



# Kentucky ICD-10 Site Visit

Training segments to assist the State of Kentucky with ICD-10 Implementation

## Segment 1: GEMs, Translation & Dual Processing

November 15-16, 2012



# Agenda

## ■ Translation

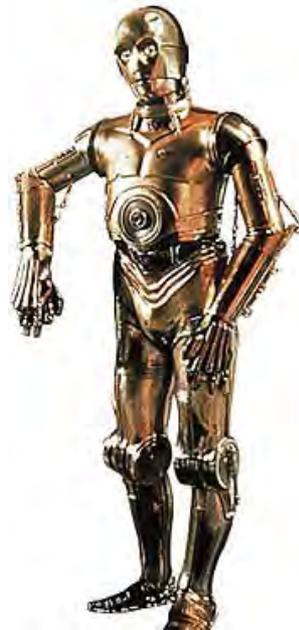
- Overview
- Crosswalking
- Crosswalking Quality
- Crosswalking Accountability

## ■ GEM

- What is GEM
- Types of Maps
- GEM File Structure
- GEM Challenges

## ■ GEM Uses

## ■ Reimbursement Maps



# Translation

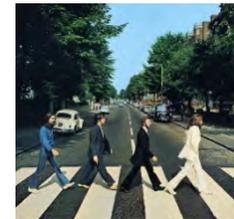


# The Two Sides of Translation

Translation between ICD-9 and ICD-10 involves two different approaches.

## 1. *Creating Crosswalks*

- *Definitions for the conversion of one source code to one or more target codes*



## 2. *Creating Equivalent Groups*

- *Defining medical concepts that drive policies, rules, and categorizations in ICD-10 that are consistent with the intent of those policies, rules, and categorizations today*





# Mapping

- A “Crosswalk” is the deliverable that answers the question:
  - If I need to replace an ICD-9 code with one or more ICD-10 code(s), which ICD-10 code(s) would best represent the concepts that the original ICD-9 code intended to represent?
- An “Equivalent Group” is the deliverable that answers the question:
  - If I need to replace the original intent of a grouping of ICD-9 codes with an equivalent grouping of ICD-10 codes, which ICD-10 code set would best represent the original intent of the group of ICD-9 codes?
- “Mapping” is the process of arriving at both deliverables.





# Crosswalks



# Crosswalks

## What Are They?

- **“The term ‘crosswalk’ has a wide variety of connotations. For the purposes of this discussion, a crosswalk is:**
  - *a method or specification to translate a code from one code set to a match or matches in another code set **without human intervention.**”*
- **“The guiding principle for clinical crosswalks should be to reflect the health state of the patient or a procedure performed as accurately as possible in either code set.”**
- **“The use of crosswalks may pose significant issues with data integrity. The decision on when and how to use them should not be made without considerable analysis.”**

\*Source – WEDI Crosswalk Sub-workgroup white paper



# Crosswalks

## Definition

**Extracted from an article entitled - *Issues in Crosswalking Content Metadata Standards.***

**“A crosswalk is a specification for mapping one metadata standard to another...”**

**\*Source – NISO, the National Information Standards Organization**



# Crosswalks

## Why are they needed?

- **A number of systems will not be fully ready to process ICD-10 codes as of Oct 1, 2014**
  - These systems will require ICD-10 codes to be converted to ICD-9 codes so that existing rules and logic function appropriately.
- **A number of systems may be updated to support ICD-10 but not ICD-9**
  - For those systems that have been updated to process ICD-10 codes directly, there will still be a number of claims and other transactions that contain valid ICD-9 codes that will need to be translated.
- **For reporting over a timeframe, there may be data that contains both ICD-9 and ICD-10 codes**
  - In order to do any longitudinal reporting, this data will need to be normalized to either ICD-9 codes or ICD-10 codes depending on the predominant code type in the source data.



# The Problem with Crosswalking

- Less than 5% of all ICD-10 and ICD-9 codes will map accurately
- All other codes will either lose information or assume information that may not be true
- Imperfect mapping will affect processing and analytics in a way that impacts revenue, costs, risks, and relationships
- The level of impact is directly related to the quality of translation
- The anticipated quality of translation is currently an unknown
- No “approved” crosswalk is available. Payers, Providers, Clearinghouses, and business associates will need to decide on the crosswalk that is appropriate from their perspective to assure information and processing integrity



# Getting to the Crosswalk

## Challenges

- **Every organization must determine the appropriate mapping from ICD-9 to ICD-10 and ICD-10 to ICD-9:**
  - Maps must include:
    - Mapping from **14,300** ICD-9 diagnosis codes to ICD-10-CM codes
    - Mapping from **69,000** ICD-10-CM codes to ICD-9 diagnosis codes
    - Mapping from **3,800** ICD-9 procedure codes to ICD-10-PCS codes
    - Mapping from **72,000** ICD-10-PCS codes to ICD-9 procedure codes
    - Total maps = **159,100**
  - Creating these maps without some tool will be challenging
  - Since there are significant financial and clinical implications of these maps, there will need to be a level of accountability around the quality of the maps.
    - What was the basis for choosing a map?
    - What was lost in translation?
    - What was assumed that may not be true?



# Code Matching Quality

## Good Quality Match



All concepts and only those concepts represented in in the ICD-9 code are represented exactly in the ICD-10 code

### Example

- ICD-9 code “03642” = Meningococcal Endocarditis
- ICD-10 code “A3951” = Meningococcal Endocarditis

# Code Matching Quality

## Lost and Assumed Concepts



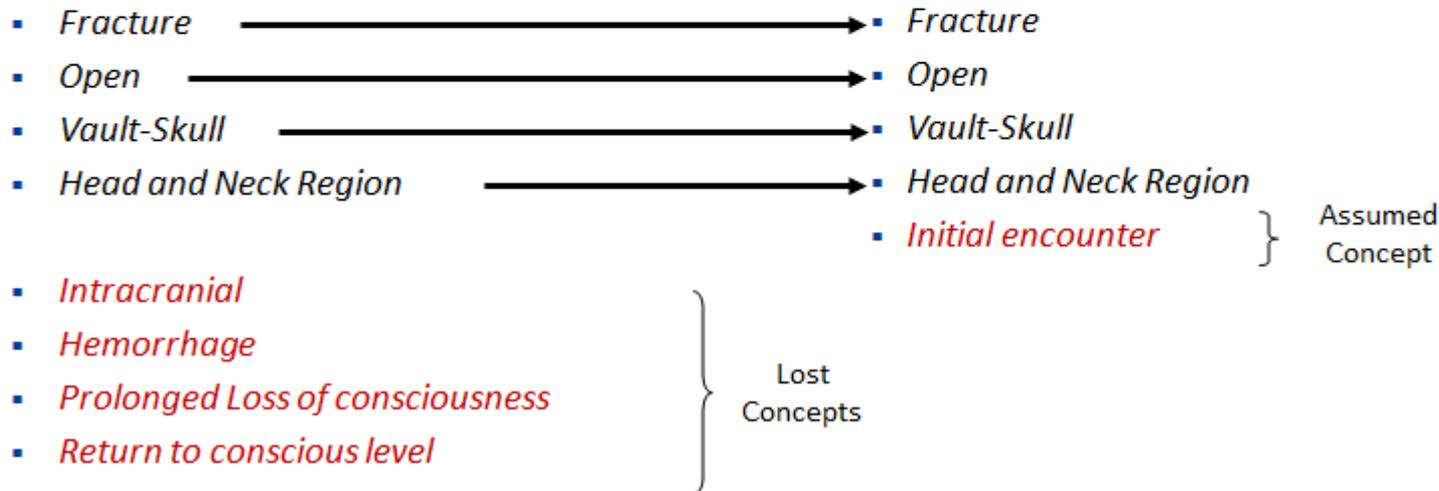
- The best match between an ICD-9 and ICD-10 code results in the loss of some concepts in translation and the assumption of some concepts that may or may not be true.

ICD9 (80084):

OPEN FRACTURE OF VAULT OF SKULL WITH OTHER AND UNSPECIFIED INTRACRANIAL HEMORRHAGE WITH PROLONGED (MORE THAN 24 HOURS) LOSS OF CONSCIOUSNESS AND RETURN TO PRE-EXISTING CONSCIOUS LEVEL

ICD10 (S020xxB):

Fracture of vault of skull, initial encounter for open fracture





# Code Matching Quality

## Problematic Match



### Matching results in a significant distortion of the facts

#### ICD-10 Procedure Code

#### ICD-10 Procedure Term

0X6N0Z0	Detachment at Right Index Finger, Complete, Open Approach
0X6N0Z1	Detachment at Right Index Finger, High, Open Approach
0X6N0Z2	Detachment at Right Index Finger, Mid, Open Approach
0X6N0Z3	Detachment at Right Index Finger, Low, Open Approach
0X6P0Z0	Detachment at Left Index Finger, Complete, Open Approach
0X6P0Z1	Detachment at Left Index Finger, High, Open Approach
0X6P0Z2	Detachment at Left Index Finger, Mid, Open Approach
0X6P0Z3	Detachment at Left Index Finger, Low, Open Approach
0X6Q0Z0	Detachment at Right Middle Finger, Complete, Open Approach
0X6Q0Z1	Detachment at Right Middle Finger, High, Open Approach
0X6Q0Z2	Detachment at Right Middle Finger, Mid, Open Approach
0X6Q0Z3	Detachment at Right Middle Finger, Low, Open Approach

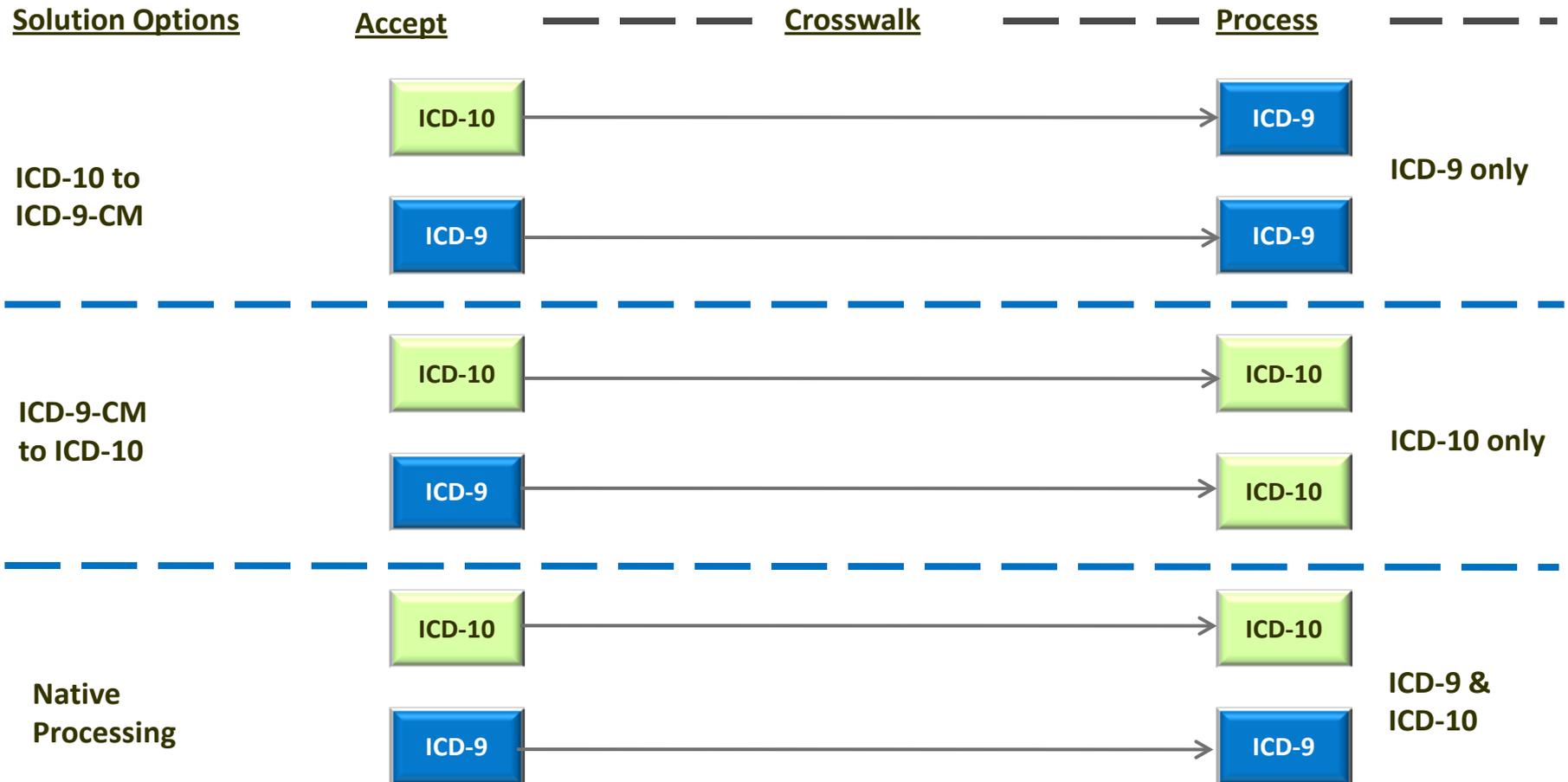
...



## Dual Processing

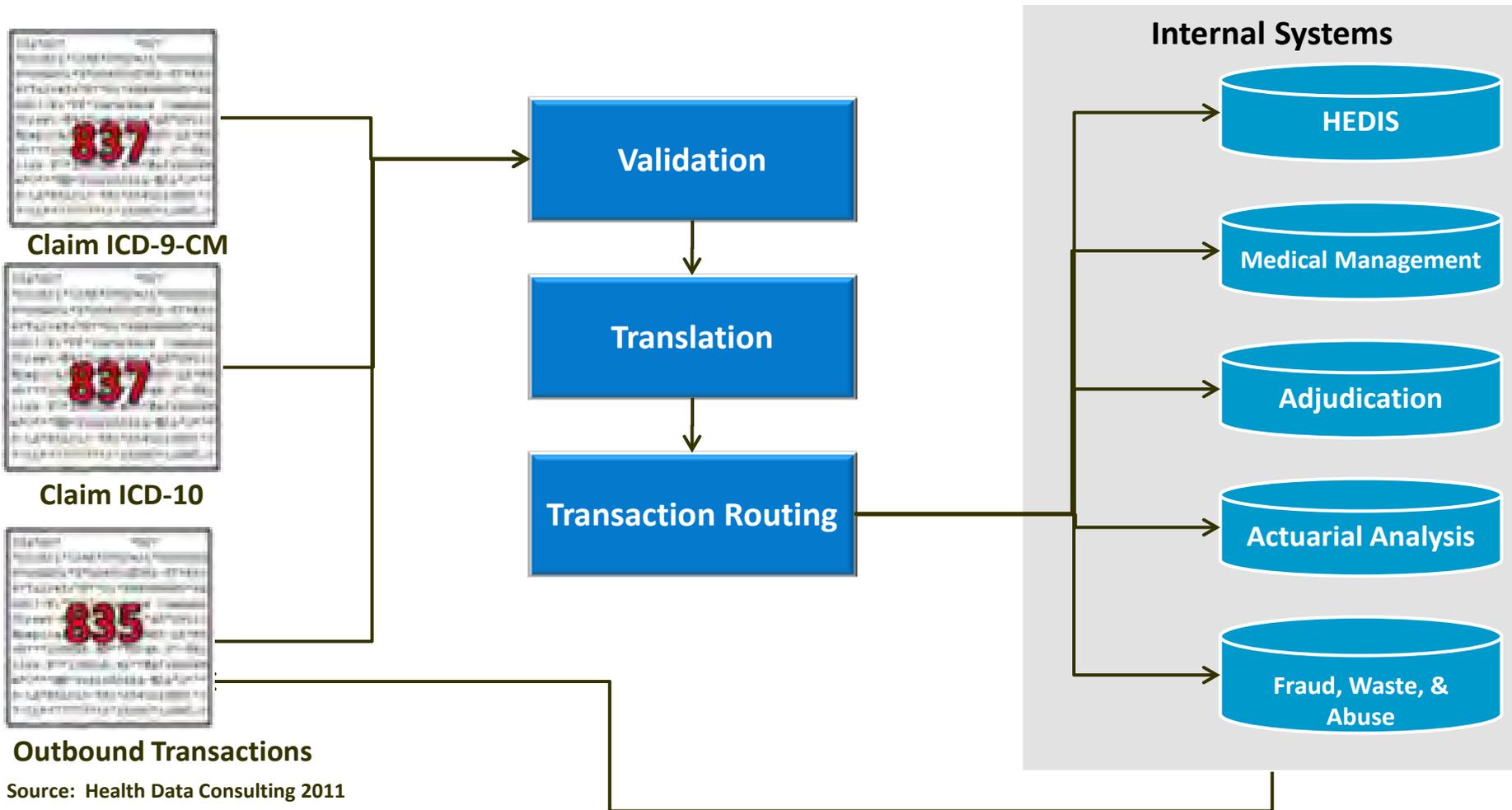
# Mapping Solution Options

There are three potential solution paths that can be adopted to address the impact of ICD code changes:



# Translation Flow

Accept, convert, and send ICD diagnosis and procedure codes.....



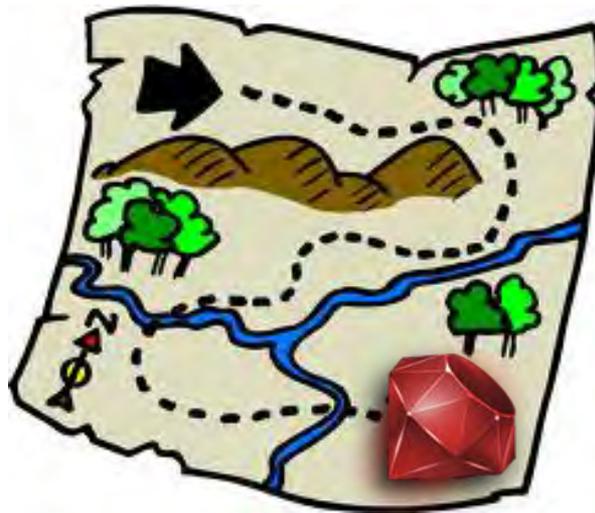
Source: Health Data Consulting 2011



# Crosswalking Accountability

## Requirements

- **The transaction processing systems must be able to take in and validate both ICD-9 and ICD-10 codes based on dates of service and discharge date.**
- **Crosswalk specifications to support translation should consider metadata to support:**
  - Why the crosswalk from one code to another was chosen out of a number of possible options
  - What information was lost in the translation process
  - What information was assumed in the translation process that may not be true
- **Routing of transactions will need to be intelligent enough to determine what type of translation (if any) is required and for which system.**
- **A log of what translations occurred including source and target to assure traceability is needed.**
- **There must be an ability to use internal data stores to create outbound transactions and link back to the original unaltered transaction to retrieve the original code.**



# General Equivalency Mapping

## GEM



# What is GEM?

**CMS contracted with 3M to develop GEM files to assist in the translation between ICD-10 and ICD-9.**

## **GEMs are:**

- **A public domain reference mapping designed to give the health care industry:**
  - Bi-directional mapping between ICD-9 and ICD-10 diagnosis and institutional procedure codes
  - To provide a start in the process of identifying codes that would represent as accurately as possible the original intent of the ICD-9 or ICD-10 source code for crosswalking purposes.
  - To provide a tool to identify the appropriate set or group of codes in ICD-10 that would be equivalent to the initial intent of a similar set or group of ICD-9 codes



# What is GEM?

CMS DXGEM\_GUIDE\_2010

***“Please be advised: GEMs are not crosswalks. They are reference mappings, to help the user navigate the complexity of translating meaning from one code set to the other. They are tools to help the user understand, analyze, and make distinctions that manage the complexity, and to derive their own applied mappings if that is the goal.”***



# What is GEM?

AAPC translator tool

## ICD-10 Code Translator

The ICD-10 Code translator tool allows you to compare ICD-9 codes to ICD-10 codes. ICD-9 is being expanded from 17,000 to approximately 141,000 ICD-10 codes, and this online tool can help you map that expansion. (Note: This tool only converts ICD-10-CM codes, not ICD-10-PCS)

ICD-9 to ICD-10

ICD-10 to ICD-9

Enter Code:

(Note: Double-click any word to see its meaning.)

**Disclaimer:** This tool is based on the General Equivalency Mapping files published by CMS, and is not intended to be used as an ICD-10 conversion or crosswalk tool. Keep in mind that while many codes in ICD-9-CM map directly to codes in ICD-10, in some cases, a clinical analysis may be required to determine which code or codes should be selected for your mapping. Always review mapping results before applying them.

# Types of Mapping

**Exact Match:**



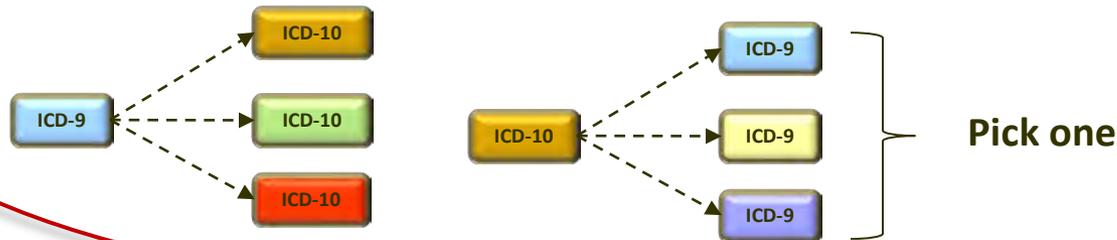
**No Map**



**Approximate one to one matches:**

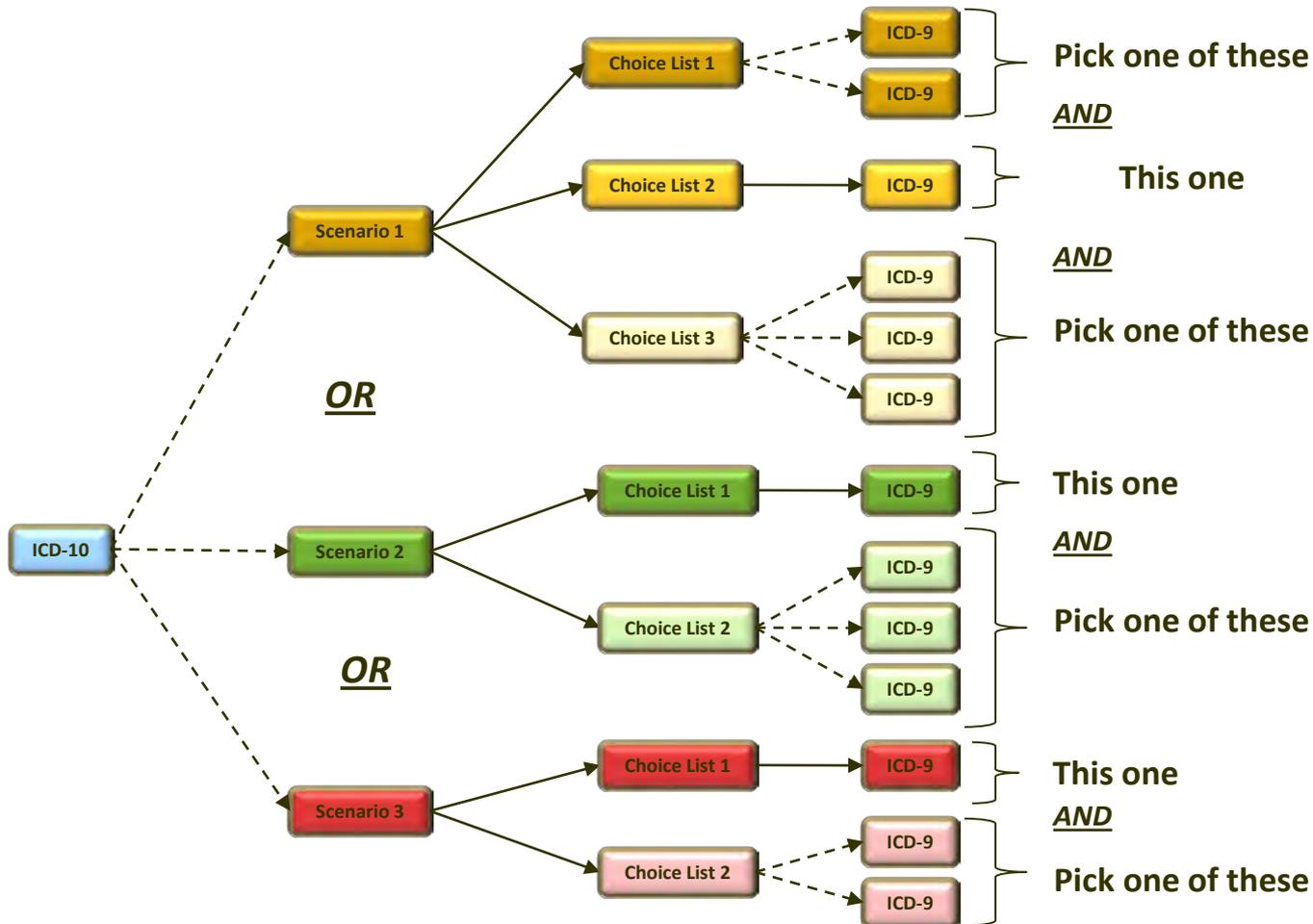


**Approximate one to many matches – multiple codes / single selection:**



# Types of Mapping

Approximate one to many matches – multiple scenarios / multiple codes / multiple selections:





# What do they look like?

Raw File

File	Edit	Format	View	Help
0010	A000	00000		
0011	A001	00000		
0019	A009	00000		
0020	A0100	10000		
0021	A011	00000		
0022	A012	00000		
0023	A013	00000		
0029	A014	00000		
0030	A020	00000		
0031	A021	10000		
00320	A0220	00000		
00321	A0221	00000		
00322	A0222	00000		
00323	A0223	00000		
00324	A0224	00000		
00329	A0229	10000		
0038	A028	00000		
0039	A029	00000		
0040	A030	00000		
0041	A031	00000		

# Combinations, Scenarios, Choices

## An Example

ICD-9 Code = 80616

(Open fracture of C5-C7 level with complete lesion of cord)

Scenario-1	ChoiceList-1	S14115A	Complete lesion at C5 level of cervical spinal cord, initial encounter	Pick this one
				AND
	ChoiceList-2	S12401B	Unspecified nondisplaced fracture of fifth cervical vertebra, initial encounter for open fracture	One of these
	ChoiceList-2	S12400B	Unspecified displaced fracture of fifth cervical vertebra, initial encounter for open fracture	
				OR
Scenario-2	ChoiceList-1	S14116A	Complete lesion at C6 level of cervical spinal cord, initial encounter	Pick this one
				AND
	ChoiceList-2	S12500B	Unspecified displaced fracture of sixth cervical vertebra, initial encounter for open fracture	One of these
	ChoiceList-2	S12501B	Unspecified nondisplaced fracture of sixth cervical vertebra, initial encounter for open fracture	
				OR
Scenario-3	ChoiceList-1	S14117A	Complete lesion at C7 level of cervical spinal cord, initial encounter	Pick this one
				AND
	ChoiceList-2	S12601B	Unspecified nondisplaced fracture of seventh cervical vertebra, initial encounter for open fracture	One of these
	ChoiceList-2	S12600B	Unspecified displaced fracture of seventh cervical vertebra, initial encounter for open fracture	
				OR



# GEM Statistics\*

## GEM Diagnosis Files (10 to 9)

GEM ICD10 to ICD9 map	Code Count	% of Total
Total number of ICD10 codes in the GEM file	69368	100.00%
Number of ICD10 codes with an exact match	3566	5.14%
Number of ICD10 codes with 'no map'	633	0.91%
Number of ICD10 codes that <u>require</u> more than one ICD9 code	3743	5.40%
Number of ICD10 codes that have 1 scenario	3692	5.32%
Number of ICD10 codes that have 2 scenarios	49	0.07%
Number of ICD10 codes that have 3 scenarios	1	0.00%
Number of ICD10 codes that have 4 scenarios	1	0.00%
Number of ICD10 codes that have 1 choice list	0	0.00%
Number of ICD10 codes that have 2 choice lists	3704	5.34%
Number of ICD10 codes that have 3 choice lists	33	0.05%
Number of ICD10 codes that have 4 choice lists	6	0.01%
Number of ICD10 codes that are not combination codes but have multiple choices	3496	5.04%
Number of ICD10 codes with only one GEM ICD9 code choice	62129	89.56%
Maximum number of ICD9 code choices	12	

\*Based on the 2011 GEM update  
Source: Health Data Consulting 2011



# GEM Statistics\*

## GEM Diagnosis Files (9 to 10)

GEM ICD9 to ICD10 map		Code Count	% of Total
Total number of ICD9 codes in the GEM file		14432	100.00%
Number of ICD9 codes with an exact match		3566	24.71%
Number of ICD9 codes with 'no map'		417	2.89%
Number of ICD9 codes that <u>require</u> more than one ICD10 code		644	4.46%
	Number of ICD9 codes that have 1 scenario	595	4.12%
	Number of ICD9 codes that have 2 scenarios	26	0.18%
	Number of ICD9 codes that have 3 scenarios	10	0.07%
	Number of ICD9 codes that have 4 scenarios	11	0.08%
	Number of ICD9 codes that have 6 scenarios	2	0.01%
	Number of ICD9 codes that have 1 choice list	0	0.00%
	Number of ICD9 codes that have 2 choice lists	644	4.46%
Number of ICD9 codes that are not combination codes but have multiple choices		2459	17.04%
Number of ICD9 codes with only one GEM ICD10 code choice		11329	78.50%
Maximum number of ICD10 code choices		533	

\*Based on the 2011 GEM update

Source: Health Data Consulting 2011



# GEM Statistics\*

## GEM PCS Files (10 to 9)

GEM ICD10 to ICD9 map		Code Count	% of Total
Total number of ICD10 procedure codes in the GEM file		72081	100.00%
Number of ICD10 procedure codes with an exact match (not approximate)		47	0.07%
Number of ICD10 procedure codes with 'no map'		0	0.00%
Number of ICD10 procedure codes that require more than one ICD9 procedure code		2229	3.09%
	Number of ICD10 procedure codes that have 1 scenario	2229	3.09%
	Number of ICD10 procedure codes that have 1 choice list	1	0.00%
	Number of ICD10 procedure codes that have 2 choice lists	1221	1.69%
	Number of ICD10 procedure codes that have 3 choice lists	502	0.70%
	Number of ICD10 procedure codes that have 4 choice lists	458	0.64%
	Number of ICD10 procedure codes that have 5 choice lists	36	0.05%
	Number of ICD10 procedure codes that have 6 choice lists	12	0.02%
Number of ICD10 codes that are not combination but have multiple choices		5012	6.95%
Number of ICD10 procedure codes with only one GEM ICD9 procedure code choice		64840	89.95%
Maximum number of ICD9 procedure code choices		11	0.02%

\*Based on the 2011 GEM update



# GEM Statistics\*

## GEM PCS Files (9 to 10)

GEM ICD9 to ICD10 map	Code Count	% of Total
Total number of ICD9 Procedure codes in the GEM file	3859	100.00%
Number of ICD9 Procedure codes with an exact match	47	1.22%
Number of ICD9 Procedure codes with 'no map'	210	5.44%
Number of ICD9 Procedure codes that require more than one ICD10 procedure code	188	4.87%
Number of ICD9 Procedure codes that have 1 scenario	130	3.37%
Number of ICD9 Procedure codes that have 2 scenarios	44	1.14%
Number of ICD9 Procedure codes that have 3 scenarios	4	0.10%
Number of ICD9 Procedure codes that have 4 scenarios	5	0.13%
Number of ICD9 Procedure codes that have 5 scenarios	2	0.05%
Number of ICD9 Procedure codes that have 6 scenarios	2	0.05%
Number of ICD9 Procedure codes that have 1 choice list	0	0.00%
Number of ICD9 Procedure codes that have 2 choice lists	158	4.09%
Number of ICD9 Procedure codes that have 3 choice lists	18	0.47%
Number of ICD9 Procedure codes that have 4 choice lists	6	0.16%
Number of ICD9 Procedure codes that have 5 choice lists	4	0.10%
Number of ICD9 Procedure codes that have 8 choice lists	1	0.03%
Number of ICD9 Procedure codes that have 9 choice lists	1	0.03%
Number of ICD9 Procedure codes with only one GEM ICD10 procedure code choice	608	15.76%
Number of codes that are not combination but have multiple choices	3063	79.37%
Maximum number of ICD10 procedure code choices	1196	

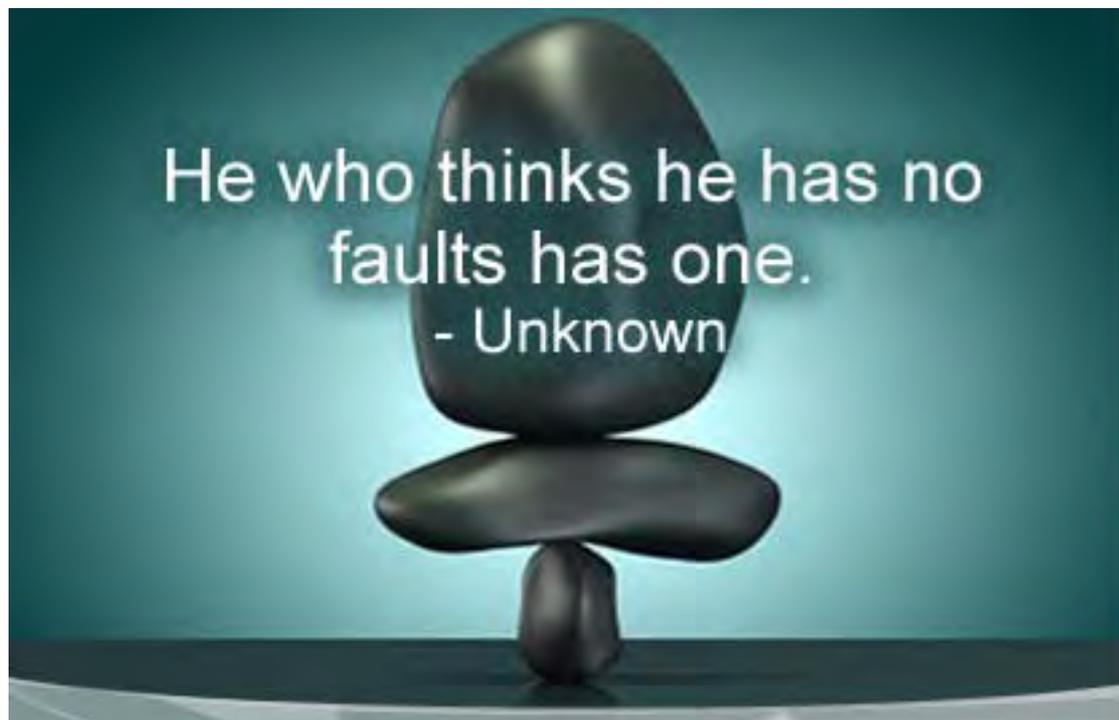
\*Based on the 2011 GEM update

Source: Health Data Consulting 2010



# GEM Issues

Great tool, but...





# GEM Issues

Things to consider when mapping

- **Beyond the intended limitations of GEM there are a number of issues that raise questions from a clinical perspective**
  - Some maps appear contradictory
  - Inconsistent mapping with the “Combination” indicator
  - Some maps not anatomically correct
  - Matches identified as exact (not “Approximate”) are not really exact.
  - Multiple other clinically questionable maps



# Examples of GEM Issues

## Contradictory Map

73031	PERIOSTITIS WITHOUT <i>MENTION OF</i> OSTEOMYELITIS INVOLVING SHOULDER REGION	
<u>9 to 10</u>		
	M869	Osteomyelitis, unspecified
<u>10 to 9</u>		
	None	



# GEM Issues

Inconsistent mapping without a “combination” indicator

<b>S62222A</b>	<b>Displaced Rolando's fracture, left hand, initial encounter for closed fracture</b>	
<u>10 to 9</u>		
	81501	CLOSED FRACTURE OF BASE OF THUMB (FIRST) METACARPAL
<u>9 to 10</u>		
	None	
<b>S62221S</b>	<b>Displaced Rolando's fracture, right hand, sequela</b>	
<u>10 to 9</u>		
	9052	LATE EFFECT OF FRACTURE OF UPPER EXTREMITIES
<u>9 to 10</u>		
	None	
<b>S62222P</b>	<b>Displaced Rolando's fracture, left hand, subsequent encounter for fracture with malunion</b>	
<u>10 to 9</u>		
	73381	MALUNION OF FRACTURE
<u>9 to 10</u>		
	None	



# Examples of GEM Issues

Not anatomically correct

<b>72661</b>	<b>PES ANSERINUS TENDINITIS OR BURSITIS</b>	
<b>9 to 10</b>		
	<b>M76859</b>	<b>Other enthesopathies, unspecified thighs</b>
<i>Current</i>	<i>M76899</i>	<i>Other specified enthesopathies of unspecified lower limb, excluding foot</i>
<b>10 to 9</b>		
	M76851	Other enthesopathies, right thigh
	M76852	Other enthesopathies, left thigh
	M76859	Other enthesopathies, unspecified thighs

\*Items in red have been fixed in the 2011 Update

Source: Health Data Consulting 2010



# Examples of GEM Issues

GEM exact matches (not quite exact)

ICD-9	ICD-9 Description	ICD-10	ICD-10 Description
V1071	PERSONAL HISTORY OF LYMPHOSARCOMA AND RETICULOSARCOMA	Z85828	Personal history of primary malignant neoplasm of other soft tissue
2460	Disorders of thyrocalcitonin secretion	E070	Hypersecretion of calcitonin
5409	ACUTE APPENDICITIS WITHOUT PERITONITIS	K359	Acute appendicitis, unspecified
29381	Psychotic disorder with delusions in conditions classified elsewhere	F062	Psychotic disorder with delusions due to known physiological condition
45621	Esophageal varices in diseases classified elsewhere, without mention of bleeding	I8510	Secondary esophageal varices without bleeding
20400	ACUTE LYMPHOID LEUKEMIA, WITHOUT MENTION OF HAVING ACHIEVED REMISSION	C9100	Acute lymphoblastic leukemia, not in remission
03811	METHICILLIN SUSCEPTIBLE STAPHYLOCOCCUS AUREUS SEPTICEMIA	A410	Sepsis due to Staphylococcus aureus
7019	UNSPECIFIED HYPERTROPHIC AND ATROPHIC CONDITIONS OF SKIN	L919	Hypertrophic disorder of the skin, unspecified (exact map)

\*Items in red have been fixed in the 2011 Update

Source: Health Data Consulting 2011



# Examples of GEM Issues

## Clinically Questionable Maps

ICD-9	ICD-9Descr	ICD-10	ICD-10 Descr
72702	GIANT CELL TUMOR OF TENDON SHEATH	C499	Malignant neoplasm of connective and soft tissue, unspecified
33384	ORGANIC WRITERS' CRAMP	G2589	Other specified extrapyramidal and movement disorders
70700	PRESSURE ULCER, UNSPECIFIED SITE	L8990	Pressure ulcer of unspecified site, unspecified stage
70720	PRESSURE ULCER, UNSPECIFIED STAGE	NoDx	No diagnosis
7091	VASCULAR DISORDERS OF SKIN	L959	Vasculitis limited to the skin, unspecified
7108	OTHER SPECIFIED DIFFUSE DISEASES OF CONNECTIVE TISSUE	M355	Multifocal fibrosclerosis
7109	UNSPECIFIED DIFFUSE CONNECTIVE TISSUE DISEASE	M359	Systemic involvement of connective tissue, unspecified
72761	COMPLETE RUPTURE OF ROTATOR CUFF	M7510	Rotator cuff syndrome, unspecified shoulder
71504	OSTEOARTHRISIS GENERALIZED INVOLVING HAND	M152	Bouchard's nodes (with arthropathy)
71504	OSTEOARTHRISIS GENERALIZED INVOLVING HAND	M151	Heberden's nodes (with arthropathy)
71534	OSTEOARTHRISIS LOCALIZED NOT SPECIFIED WHETHER PRIMARY OR SECONDARY INVOLVING HAND	M189	Osteoarthritis of first carpometacarpal joint, unspecified

\*Items in red have been fixed in the 2011 Update

Source: Health Data Consulting 2011



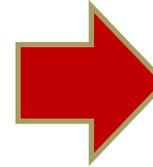
# DRG Crosswalking Issues

## ICD-10 to ICD-9 Unintended consequences

*ICD-10*

**Procedure:**  
03CM4ZZ – Percutaneous carotid endarterectomy

**Diagnosis:**  
I6521 – Occlusion R carotid  
I25110 – Atherosclerosis w unstable angina



**DRG:** 027 - Craniotomy & endovascular intracranial procedures w/o CC/MCC  
**Weight:** 2.9825 (\$16,655)

Reimbursement Map



*ICD-9*

**Procedure:**  
3812- Endarterectomy, other vessels of head and neck  
0040 - Procedure on single vessel

**Diagnosis:**  
43310 - Occlusion and stenosis crtd art w/o infrcr  
41401 - Crnry athrscrl native vssl  
4111 - Intermediate coronary syndrome



**DRG:** 039- Extracranial procedures w/o CC/MCC  
**Weight:** 1.5462 (\$8,634)



## GEM Uses



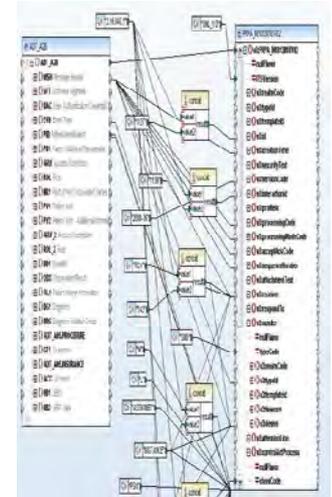
# Crosswalking with GEM

## GEM Mapping Exercise



# GEM Mapping Exercises

- Simple exact match
- Simple approximate 1 to 1 map
- Simple approximate greater than one possible map
- Combination map one scenario
- Combination map multiple scenarios





# Simple Exact Match

ICD-9	ICD-9Description	ICD-10	ICD-10 Description
5755	Fistula of gallbladder	K823	Fistula of gallbladder
53641	Infection of gastrostomy	K9422	Gastrostomy infection
7080	Allergic urticaria	L500	Allergic urticaria
73301	Senile osteoporosis	M810	Age-related osteoporosis without current pathological fracture



# Simple Approximate Match 1 to 1

ICD-9	ICD-9 Description	ICD-10	ICD-10 Description
0078	Other specified protozoal intestinal diseases	A078	Other specified protozoal intestinal diseases
01195	Pulmonary tuberculosis, unspecified, tubercle bacilli not found by bacteriological examination, but tuberculosis confirmed histologically	A150	Tuberculosis of lung
23772	Neurofibromatosis, type 2 [acoustic neurofibromatosis]	Q850	Neurofibromatosis (nonmalignant)
65263	Multiple gestation with malpresentation of one fetus or more, antepartum	O329xx0	Maternal care for malpresentation of fetus, unspecified, not applicable or unspecified

# Simple Approximate Match 1 to 1

ICD-10	ICD-10 Description	ICD-9	ICD-9 Description
A0102	Typhoid fever with heart involvement	0020	Typhoid fever
M84649P	Pathological fracture in other disease, unspecified hand, subsequent encounter for fracture with malunion	73381	Malunion of fracture
S43036D	Inferior dislocation of unspecified inferior humerus, subsequent encounter	V5889	Other specified aftercare
S72453K	Displaced supracondylar fracture without intracondylar extension of lower end of unspecified femur, subsequent encounter for closed fracture with nonunion	73382	Nonunion of fracture



# Simple Approximate - More Than One Possible Map

## ICD-9 (Dx) to ICD-10-CM

73313 Pathologic fracture of vertebrae		
	M4850xA	Collapsed vertebra, not elsewhere classified, site unspecified, initial encounter for fracture
	M8008xA	Age-related osteoporosis with current pathological fracture, vertebra(e), initial encounter for fracture
	M8468xA	Pathological fracture in other disease, other site, initial encounter for fracture
	M8448xA	Pathological fracture, other site, initial encounter for fracture



# Simple Approximate - More Than One Possible Map

## ICD-10-CM to ICD-9 (Dx)

A5203 Syphilitic endocarditis	
09323	Syphilitic endocarditis of tricuspid valve
09324	Syphilitic endocarditis of pulmonary valve
09322	Syphilitic endocarditis of aortic valve
09321	Syphilitic endocarditis of mitral valve
<b>09320</b>	Syphilitic endocarditis of valve, unspecified

# Simple Approximate - More Than One Possible Map

## ■ ICD-9(Proc) to ICD-10-PCS

8401	Finger Amputation	
	0X6N0Z0	Detachment at Right Index Finger, Complete, Open Approach
	0X6N0Z1	Detachment at Right Index Finger, High, Open Approach
	0X6N0Z2	Detachment at Right Index Finger, Mid, Open Approach
	0X6N0Z3	Detachment at Right Index Finger, Low, Open Approach
	0X6P0Z0	Detachment at Left Index Finger, Complete, Open Approach
	0X6P0Z1	Detachment at Left Index Finger, High, Open Approach
	0X6P0Z2	Detachment at Left Index Finger, Mid, Open Approach
	0X6P0Z3	Detachment at Left Index Finger, Low, Open Approach
	0X6Q0Z0	Detachment at Right Middle Finger, Complete, Open Approach
	0X6Q0Z1	Detachment at Right Middle Finger, High, Open Approach
	0X6Q0Z2	Detachment at Right Middle Finger, Mid, Open Approach
	0X6Q0Z3	Detachment at Right Middle Finger, Low, Open Approach
	...	<i>32 Codes Total</i>



# Combination Map – One Scenario

## ICD-9 (Dx) to ICD-10-CM

<b>80020</b>	<b>Closed fracture of vault of skull with subarachnoid, subdural, and extradural hemorrhage, unspecified state of consciousness</b>	
Choice-1	S020xxA	Fracture of vault of skull, initial encounter for closed fracture
Choice-2	S064x9A	Epidural hemorrhage with loss of consciousness of unspecified duration, initial encounter
Choice-2	S066x9A	Traumatic subarachnoid hemorrhage with loss of consciousness of unspecified duration, initial encounter
Choice-2	S065x9A	Traumatic subdural hemorrhage with loss of consciousness of unspecified duration, initial encounter

# Combination Map – One Scenario

## ICD-10-CM to ICD-9 (Dx)

<b>L8945</b>	<b>Pressure ulcer of contiguous site of back, buttock and hip, unstageable</b>	
Choice-1	70703	Pressure ulcer, lower back
Choice-2	70705	Pressure ulcer, buttock
Choice-3	70704	Pressure ulcer, hip
Choice-4	70725	Pressure ulcer, unstageable

# Combination Map - Multiple Scenarios

## ICD-9 (Dx) to ICD-10-CM

80600	Closed fracture of C1-C4 level with unspecified spinal cord injury		
Scenario-1	Choice-1	S14101A	Unspecified injury at C1 level of cervical spinal cord, initial encounter
	Choice-2	S12000A	Unspecified displaced fracture of first cervical vertebra, initial encounter for closed fracture
	Choice-2	S12001A	Unspecified nondisplaced fracture of first cervical vertebra, initial encounter for closed fracture
Scenario-2	Choice-1	S14102A	Unspecified injury at C2 level of cervical spinal cord, initial encounter
	Choice-2	S12101A	Unspecified nondisplaced fracture of second cervical vertebra, initial encounter for closed fracture
	Choice-2	S12100A	Unspecified displaced fracture of second cervical vertebra, initial encounter for closed fracture
Scenario-3	Choice-1	S14103A	Unspecified injury at C3 level of cervical spinal cord, initial encounter
	Choice-2	S12201A	Unspecified nondisplaced fracture of third cervical vertebra, initial encounter for closed fracture
	Choice-2	S12200A	Unspecified displaced fracture of third cervical vertebra, initial encounter for closed fracture
Scenario-4	Choice-1	S14104A	Unspecified injury at C4 level of cervical spinal cord, initial encounter
	Choice-2	S12300A	Unspecified displaced fracture of fourth cervical vertebra, initial encounter for closed fracture
	Choice-2	S12301A	Unspecified nondisplaced fracture of fourth cervical vertebra, initial encounter for closed fracture

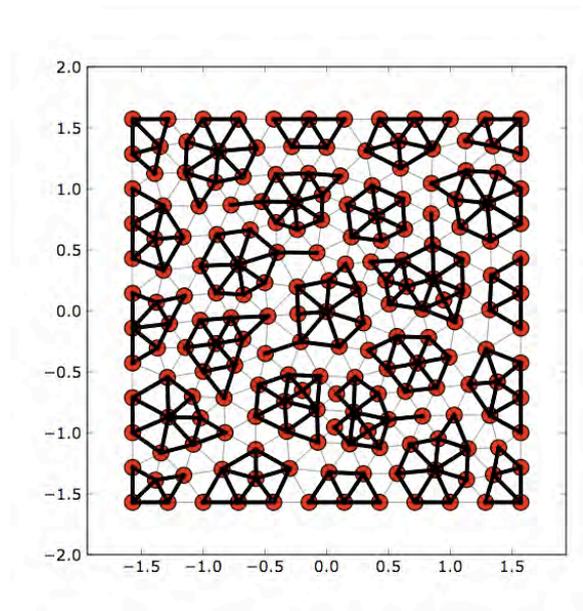


# Combination Map – Multiple Scenarios

## Combination multiple scenarios

### ICD-9(Proc) to ICD-10-PCS

7752	Bunionectomy with soft tissue correction and arthrodesis		
Scenario-1	Choice-1	0QBN4ZZ	Excision of Right Metatarsal, Percutaneous Endoscopic Approach
	Choice-1	0QBN0ZZ	Excision of Right Metatarsal, Open Approach
	Choice-1	0QBN3ZZ	Excision of Right Metatarsal, Percutaneous Approach
	Choice-2	0MQS4ZZ	Repair Right Foot Bursa and Ligament, Percutaneous Endoscopic Approach
	Choice-2	0MQS0ZZ	Repair Right Foot Bursa and Ligament, Open Approach
	Choice-2	0MQS3ZZ	Repair Right Foot Bursa and Ligament, Percutaneous Approach
	Choice-3	0SGM0ZZ	Fusion of Right Metatarsal-Phalangeal Joint, Open Approach
	Choice-3	0SGM3ZZ	Fusion of Right Metatarsal-Phalangeal Joint, Percutaneous Approach
	Choice-3	0SGM4ZZ	Fusion of Right Metatarsal-Phalangeal Joint, Percutaneous Endoscopic Approach
Scenario-2	Choice-1	0QBP3ZZ	Excision of Left Metatarsal, Percutaneous Approach
	Choice-1	0QBP0ZZ	Excision of Left Metatarsal, Open Approach
	Choice-1	0QBP4ZZ	Excision of Left Metatarsal, Percutaneous Endoscopic Approach
	Choice-2	0MQT0ZZ	Repair Left Foot Bursa and Ligament, Open Approach
	Choice-2	0MQT4ZZ	Repair Left Foot Bursa and Ligament, Percutaneous Endoscopic Approach
	Choice-2	0MQT3ZZ	Repair Left Foot Bursa and Ligament, Percutaneous Approach
	Choice-3	0SGN0ZZ	Fusion of Left Metatarsal-Phalangeal Joint, Open Approach
	Choice-3	0SGN3ZZ	Fusion of Left Metatarsal-Phalangeal Joint, Percutaneous Approach
	Choice-3	0SGN4ZZ	Fusion of Left Metatarsal-Phalangeal Joint, Percutaneous Endoscopic Approach



## Code Aggregation



# Redefining Code Aggregations

## Purpose

**Aggregation or grouping of codes is used to identify the codes that define some medical concept or intent. These groupings can be applied to:**

- *Policies that define conditions under which services are considered:*
  - *Appropriate*
  - *Not appropriate*
  - *Require further manual review*
- *Rules to define:*
  - *Coverage*
  - *Appropriateness*
  - *COB/TPL*
  - *Any other criteria that relies on the use of codes to define the intent of the rule*
- *Analytic Categories that attempt to group claims or other data based on types of services or conditions as defined by set of codes.*



# Redefining Code Aggregations

## Methods

### For ICD-9 to ICD-10 code group conversions:

- GEM ICD-9 to ICD-10 file
  - Mapped ICD-9 code is the 'Source Code'
- GEM ICD-10 to ICD-9 file
  - Mapped ICD-9 code is the 'Target Code'

### For ICD-10 to ICD-9 code group conversions:

- GEM ICD-10 to ICD-9 file
  - Mapped ICD-10 code is the 'Source Code'
- GEM ICD-9 to ICD-10 file
  - Mapped ICD-10 code is the 'Target Code'

### Native Redefinition (independent concept mapping):

- Define the concepts associated with the 'intent' of the policy, category, or rule.
- Identify the codes that represent the 'intent' of the policy, category, or rule independent of existing codes.



# Redefining Code Aggregations

Bi-directional mapping

## 36641 (Diabetic Cataract) - Bidirectional Map

- ICD-9 as the Source (9 to 10 file)

Source	Description	Target	Description
36641	DIABETIC CATARACT	E1136	Type 2 diabetes mellitus with diabetic cataract

- ICD-9 as the Target (9 to 10 file)

Source	Description	Target	Description
E1036	Type 1 diabetes mellitus with diabetic cataract	36641	DIABETIC CATARACT
E1136	Type 2 diabetes mellitus with diabetic cataract	36641	DIABETIC CATARACT
E1336	Other specified diabetes mellitus with diabetic cataract	36641	DIABETIC CATARACT



# Redefining Code Aggregations

The case for native redefinition

**There are a number of reasons to consider redefining groups of codes to represent the ‘intent’ of the policy, category, or rule.**

- There is an opportunity to be certain that the ‘intent’ of the original policy, category or rule is clearly defined and articulated so that the proper codes can be selected
- Crosswalking existing codes will reproduce existing errors
- Crosswalking may result in the inclusion or exclusion of codes that don’t match to the intent.
- New concepts supported by ICD-10 may result in a refinement or change in the policy, category, or rule
- Reporting on data sets in ICD-9 to data sets in ICD-10 will be comparable if the each data set is aggregated to directly to the same intent



# Code Aggregation Example

## Tuberculosis (Respiratory)

**Aggregation of codes that represent respiratory tuberculosis vs. other or unspecified forms of tuberculosis.**

- **Native ICD-10 definition [7] Codes**
  - GEM Bidirectional Map = [127]\*
- **Native ICD-9 definition [109] Codes**

*\*18 codes included that are not related to respiratory tuberculosis*



# Industrial Injury COB Rule Example

## Median Nerve Injury

### ■ Native ICD-9 definition [3] Codes

[1 code related specifically to Median nerve injury]

[2 codes for review related to potential injury]

➤ GEM Bidirectional Map = [15]\*

### ■ Native ICD-10 definition [33] Codes

[27 codes related specifically to median nerve injury]

[6 codes related to potential injury (Carpal Tunnel/Median nerve lesion)]



# Analytic Category Example

## Fractures of the Radius

### ■ Native ICD-9 definition [33] Codes

[2 codes for Colles' fracture]

[2 codes for Torus fracture of the Radius]

[1 codes for Pathologic fracture of the Radius]

[6 codes for fracture of the Forearm]

[22 codes for other fractures of the Radius]

➤ GEM Bidirectional Map = [336]\*



# Analytic Category Example

## Fractures of the Radius

### Native ICD-10 definition [**1818**] Codes

- [48 codes for Colles' fracture]
- [48 codes for Barton's fracture]
- [48 codes for Smith's fracture]
- [48 codes for Radial Styloid fracture]
- [48 codes for Galeazzi's fracture]
- [36 codes for Torus fracture of the Radius]
- [18 codes for Stress fracture of the Radius]
- [18 codes for Greenstick fracture of the Radius]
- [90 codes for Pathologic fracture of the Radius]
- [45 codes for Bent Bone fracture of the Radius]
- [216 codes for Growth Plate fracture of the Radius]
- [663 codes for other fractures of the Radius]



## Reimbursement Mapping



# Reimbursement Maps

What are they?

- Files that provide a unidirectional map from ICD-10 to ICD-9
- Derived from frequency data based on hospital inpatient data (MedPar, OSHPD)
- Order of mapped code relates to preference
- Intended to be only a temporary mapping for claims processing for un-remediated systems
- Are not expected to be clinically correct
- Maps one ICD-10 to code to up to five ICD-9 codes; no scenarios or choice lists



# Reimbursement Maps

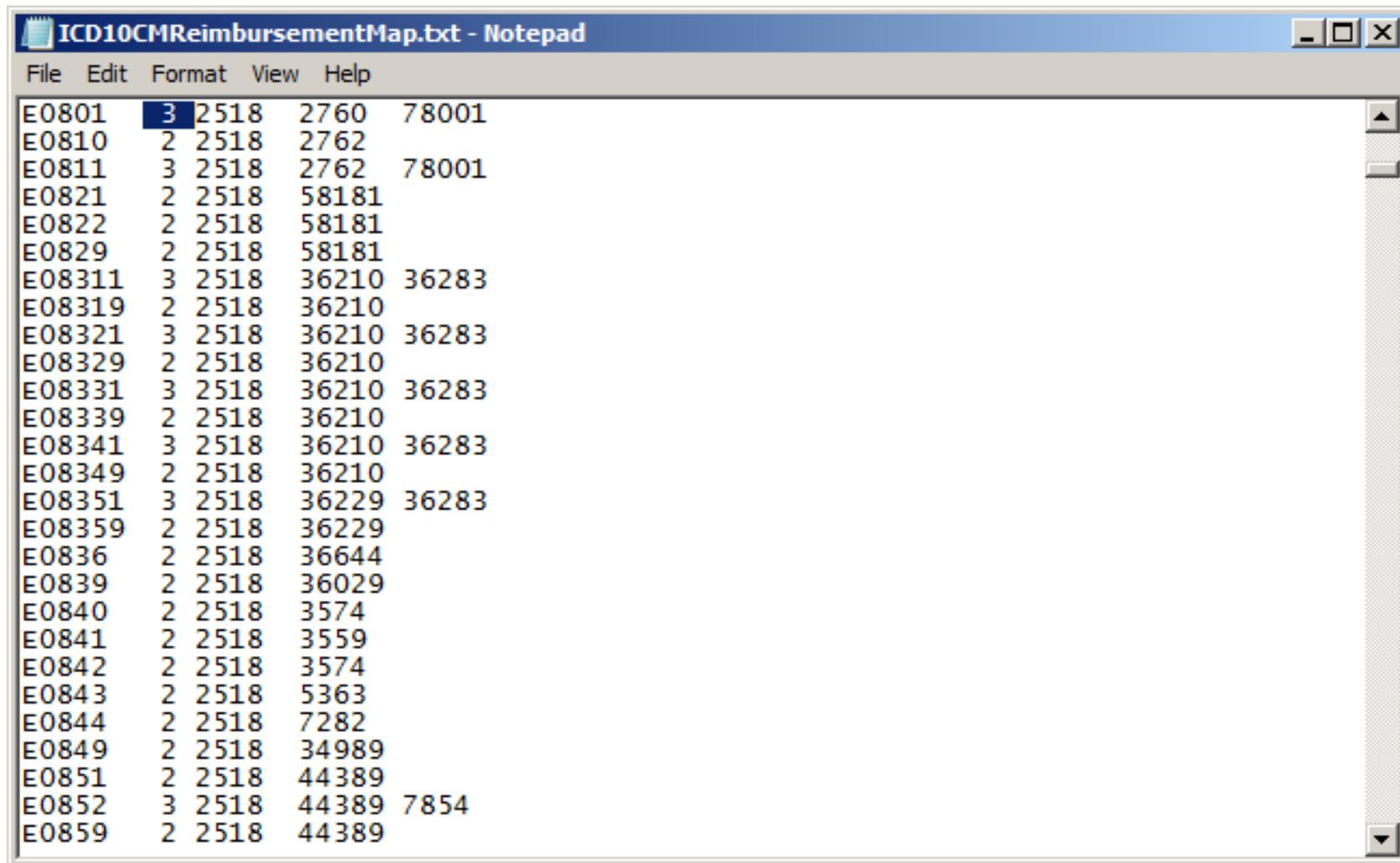
CMS GEMS/Crosswalks Basic FAQ

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*“CMS is not using the ICD-10 Reimbursement Mappings for any purpose. We are converting our systems and applications to accept ICD-10-CM/PCS codes directly.”*

# What do they look like?

Raw File



ICD10CMReimbursementMap.txt - Notepad

File	Edit	Format	View	Help
E0801	3	2518	2760	78001
E0810	2	2518	2762	
E0811	3	2518	2762	78001
E0821	2	2518	58181	
E0822	2	2518	58181	
E0829	2	2518	58181	
E08311	3	2518	36210	36283
E08319	2	2518	36210	
E08321	3	2518	36210	36283
E08329	2	2518	36210	
E08331	3	2518	36210	36283
E08339	2	2518	36210	
E08341	3	2518	36210	36283
E08349	2	2518	36210	
E08351	3	2518	36229	36283
E08359	2	2518	36229	
E0836	2	2518	36644	
E0839	2	2518	36029	
E0840	2	2518	3574	
E0841	2	2518	3559	
E0842	2	2518	3574	
E0843	2	2518	5363	
E0844	2	2518	7282	
E0849	2	2518	34989	
E0851	2	2518	44389	
E0852	3	2518	44389	7854
E0859	2	2518	44389	



# Reimbursement Maps

Making them usable

ICD10...	ICD10Descr	MapNum	ICD9_1	ICD9_1Descr	ICD9_2	ICD9_2Descr	ICD9_3	ICD9_3Descr
2...	E079 Disorder of thyroid, unspecified	1	2469	Unspecified disorder of thyroid				
2...	E0800 Diabetes mellitus due to underlying condition with hyp...	2	2518	Other specified disorders of pancr...	2760	Hyperosmolality and/or hypematremia		
2...	E0801 Diabetes mellitus due to underlying condition with hyp...	3	2518	Other specified disorders of pancr...	2760	Hyperosmolality and/or hypematremia	78001	Coma
2...	E0810 Diabetes mellitus due to underlying condition with keto...	2	2518	Other specified disorders of pancr...	2762	Acidosis		
2...	E0811 Diabetes mellitus due to underlying condition with keto...	3	2518	Other specified disorders of pancr...	2762	Acidosis	78001	Coma
2...	E0821 Diabetes mellitus due to underlying condition with diab...	2	2518	Other specified disorders of pancr...	58181	Nephrotic syndrome in diseases classified els...		
2...	E0822 Diabetes mellitus due to underlying condition with diab...	2	2518	Other specified disorders of pancr...	58181	Nephrotic syndrome in diseases classified els...		
2...	E0829 Diabetes mellitus due to underlying condition with othe...	2	2518	Other specified disorders of pancr...	58181	Nephrotic syndrome in diseases classified els...		
2...	E08311 Diabetes mellitus due to underlying condition with uns...	3	2518	Other specified disorders of pancr...	36210	Background retinopathy, unspecified	36283	Retinal edema
2...	E08319 Diabetes mellitus due to underlying condition with uns...	2	2518	Other specified disorders of pancr...	36210	Background retinopathy, unspecified		
2...	E08321 Diabetes mellitus due to underlying condition with mild ...	3	2518	Other specified disorders of pancr...	36210	Background retinopathy, unspecified	36283	Retinal edema
2...	E08329 Diabetes mellitus due to underlying condition with mild ...	2	2518	Other specified disorders of pancr...	36210	Background retinopathy, unspecified		
2...	E08331 Diabetes mellitus due to underlying condition with mod...	3	2518	Other specified disorders of pancr...	36210	Background retinopathy, unspecified	36283	Retinal edema
2...	E08339 Diabetes mellitus due to underlying condition with mod...	2	2518	Other specified disorders of pancr...	36210	Background retinopathy, unspecified		
2...	E08341 Diabetes mellitus due to underlying condition with sev...	3	2518	Other specified disorders of pancr...	36210	Background retinopathy, unspecified	36283	Retinal edema



# Reimbursement Maps

## Mapping Statistics

ICD-10-PCS to ICD-9 Procedure Reimbursement Map		Code Count	% of Total
<b>Total number of ICD-10-PCS Codes in the file</b>		72081	100.00%
<b>Number of ICD-10-PCS codes with 'no map'</b>		0	0.00%
	<b>Number of ICD-10-PCS codes that have 1 mapped ICD-9 code</b>	69946	97.04%
	<b>Number of ICD-10-PCS codes that have 2 mapped ICD-9 code</b>	1127	1.56%
	<b>Number of ICD-10-PCS codes that have 3 mapped ICD-9 code</b>	502	0.70%
	<b>Number of ICD-10-PCS codes that have 4 mapped ICD-9 code</b>	458	0.64%
	<b>Number of ICD-10-PCS codes that have 5 mapped ICD-9 code</b>	36	0.05%
	<b>Number of ICD-10-PCS codes that have 6 mapped ICD-9 code</b>	12	0.02%

ICD-10-CM to ICD-9 Diagnosis Reimbursement Map		Code Count	% of Total
<b>Total number of ICD-10-CM Codes</b>		69368	100.00%
<b>Number of ICD-10-CM codes with 'no map'</b>		0	0.00%
	<b>Number of ICD-10-CM codes that have 1 mapped ICD-9 code</b>	65684	94.69%
	<b>Number of ICD-10-CM codes that have 2 mapped ICD-9 code</b>	3647	5.26%
	<b>Number of ICD-10-CM codes that have 3 mapped ICD-9 code</b>	31	0.04%
	<b>Number of ICD-10-CM codes that have 4 mapped ICD-9 code</b>	6	0.01%

\*Based on the 2011 Reimbursement map update

Source: Health Data Consulting 2011



# Reimbursement Mapping Exercise

## Reimbursement Mapping Examples

<b>E0801</b>	<b>Diabetes mellitus due to underlying condition with hyperosmolarity with coma</b>	
	<b>2518</b>	<b>Other specified disorders of pancreatic internal secretion</b>
	<b>2760</b>	<b>Hyperosmolality and/or hypernatremia</b>
	<b>78001</b>	<b>Coma</b>
<b>E0936</b>	<b>Drug or chemical induced diabetes mellitus with diabetic cataract</b>	
	<b>24950</b>	<b>Secondary diabetes mellitus with ophthalmic manifestations, not stated as uncontrolled, or unspecified</b>
	<b>36644</b>	<b>Cataract associated with other syndromes</b>
<b>S82153N</b>	<b>Displaced fracture of unspecified tibial tuberosity, subsequent encounter for open fracture type IIIA, IIIB, or IIIC with nonunion</b>	
	<b>73382</b>	<b>Nonunion of fracture</b>
<b>W1811XA</b>	<b>Fall from or off toilet without subsequent striking against object, initial encounter</b>	
	<b>E8846</b>	<b>Accidental fall from commode</b>
<b>S062X7D</b>	<b>Diffuse traumatic brain injury with loss of consciousness of any duration with <u>death</u> due to brain injury prior to regaining consciousness, subsequent encounter</b>	
	<b>V5889</b>	<b>Other specified aftercare</b>



# Discussion



- What are the risks and implications of using crosswalks at your SMA? Currently, which strategy is your SMA pursuing?
- What are your current concerns in managing reporting and analytics implications of ICD-10 during the transition period?
- What are your longer term considerations for leveraging the detail in ICD-10 for analysis?
- How do you plan to make decisions about the appropriateness of crosswalks and aggregating ICD-10 to categories?

# Discussion – Supporting Tools and Artifacts



- GEMs File
- ICD-9 and ICD-10 Clinical Concepts
- Business/ Clinical Scenarios
- Translation Checklist



# Closing Points

- Communicate with leadership the work effort involved with ICD-10 implementation. Less than 5% of all ICD-10 and ICD-9 codes will map accurately.
- Define a governance model for oversight and approval of all translation efforts.
- Research available information and tools that will be important in the translation process.
- Train staff and experience the use of GEMs and identify how to address GEMs issues in translation.
- Define policies for translation where recurring choices need to be made.
- Identify where crosswalks may be necessary.
- Identify where the re-definition of code aggregation or grouping will be necessary.
- Define a model for testing all crosswalking and code aggregation deliverables.