Strategies to Transitioning from ICD-9 to ICD-10 codes

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Strategy 1:

1. Review every ICD-10 code individually
2. Assign each code into a syndrome group
3. Reverse-translate ICD-10 to ICD-9 codes

	ICD10 Code	Description	ICD-9 Code	Final DNBI Mappings
	L571	ACTINIC RETICULOID	69273	Dermatologic
	A060	ACUTE AMEBIC DYSENTERY	0060	Gastrointestinal
	H65113	ACUTE AND SUBACUTE ALLERGIC OTITIS MEDIA (MUCOID) (SANGUINOUS) (SEROUS), BILATERAL	38100	Upper Respiratory

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Disadvantage:

Sometimes groups of codes, rather than individual codes, constitute a syndrome classification

e.g.
fever *plus* cough = ILI

Need more than just a master index table for the conversion to account for one-to-many and many-to-one relationships

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Strategy 2:

Starting with the syndromes of interest, rather than translating universe of all ICD-9 or -10 codes, may be more manageable

e.g.

Febrile

Upper respiratory

Lower respiratory

ILI

Gastrointestinal

Rash

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Identify all ICD-9 and ICD-10 codes in the syndrome

Translate ICD-9 to ICD-10
Reverse-translate ICD-10 to ICD-9

ICD-9 Description	ICD-9 Code	ICD-10 Code	ICD-10 Description
DIARRHEA	787.9	K522	Allergic and dietetic gastroenteritis and colitis
Noninf gastroenterit NEC	558.9	K5289	Other specified noninfective gastroenteritis and colitis
INFECTIOUS DIARRHEA	9.2	A09	Infectious gastroenteritis and colitis, unspecified
DIARRHEA OF PRESUMED INFECTIOUS ORIGIN	9.3	AØ9	Infectious gastroenteritis and colitis, unspecified
FUNCTIONAL DIARRHEA	564.5	K59.1	Functional diarrhea
DIARRHEA	787.91	R197	Diarrhea, unspecified
DIARRHEA	787.91	K5289	Other specified noninfective gastroenteritis and colitis
INFECTIOUS COLITIS ENTERITIS AND GASTROENTERITIS	9.0	A09.0	Other and unspecified gastroenteritis and colitis of infectious origin
COLITIS ENTERITIS AND GASTROENTERITIS OF PRESUMED INFECTIOUS ORIGIN	9.1	AØ9	Infectious gastroenteritis and colitis, unspecified

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Example of Strategy 2:

“Vomiting” sub-syndrome

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First, identify all the ICD-9 codes associated with vomiting

Use the CMS ICD-9 code lookup tool to identify codes:
http://www.cms.gov/medicare-coverage-database/staticpages/icd-9-code-lookup.aspx

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Decide* which codes you want to keep, and which codes you want to toss out

Probably don't want codes of this sort:

Pregnancy-related vomiting
Bilious newborn vomiting
Vomiting following surgery
Psychogenic vomiting
Vomiting of fecal matter

*May need clinical guidance to aid with decision-making

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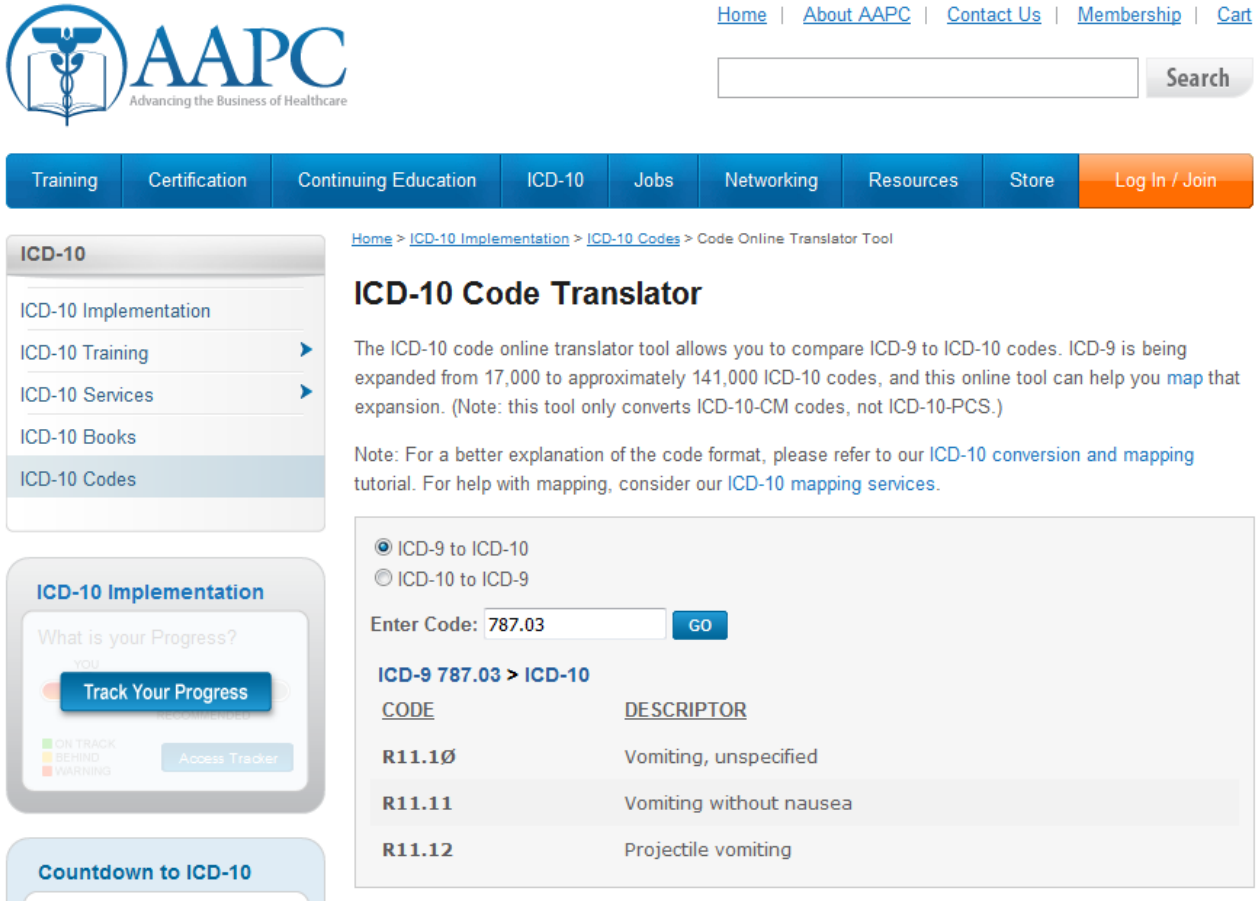
Next, use a conversion tool to map each of the ICD-9 codes to ICD-10 codes

Example: http://www.aapc.com/ICD-10/codes/index.aspx



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Then, use a tool to identify ICD-10 codes associated with that syndrome

There may be new descriptors that did not exist in the ICD-9 world, so you want to make sure you capture these codes in your classification schema

http://apps.who.int/classifications/icd10/browse/2010/en

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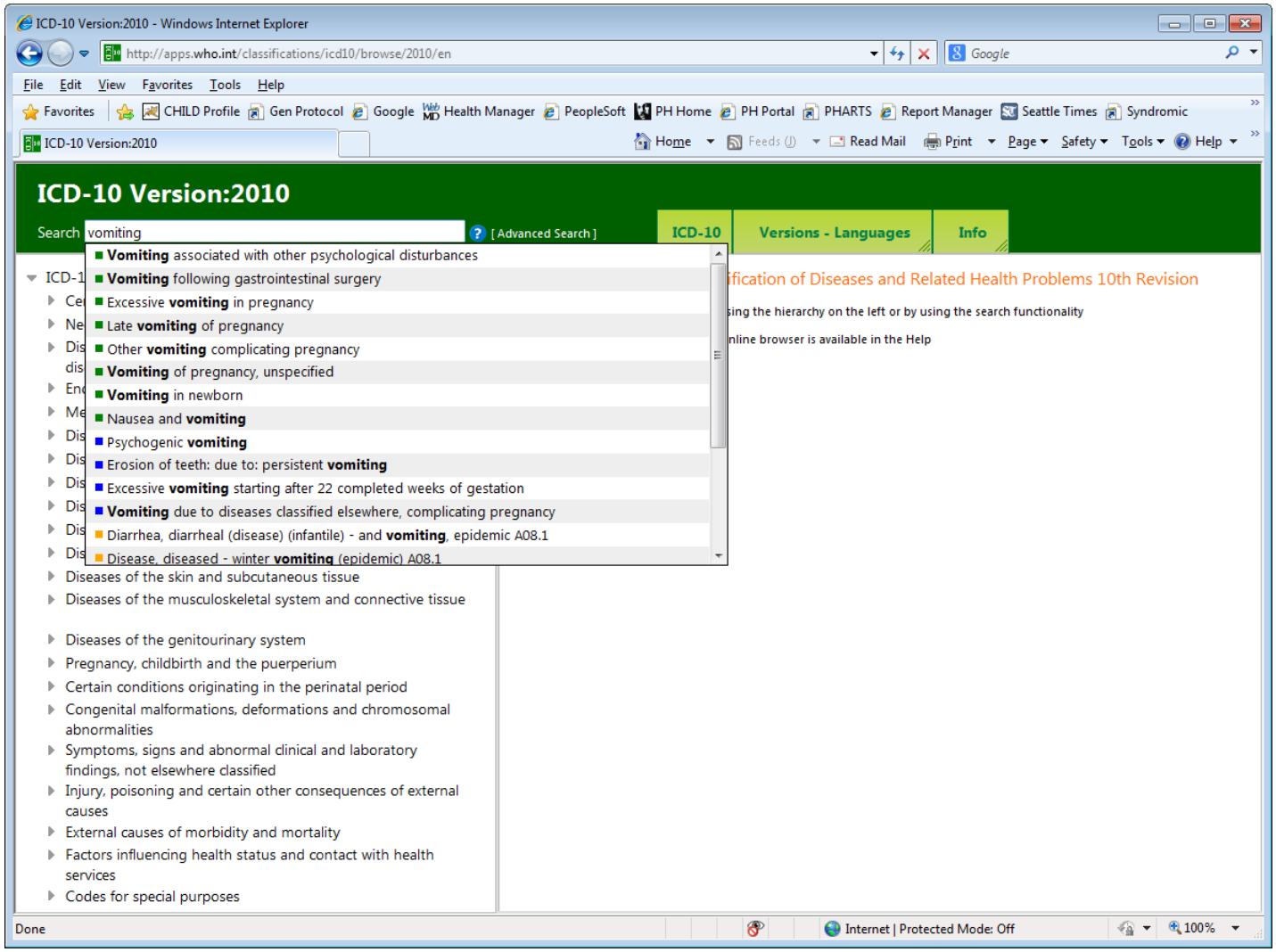
Again, use clinical judgment to decide which concepts to keep



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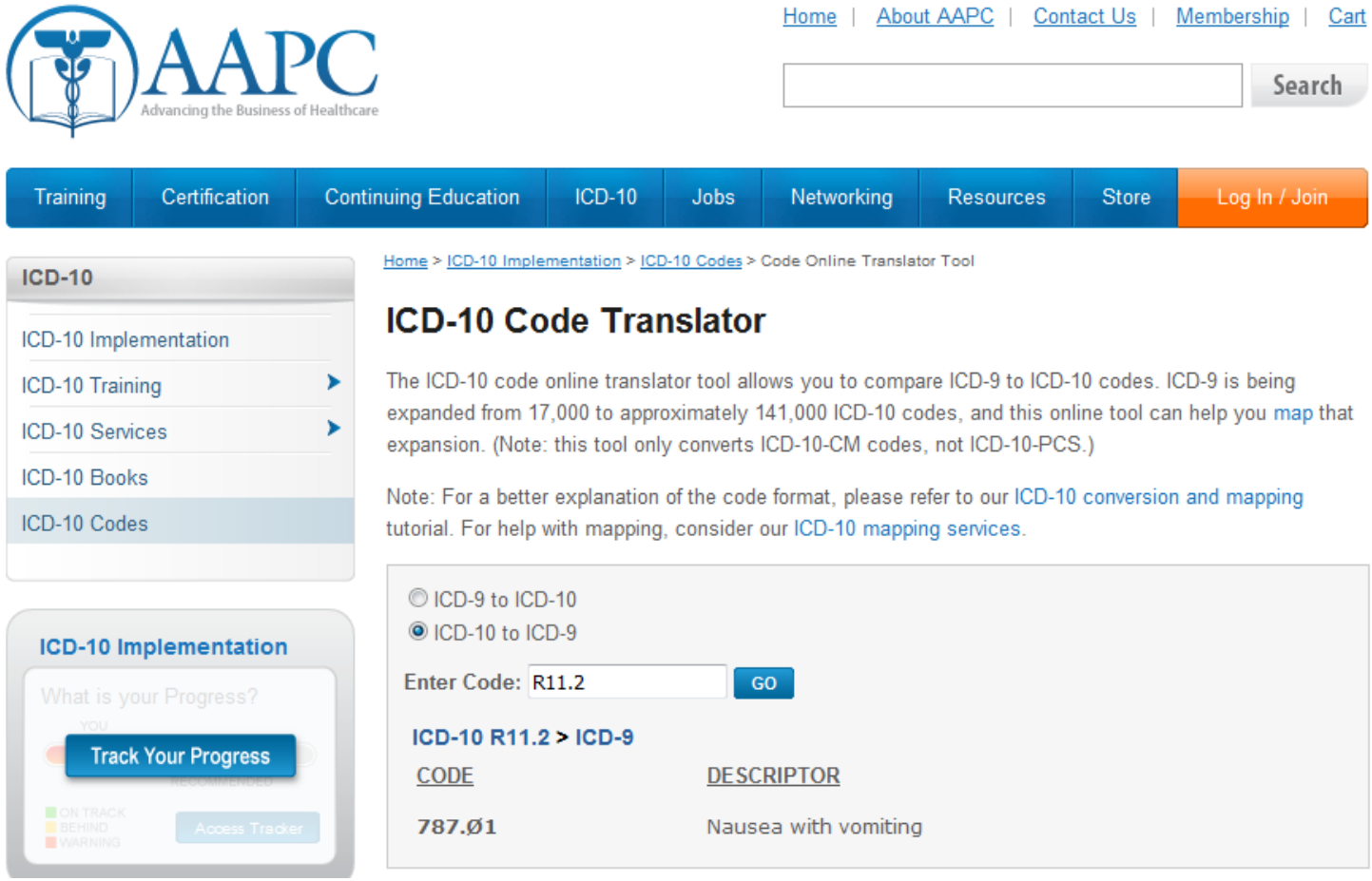
Next, use a conversion tool to map each of the ICD-10 codes to ICD-9 codes

Example: http://www.aapc.com/ICD-10/codes/index.aspx



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Finally:

Annotate your translations with notes or questions to share with colleagues

Swap code sets with colleagues and identify/discuss areas where translations are not the same so that we can improve our syndrome definitions

ICD-9 Description	ICD-9 Code	ICD-10 Code	ICD-10 Description	Notes
NAUSEA WITH VOMITING	787.01	R11.2	Nausea with vomiting, unspecified	Include the entire R11 group?
VOMITING ALONE	787.03	R11.10	Vomiting, unspecified	
		R11.11	Vomiting without nausea	
		R11.12	Projectile vomiting	

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Syndrome Classification Exercise

1. **Using Influenza-Like-Illness (ILI) or Heat-Related Illness (HRI) syndromes, translate related ICD-9 codes to ICD-10 codes.**

   http://www.aapc.com/ICD-10/codes/index.aspx
   or
   http://www.icd10data.com/Convert

2. **Next, reverse translate related ICD-10 codes to ICD-9 codes.**

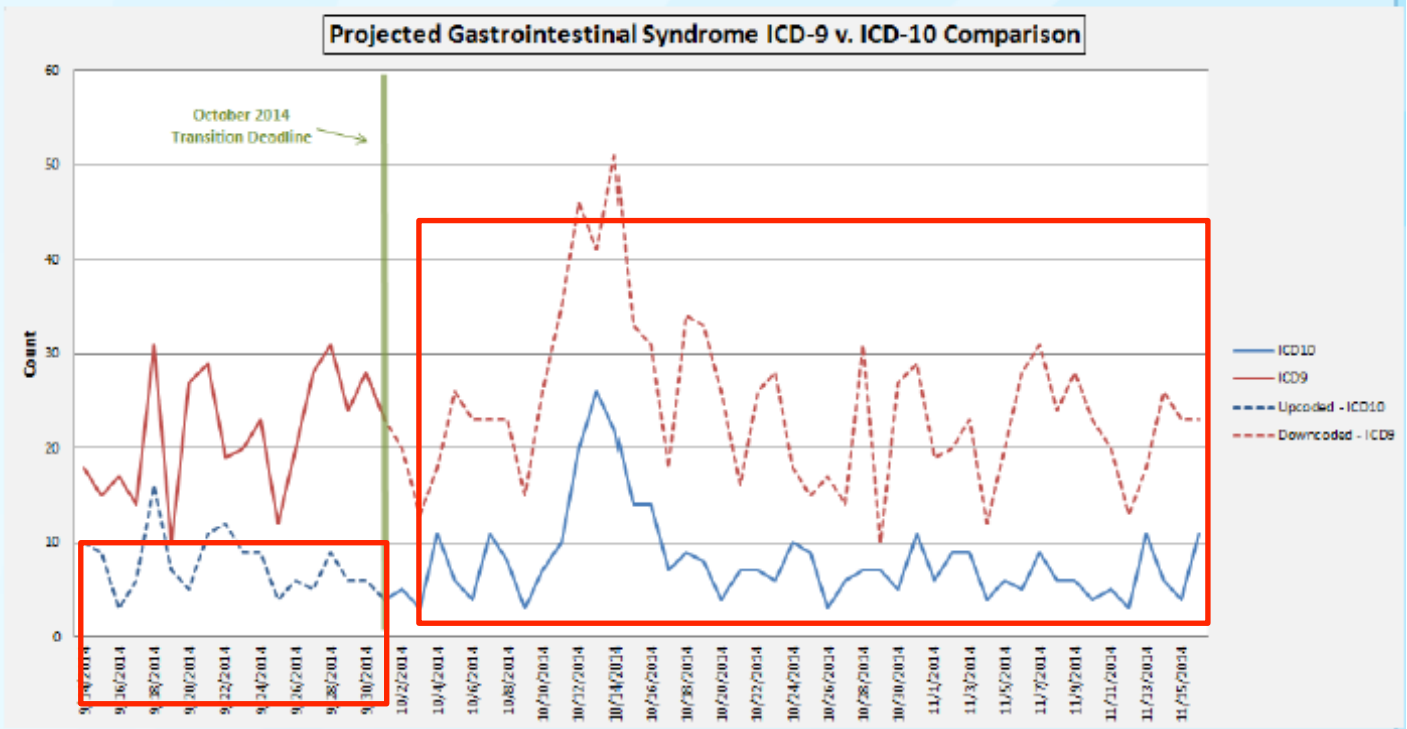
3. **Compare results.**

Other ICD-10 Conversion Challenges

1. What if providers don't send ICD-10 codes beginning 10/1/2014?
   a. What accommodations will have to be made?
2. DB changes
   a. Will there be a need for separate ICD-9/ICD-10 fields in the Diagnosis Code Table?
   b. How can one distinguish between an HL7 DG1 ICD-9 and ICD-10 code?
3. Impact on analysis
   a. Assignment of ICD-10 codes to ICD-9 historical baselines (What code should be chosen or specific condition?)
   b. Assignment of ICD-9 codes to ICD-10 baselines
   c. How do we reconcile with non-conforming provider data?

Baseline Development Challenge

Potential impact on time series analysis



Once you've translated your syndrome classifications, how do you analyze your data to

address the "changing baseline" problem?

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Two potential strategies (among many*):

(1) Reverse-translate ICD-10 → ICD-9
(2) "Upcode" ICD-9 → ICD-10

* CoP should help identify other strategies

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These strategies are difficult to implement because of the

many-to-one

and

one-to-many

relationships among code sets

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Another strategy:

Search through both the ICD-9 and ICD-10 universes when creating syndrome classifications

If ICD-9 is __ or __
or __ or __ or __
or __ or __ or __
then syndrome_9=1;
else syndrome_9=0

If ICD-10 is __ or __
or __ or __ or __
or __ or __ or __
then syndrome_10=X;
else syndrome_10=0

If syndrome_9=1 or syndrome_10=1 then syndrome=1; else syndrome=0

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By separating out ICD-9 and ICD-10 codes, you can analyze how implementation of ICD-10 affects changes in baseline and long-term trends

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In some settings,
you may be able to ask hospitals to send

ICD-9 codes in one field,

and

ICD-10 codes in a separate field

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Or you may receive data (e.g., HL7) with:

all diagnostic codes in one field

and

type of code (ICD-9 or ICD-10) in a separate field

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You may need to

programmatically

identify and separate the code sets

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In some systems, the diagnosis field is a catch-all for all sorts of codes:

presumptive
final
admitting
discharge
billing

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There may be delimiters denoting multiple codes per patient. e.g.:

Patient 1: 036.0, 787.03, 780.6, 782.1
Patient 2: 787.9, 787.01
Patient 3: 789, E865, 988.1

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One option is to leverage the
date of visit
and create two separate fields:

ICD-9 field (visits prior to Oct 1, 2014)
ICD-10 field (visits after Oct 1, 2014)

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But it's possible that not all hospitals/providers in your jurisdiction will adopt the changes exactly on that date.

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So after October 1, 2014, you may start to receive data that have a mixture of ICD-9 and ICD-10 codes in a single diagnosis field:

Hospital 1, patient 1: 036.0, 787.03, 780.6, 782.1
Hospital 1, patient 2: 787.9, 787.01
Hospital 1, patient 3: 789, E865, 988.1

Hospital 2, patient 1: T61.01XA, R10, R11.10
Hospital 2, patient 2: A37, G44.1
Hospital 2, patient 3: A83.2

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Fortunately, the universe of ICD-9 codes and ICD-10 codes

looks nothing alike

ICD-9 codes were mostly numeric (E- and V-codes are some exceptions),
ICD-10 codes are alphanumeric

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So it's unlikely that by calling out a specific set of ICD-10 codes, you would accidentally confuse these with ICD-9 codes

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ICD-9	ICD-10
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558.9	K5289
9.2	A09
9.3	AØ9
564.5	K59.1
787.91	R197
787.91	K5289
9.0	A09.0
9.1	AØ9

If index(diagnosis, “787.9”) or index(diagnosis, “558.9”) or index(diagnosis, “9.2”), or index(diagnosis,”9.3”) or index(diagnosis, “564.5”) or index(diagnosis, “787.91”) or index(diagnosis, “9.0”) or index(diagnosis,”9.1”) then **diarrhea_9**=1; else **diarrhea_9**=0;

If index(diagnosis, “K522”) or index(diagnosis, “K5289”) or index(diagnosis, “A09”), or index(diagnosis,”K59.1”) or index(diagnosis, “R197”) or index(diagnosis, “K5289”) or index(diagnosis, “A09.0”) then **diarrhea_10**=1; else **diarrhea_10**=0;

Need to create rules to handle placement of decimals and zeros

No surprise, not all hospitals send codes in the same way – need to programmatically standardize the code formats before ingesting them into a syndrome classifier

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