ROM Flag
- Diagnosis Affect SOI Flag
- Procedure Affect DRG Flag
- Procedure Affect ROM Flag
- Procedure Affect SOI Flag

Full set of outputs available for both admission and discharge APR DRGs

For more information:

- Provider Specific Information: Inpatient Hospitals

http://www.michigan.gov/mdch/0,1607,7-132-2945_42542_42543_42546_42551-151010--,00.html

- Links to provider bulletins and Medicaid Provider Manual;

http://www.michigan.gov/mdch/0,1607,7-132-2945_42542_42543_42546_42553-188444--,00.html

- <<POC>>