

MapIT (developed by AHRQ*)
Introduction to Mapping Tool 2015
ICD-9-CM and ICD-10-CM/PCS



**<http://www.qualityindicators.ahrq.gov/resources/Toolkits.aspx>*

Introduction

- **Ginger Cox**, RHIT, CCS, ICD-9/10 Coding and Conversion Analyst, University of California, Davis Center for Health Care Policy and Research
- **Denise Love**, Executive Director/Project Manager, National Association of Health Data Organizations (NAHDO)
- **Patrick Romano**, MD, MPH, FACP, FAAP, Professor of Medicine and Pediatrics, University of California, Davis Center for Health Care Policy and Research

Overview

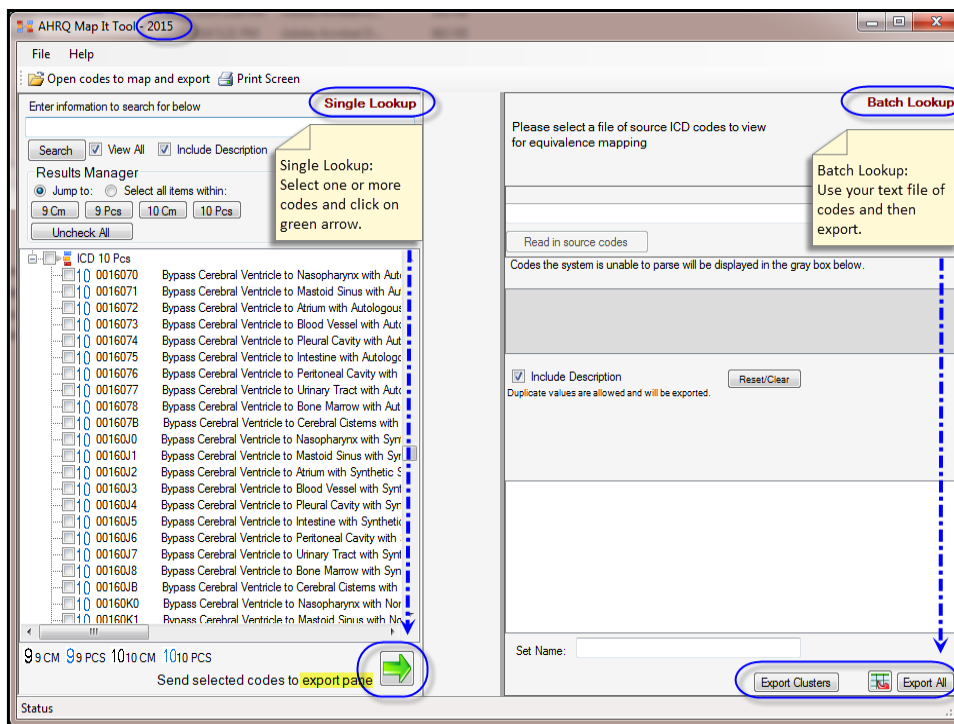
- ❑ Introduction
- ❑ About the Tool
- ❑ Short Review of Mapping Logic
- ❑ Understanding the GEM Flags
- ❑ Mapping Examples
- ❑ Mapping Changes – FY 2014 and FY 2015
- ❑ Single and Batch Mode, and Output
- ❑ Demonstration
- ❑ Summary

3

About the Tool

- ❑ **Mapping tool “MapIT” based on General Equivalence Mapping (GEMs), FY 2014 and FY 2015**
 - ❑ Provide all plausible translation alternatives with forward, backward, reverse forward, and reverse backward translations
 - ❑ ICD-9-CM to ICD-10-CM (diagnosis and external causes)
 - ❑ ICD-9-CM to ICD-10-PCS (procedures)
- ❑ **Enhancements**
 - ❑ Two Panes: Single Lookup and Batch Lookup.
 - ❑ Output will reflect if it is mapping from 9-to-10 or 10-to-9
- ❑ **Mapping Tool is FREE and offered by AHRQ**
 - ❑ Tool is available on AHRQ website
<http://www.qualityindicators.ahrq.gov/resources/Toolkits.aspx>

4



Output: Your list of codes

ICD 9 CM	Description
Start: Original ICD 9 CM Codes From Set VIRAL Hepatitis	
070.0	Viral hepatitis A with hepatic coma
070.1	Viral hepatitis A without mention of hepatic coma
070.20	Viral hepatitis B with hepatic coma, acute or unspecified, without mention of hepatitis delta
070.21	Viral hepatitis B with hepatic coma, acute or unspecified, with hepatitis delta
070.22	Chronic viral hepatitis B with hepatic coma without hepatitis delta
070.23	Chronic viral hepatitis B with hepatic coma with hepatitis delta
070.30	Viral hepatitis B without mention of hepatic coma, acute or unspecified, without mention of hepatitis delta
070.31	Viral hepatitis B without mention of hepatic coma, acute or unspecified, with hepatitis delta
070.32	Chronic viral hepatitis B without mention of hepatic coma without mention of hepatitis delta
070.33	Chronic viral hepatitis B without mention of hepatic coma with hepatitis delta
070.41	Acute hepatitis C with hepatic coma
070.42	Hepatitis delta without mention of active hepatitis B disease with hepatic coma
070.43	Hepatitis E with hepatic coma
070.44	Chronic hepatitis C with hepatic coma
070.49	Other specified viral hepatitis with hepatic coma
070.51	Acute hepatitis C without mention of hepatic coma
070.52	Hepatitis delta without mention of active hepatitis B disease or hepatic coma
070.53	Hepatitis E without mention of hepatic coma
070.54	Chronic hepatitis C without mention of hepatic coma
070.59	Other specified viral hepatitis without mention of hepatic coma
070.6	Unspecified viral hepatitis with hepatic coma
070.70	Unspecified viral hepatitis C without hepatic coma
070.71	Unspecified viral hepatitis C with hepatic coma
070.9	Unspecified viral hepatitis without mention of hepatic coma
072.71	Mumps hepatitis
573.1	Hepatitis in viral diseases classified elsewhere
573.2	Hepatitis in other infectious diseases classified elsewhere
V02.60	Viral hepatitis carrier, unspecified

Stage 1: Map Original ICD-9 Codes to ICD-10 Code

Stage 1: ICD-10 Codes Identified Through Forward and Reverse Backward Mapping from Original ICD-9 Codes												
ICD-9 Code	Description	Map Type	ICD-10 Code	Description	Approx	No Map	Combo	Scenario	Choice	Add	Delete	Comment
070.0	Viral hepatitis A with hepatic coma	F Map	B15.0	Hepatitis A with hepatic coma	0	0	0	0	0			
070.1	Viral hepatitis A without mention of hepatic coma	F Map	B15.9	Hepatitis A without hepatic coma	0	0	0	0	0			
070.20	Viral hepatitis B with hepatic coma, acute or unspecified, without mention of hepatitis delta	F Map	B16.2	Acute hepatitis B without delta-agent with hepatic coma	1	0	0	0	0			
070.20	Viral hepatitis B with hepatic coma, acute or unspecified, without mention of hepatitis delta	F Map	B16.11	Unspecified viral hepatitis B with hepatic coma	1	0	0	0	0			
070.21	Viral hepatitis B with hepatic coma, acute or unspecified, with hepatitis delta	F Map	B16.0	Acute hepatitis B with delta-agent with hepatic coma	1	0	0	0	0			
070.31	Viral hepatitis B without mention of hepatic coma, acute or unspecified, with hepatitis delta	F Map	B16.1	Acute hepatitis B with delta-agent without hepatic coma	1	0	0	0	0			
070.32	Chronic viral hepatitis B without mention of hepatic coma without mention of hepatitis delta	F Map	B18.1	Chronic viral hepatitis B without delta-agent	1	0	0	0	0			
070.33	Chronic viral hepatitis B without mention of hepatic coma with hepatitis delta	F Map	B18.0	Chronic viral hepatitis B with delta-agent	1	0	0	0	0			

7

Stage 2: Map new ICD-10 Codes from Stage 1 to find more ICD-9 Codes

Stage 3: Map new ICD-9 Codes from Stage 2 to find more ICD-10 Codes

Stage 2: New ICD-9 Codes Identified Through Backward and Reverse Forward Mapping from Stage 1 ICD-10 Codes												
ICD-9 Code	Description	Map Type	ICD-10 Code	Description	Approx	No Map	Combo	Scenario	Choice	Add	Delete	Comment
078.5	Cytomegaloviral disease	B Map	B25.1	Cytomegaloviral hepatitis	1	0	1	1	1			
573.8	Other specified disorders of liver	B Map	K77.	Liver disorders in diseases classified elsewhere	1	0	0	0	0			

Stage 3: New ICD-10 Codes Identified Through Forward and Reverse Backward Mapping from Stage 2 ICD-9 Codes												
ICD-9 Code	Description	Map Type	ICD-10 Code	Description	Approx	No Map	Combo	Scenario	Choice	Add	Delete	Comment
078.5	Cytomegaloviral disease	RB Map	B25.0	Cytomegaloviral pneumonitis	1	0	1	1	1			
078.5	Cytomegaloviral disease	RB Map	B25.2	Cytomegaloviral pancreatitis	1	0	1	1	1			
078.5	Cytomegaloviral disease	RB Map	B25.8	Other cytomegaloviral diseases	1	0	0	0	0			
078.5	Cytomegaloviral disease	F Map	B25.9	Cytomegaloviral disease, unspecified	1	0	0	0	0			
573.8	Other specified disorders of liver	F Map	K78.1	Chronic passive congestion of liver	1	0	0	0	0			
573.8	Other specified disorders of liver	RB Map	K78.5	Hepatic veno-occlusive disease	1	0	0	0	0			
573.8	Other specified disorders of liver	F Map	K78.89	Other specified diseases of liver	1	0	0	0	0			

8

Example: Proper Direction

9-to-10  **Forward Map**

ICD-9	Description	Map	ICD-10	Description
451.81	Phlebitis and thrombophlebitis, iliac vein	F Map	I80.219	Phlebitis and thrombophlebitis, unspecified iliac vein

10-to-9  **Backward Map**

ICD-10	Description	Map	ICD-9	Description
I80.219	Phlebitis and thrombophlebitis, unspecified iliac vein	B Map	451.81	Phlebitis and thrombophlebitis, iliac vein

Match in general description

9

Example: Reverse Direction

Reverse Map  10-to-9

ICD-10	Description	Map	ICD-9	Description
I80.211	Phlebitis and thrombophlebitis, <u>right</u> iliac vein	RB Map	451.81	Phlebitis and thrombophlebitis, iliac vein
I80.212	Phlebitis and thrombophlebitis, <u>left</u> iliac vein	RB Map		
I80.213	Phlebitis and thrombophlebitis <u>bilateral</u> iliac veins	RB Map		

Reverse Backward mapping logic

Use the backward map and reverse the lookup

Provide more specific codes

10

GEM Flags: What do they tell you?

Stage 1: ICD-10 Codes Identified Through Forward and Reverse Backward Mapping from Original ICD-9 Codes

ICD-9 Code	Description	Map Type	ICD-10 Code	Description	Approx	No Map	Combo	Scenario	Choice	Add	Delete	Comment
070.0	Viral hepatitis A with hepatic coma	F Map	B15.0	Hepatitis A with hepatic coma	0	0	0	0	0			
070.1	Viral hepatitis A without mention of hepatic coma	F Map	B15.9	Hepatitis A without hepatic coma	0	0	0	0	0			
070.20	Viral hepatitis B with hepatic coma, acute or unspecified, without mention of hepatitis delta	F Map	B16.2	Acute hepatitis B without delta-agent with hepatic coma	1	0	0	0	0			
070.20	Viral hepatitis B with hepatic coma, acute or unspecified, without mention of hepatitis delta	F Map	B19.11	Unspecified viral hepatitis B with hepatic coma	1	0	0	0	0			
070.21	Viral hepatitis B with hepatic coma, acute or unspecified, with hepatitis delta	F Map	B16.0	Acute hepatitis B with delta-agent with hepatic coma	1	0	0	0	0			
070.31	Viral hepatitis B without mention of hepatic coma, acute or unspecified, with hepatitis delta	F Map	B16.1	Acute hepatitis B with delta-agent without hepatic coma	1	0	0	0	0			
070.32	Chronic viral hepatitis B without mention of hepatic coma without mention of hepatitis delta	F Map	B18.1	Chronic viral hepatitis B without delta-agent	1	0	0	0	0			
070.33	Chronic viral hepatitis B without mention of hepatic coma with hepatitis delta	F Map	B18.0	Chronic viral hepatitis B with delta-agent	1	0	0	0	0			

GEM Flag: Exact Match

ICD-9	Desc	ICD10	Desc	Approx	No Map	Comb	Scenario	Choice
453.1	Thrombo-phlebitis migrans	182.1	Thrombo-phlebitis migrans	0	0	0	0	0

- The **Approximate Flag**: code 0 means exact match.
- Business rule**:
 - Do you take them as face-value?
 - Do you want to evaluate these exact-matches as well?

GEM Flag: Approximate Match

ICD-9	Desc	ICD10	Desc	Approx	No Map	Comb	Scenario	Choice
518.53	Acute and chronic resp failure following surgery	J96.20	Acute and chronic resp failure with hypoxia	1	0	0	0	0

- The Approximate Flag:** code **1** means approximate match in descriptions.
- Business rule:**
 - How will these descriptions affect your project or study?

13

GEM Flag: No Map

ICD-9	Desc	ICD10	Desc	Approx	No Map	Comb	Scenario	Choice
707.25	Pressure ulcer, unstageable	NoDx	No Dx	1	1	0	0	0

- The No Map Flag:** code **1** means there are no codes to match the description (often found in the proper direction).
- Business rule:**
 - Are there any other codes to consider?
 - Consider reverse map to find additional codes?

14

GEM Flag: Example of “No Map”

ICD9	Description	Map	ICD10	Description
707.25	Pressure Ulcer, unstageable	F Map	No DX	No DX
		RB Map	L89.000	Pressure ulcer, unstageable, unspec. elbow
		RB Map	L89.010	Pressure ulcer, unstageable, right elbow
		RB Map	L89.020	Pressure ulcer, unstageable, left elbow
		RB Map	L89.100	Pressure ulcer, unstageable, unspec. back
		RB Map	L89.110	Pressure ulcer, unstageable, rt.upper back
		RB Map	L89.120	Pressure ulcer, unstageable, lt.upper back
		RB Map	L89.130	Pressure ulcer, unstageable, rt.lower back
		RB Map	L89.140	Pressure ulcer, unstageable, lt.lower back
		RB Map	L89.1xx	Many, many more!

15

GEM Flag: Combination

Source: 415.11 Iatrogenic pulmonary embolism and infarction

ICD10 Target	Description	Approx	No Map	Comb	Scenario	Choice
T80.0xxA	Air embolism following infusion, transfusion, therapeutic injection, initial encounter	1	0	1	1	1
I26.90	Septic pulmonary embolism without acute cor pulmonale	1	0	1	1	2
I26.99	Other pulmonary embolism without acute cor pulmonale	1	0	1	1	2

- The Combination Flag:** code **1** means it takes more than one target code to satisfy all the meaning of the source code.
- Business rule:**
 - Do you want to capture all choices or are you limited to one choice?

16

GEM Flag: Example of Combination Clusters

Scenario	Choice	ICD-10	Description
1	1	T80.0xxA	Air embolism following infusion, transfusion, therapeutic injection, initial encounter
1	2	I26.90	Septic pulmonary embolism without acute cor pulmonale
Scenario	Choice	ICD-10	Description
1	1	T80.0xxA	Air embolism following infusion, transfusion, therapeutic injection, initial encounter
1	2	I26.99	Other pulmonary embolism without acute cor pulmonale

Source: 415.11 Iatrogenic pulmonary embolism and infarction

Diagnosis Mapping Example Severe Sepsis with septic shock

3 codes	ICD-9-CM	
038.9	Unspecified septicemia	(Infection)
995.92	<u>Severe sepsis</u>	(Condition)
785.52	<u>Septic shock</u>	(Condition)
2 codes	ICD-10-CM	
A41.9	Sepsis, unspecified organism	(Infection)
R65.21	<u>Severe sepsis with septic shock</u>	(Condition)

ICD-10-CM has more combination codes.
Condition + Site/Symptom + Attribute about the diagnosis.

Procedure Mapping Example Partial Gastrectomy with anastomosis to jejunum

1 code	ICD-9-CM (volume 3)
43.7	Partial gastrectomy with anastomosis to jejunum

2 codes	ICD-10-PCS
0DB6OZZ	Excision of stomach , open approach
OD16OZA	Bypass stomach to jejunum , open approach

ICD-10-PCS will not have combination codes.
Every objective and approach must have a separate code for each site.

19

Vague ICD-9-CM Procedure Procedure on single vessel – Beware!

1 code	ICD-9-CM
00.40	Procedure on single vessel

Codes	ICD-10-PCS (1,156 distinct codes on every vessel)
027- ---	Dilation on vessels in heart and aorta (left, right, bilateral)
037- ---	Dilation on arteries in upper extremities & upper diaphragm
047- ---	Dilation on arteries in lower extremities & below diaphragm
057- ---	Dilation on veins in upper extremities & upper diaphragm
067- ---	Dilation on veins in lower extremities & below diaphragm
More.....	More codes for extirpation and excision on every vessel

20

Mapping Result: Will require team discussion

Mapping did not result in ICD-10-CM codes with coma.

ICD-9-CM	Description	ICD-10-CM	Description
070.42	Hepatitis delta with hepatic coma	B17.0	Acute delta (super) infection of hepatitis B carrier
070.43	Hepatitis E with hepatic coma	B17.2	Acute Hepatitis E
070.44	Chronic hepatitis C with hepatic coma	B17.8	Chronic viral hepatitis C

Look up in ICD-10-CM codebook for codes with coma.

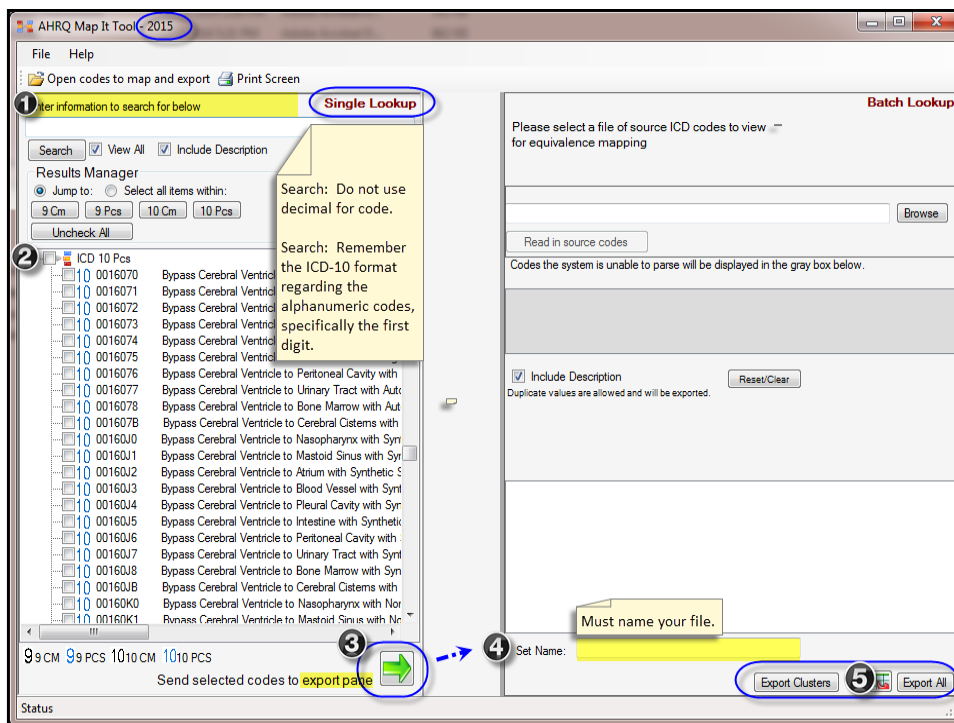
ICD-10-CM	Look up in the ICD-10-CM for hepatic coma
K72.01	Acute & subacute hepatic failure with coma
K72.11	Chronic hepatic failure with coma
K72.91	Hepatic failure, unspecified with coma

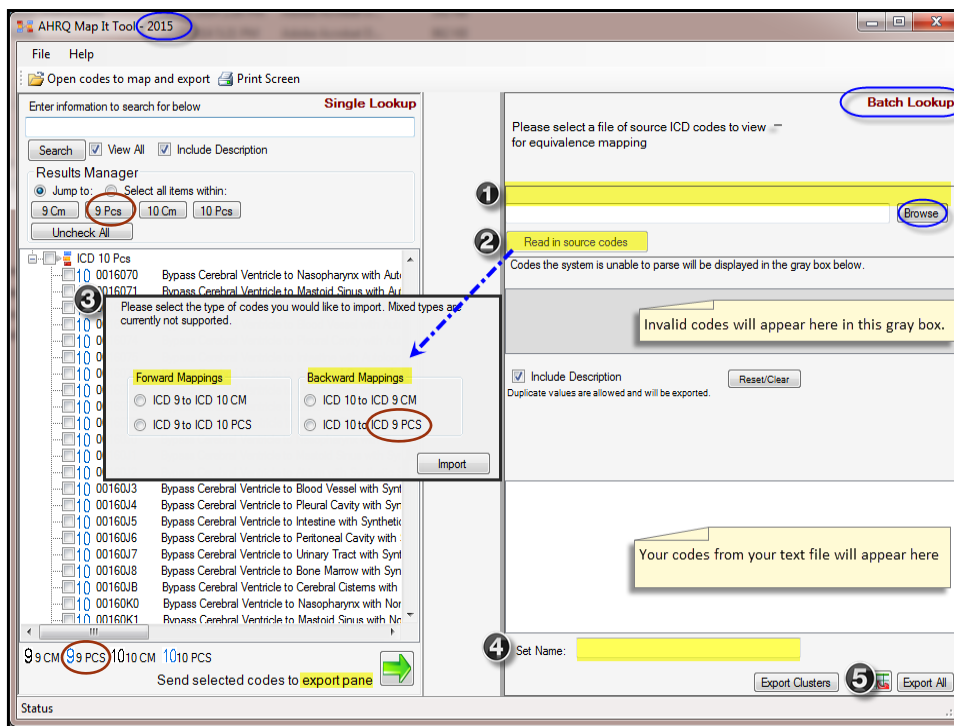
MapIT New Changes: FY 2014 (effective 10/1/2013)

Actions	Diagnosis or Procedure	How many?
		83
New codes	Diagnosis	0
Deleted codes	Diagnosis	9
Description changes	Diagnosis	28
Mapping changes - GEM	Diagnosis	15
New codes	Procedure	7
Deleted codes	Procedure	3
Description changes	Procedure	8
Mapping changes - GEM	Procedure	13

MapIT New Changes: FY 2015 (effective 10/1/2014)

Actions	Diagnosis or Procedure	How many? 211
Mapping Changes	Diagnosis 9-10	2
Mapping Changes	Diagnosis 10-9	24
Mapping/Cluster Changes	Diagnosis 9-10	9
Mapping/Cluster Changes	Diagnosis 10-9	56
Mapping Changes	Procedure 9-10	34
Mapping Changes	Procedure 10-9	36
Mapping/Cluster Changes	Procedure 9-10	50
Mapping/Cluster Changes	Procedure 10-9	0





YOUR NAME				
Set Name	Set name for CDC program	Number of Codes	Types of Codes	Subject Matter Experts Work group
PE	Pulmonary embolism	42	Diagnosis	DVT-PE Work Group

You can add rows for your output.

MapIT Output – See below

Stage 1: ICD-10 Codes Identified Through Forward and Reverse Backward Mapping from Original ICD-9 Codes

ICD-9	Description	Map Type	ICD-10 Code	Description	Approx	No Map	Combo	Scenario	Choice
415.0	Acute cor pulmonale	RB Map	I26.01	Septic pulmonary embolism with acute cor pulmonale	1	0	1	1	2
415.0	Acute cor pulmonale	RB Map	I26.02	Saddle embolus of pulmonary artery with acute cor pulmonale	1	0	1	1	2
415.0	Acute cor pulmonale	F Map	I26.09	Other pulmonary embolism with acute cor pulmonale	1	0	0	0	0
415.0	Acute cor pulmonale	RB Map	I26.09	Other pulmonary embolism with acute cor pulmonale	1	0	1	1	2
415.11	latrogenic pulmonary embolism and infarction	F Map	I26.90	Septic pulmonary embolism without acute cor pulmonale	1	0	1	1	2
415.11	latrogenic pulmonary embolism and infarction	F Map	I26.99	Other pulmonary embolism without acute cor pulmonale	1	0	1	1	2
415.11	latrogenic pulmonary embolism and infarction	F Map	T80.0XXA	Air embolism following infusion, transfusion and therapeutic	1	0	1	1	1
415.11	latrogenic pulmonary embolism and infarction	F Map	T81.718A	Complication of other artery following a procedure, not elsewhere	1	0	1	1	1
415.11	latrogenic pulmonary embolism and infarction	F Map	T81.72XA	Complication of vein following a procedure, not elsewhere	1	0	1	1	1
415.11	latrogenic pulmonary embolism and infarction	F Map	T82.817A	Embolism of cardiac prosthetic devices, implants and grafts,	1	0	1	1	1
415.11	latrogenic pulmonary embolism and infarction	F Map	T82.818A	Embolism of vascular prosthetic devices, implants and grafts,	1	0	1	1	1
415.12	Septic pulmonary embolism	RB Map	I26.01	Septic pulmonary embolism with acute cor pulmonale	1	0	1	1	1
415.12	Septic pulmonary embolism	F Map	I26.90	Septic pulmonary embolism without acute cor pulmonale	1	0	0	0	0
415.13	Saddle embolus of pulmonary artery	RB Map	I26.02	Saddle embolus of pulmonary artery with acute cor pulmonale	1	0	1	1	1
415.13	Saddle embolus of pulmonary artery	F Map	I26.92	Saddle embolus of pulmonary artery without acute cor pulmonale	1	0	0	0	0
634.61	Spontaneous abortion, complicated by	F Map	O03.2	Embolism following incomplete spontaneous abortion	0	0	0	0	0

How to Download MapIT

- ❑ <http://www.qualityindicators.ahrq.gov/resources/Toolkits.aspx>
- ❑ Under Toolkits, go to “MapIT Tool”
- ❑ MapIT Tool Zip File: Open or Drag and Drop into your folder
 - ❑ MapIT_FY_Comp_2_1_120
- ❑ Click on the above folder and the following will appear
 - ❑ MapIT_FY12_2_1_120 (old with three panes)
 - ❑ MapIT_FY13_2_1_120 (old with three panes)
 - ❑ MapIT_FY15_2_1_120 (new with two panes – friendly)

27

How to Run the Application

Name	Date modified	Type	Size
Files	12/3/2014 8:44 AM	File folder	
AHRQ MapIT FY2015 Installation Instructions	11/26/2014 2:26 PM	Adobe Acrobat D...	352 KB
AHRQ MapIT FY2015 User Guide	12/2/2014 5:21 PM	Adobe Acrobat D...	862 KB
Ahrq.Data.dll	11/26/2014 2:00 PM	Application extens...	158 KB
Ahrq.Data.GemLoader	11/26/2014 1:59 PM	Application	105 KB
Ahrq.Mapped.Ui	11/26/2014 2:00 PM	Application	350 KB
Ahrq.Mapped.Ui.exe	11/26/2014 2:00 PM	XML Configuratio...	2 KB
Ahrq.Reporting.dll	11/26/2014 2:00 PM	Application extens...	373 KB
AHRQ_MapIT_2015_Installer	11/26/2014 2:00 PM	Windows Installer ...	11,502 KB
Antlr3.Runtime.dll	11/26/2014 2:00 PM	Application extens...	101 KB
BooleanParser.dll	11/26/2014 2:00 PM	Application extens...	13 KB
MapperData	11/26/2014 2:00 PM	XML Document	121,535 KB
Microsoft.ReportViewer.Common.dll	11/26/2014 2:00 PM	Application extens...	6,242 KB
Microsoft.ReportViewer.DataVisualization.dll	11/26/2014 2:00 PM	Application extens...	3,785 KB
Microsoft.ReportViewer.ProcessingObjectModel.dll	11/26/2014 2:00 PM	Application extens...	90 KB
Microsoft.ReportViewer.WinForms.dll	11/26/2014 2:00 PM	Application extens...	536 KB

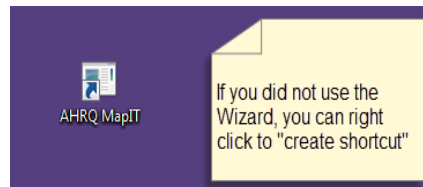
Double click to open. Or right click and select "run as administrator". Or use your desktop icon.

Easy Access

Wizard
create
program file
name

Or

Create your
own icon



29

Demonstration of MapIT

We will map the codes you are most familiar with in your program.

Single Lookup

You can look up by word or code

Batch Lookup

I will create text file in the demo

Output

Excel, Word, PDF

30

Summary

- ❑ Tool is available and FREE.
- ❑ Easy to map legacy to new codes.
- ❑ Easy to map new codes to legacy.
- ❑ After mapping, it is important
 - ❑ To refer to the codebook instruction, coding guidelines and Coding Clinic frequently asked questions, and clinical advisement.
 - ❑ To discuss which code(s) would capture the information for your project
- ❑ Allow your team to focus on discussions on which code(s) needed for the project.
- ❑ Allow your program to move forward to other activities:
 - ❑ Upgrading system format.
 - ❑ Testing ICD-10 codes in the test environment.
 - ❑ Create report and compare to the legacy reports.

31

Questions?



Mapping Tool is available at:
<http://www.qualityindicators.ahrq.gov/resources/Toolkits.aspx>