ICD-10 IMPLEMENTATION: OPPORTUNITIES AND CHALLENGES FOR HEALTH DATA ORGANIZATIONS

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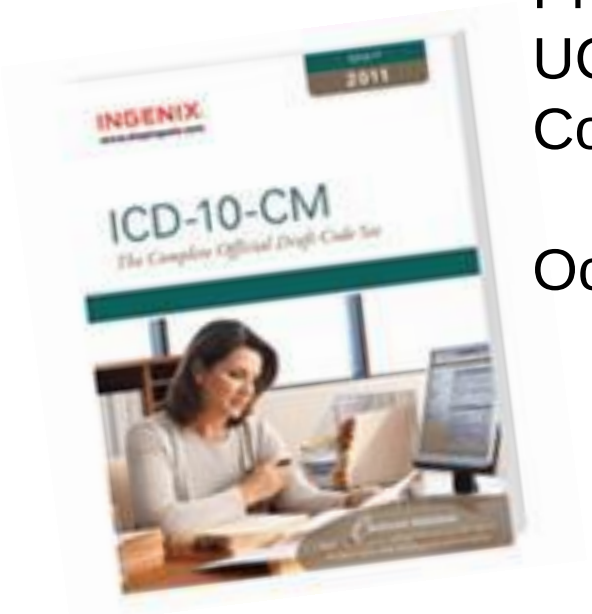
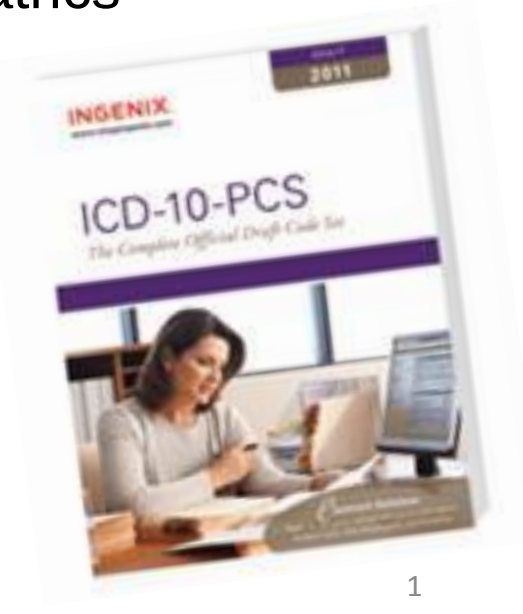




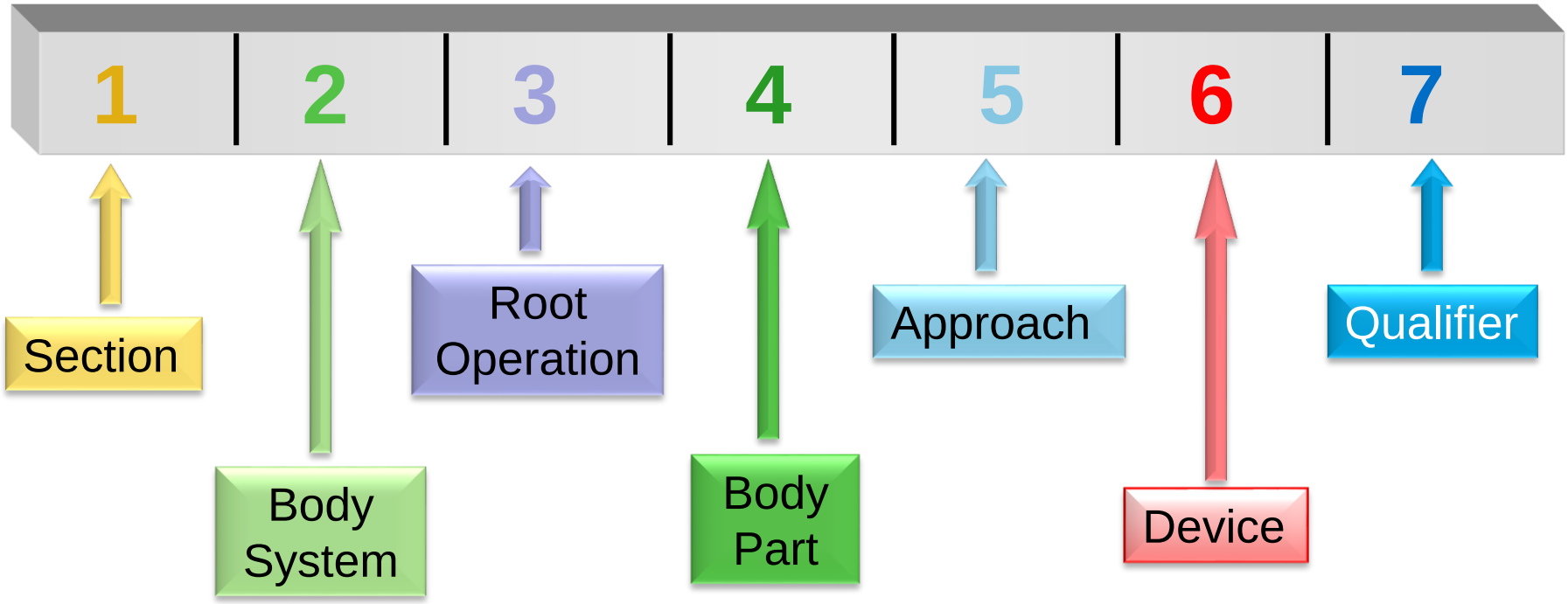
Outline

- Examples of opportunities and challenges in ICD-10-CM/PCS specification of morbidity measures, using AHRQ QIs as an example
- Preliminary findings from dual coded data from Washington State Department of Health
- Reassessment using dual coded data from a major academic health system, after changing indicator specifications
- Implications for measure developers and users

ICD-10-PCS

(International Classification of Diseases, 10th Revision, Procedure Coding System)

Inpatient Procedure



ICD-10-PCS Root Operations

ICD-9-CM Procedure Term	ICD-10-PCS Procedure Term
Amputation	Detachment
Amniocentesis	Drainage
Cystoscopy	Inspection
Closed Reduction	Reposition
Debridement	Excision, Irrigation, Extirpation
Total Mastectomy	Resection
Subtotal Mastectomy	Excision
Tracheostomy	Bypass
Cesarean Section	Extraction of Products of Conception
Incision	No ICD-10-PCS term

Example: root operation codes are sometimes unexpected

ICD9	Description	Map	ICD10	Description
35.41	Enlargement of existing atrial septal defect	F Map	02QA0ZZ	Repair Heart, Open Approach
			02QA3ZZ	Repair Heart, Percutaneous Approach
			02QA4ZZ	Repair Heart, Percutaneous Endoscopic Approach
35.42	Creation of septal defect in heart	F Map	02B50ZZ	Excision of Atrial Septum, **Open** Approach
			02B53ZZ	Excision of Atrial Septum, **Percutaneous** Approach
			02B54ZZ	Excision of Atrial Septum, **Percutaneous Endoscopic** Approach

ICD-9	Desc	ICD10	Description	Approx
37.91	Open chest cardiac massage	02QA0ZZ	Repair heart, open approach	**1**

Congenital heart disease

ICD-10

- Common atrioventricular valve
- Truncus arteriosus/truncal valve
- What if a surgeon “creates” a valve?
  - Creation: Making a new genital structure that does not take over the function of a body part.
  - FY 2017: Putting in or on biological or synthetic material to form a new body part that to the extent possible replicates the anatomic structure or function of an absent body part.
- What if a surgeon ligates or “takes down” a shunt?
  - Occlusion: Completely closing an orifice or the lumen of a tubular body part (see also “restriction”)

Example QIs with mapping challenges

- PSI 14, Postoperative wound dehiscence
  - No PCS procedure code equivalent to 54.61, Reclosure of postoperative disruption of abdominal wall
- PSI 10, Postoperative acute kidney injury requiring dialysis
  - Intent of catheter insertion not specified in PCS
- Neonatal Quality Indicators
  - No dx code for “other conditions originating in perinatal period” with birth weight >2500g

NQF's Recommended Coding Conversion Best Practices

1. Convene Clinical and Coding Experts
2. Determine Intent of Code Transition
   - Maintain intent (legacy specification)
   - Maintain intent, with more specificity (enhanced specification)
   - Change measure intent ("parking lot")
3. Use Appropriate Conversion Tool
4. Assess for Material Change
5. Solicit Stakeholder Comments
6. Version the Updated Measure

Expert Work Groups

- Recruited work group members through Federal Register, AHRQ QI Listserve, national professional societies
- Constructed 10 expert work groups with 84 participants:
  - Cancer, Cardiac, Critical Care/Pulmonary, Infection, Internal Medicine, Neonatal/Pediatric, Neurology, Obstetrics and gynecology, Orthopedics, General and trauma surgery
- Stated roles:
  - Evaluate the results of automated code mapping from ICD-9-CM to ICD-10-CM/PCS
  - Provide input and advice regarding mapped codes
  - Offer specific recommendations how QIs should re-specified using ICD-10-CM/PCS codes

Data Sources

- Washington State Department of Health[1]
  - 2,665 dual coded records from 8 hospitals
  - Sampling characteristics uncertain
  - 88% of records from 4 hospitals
  - April-October 2013
- University of California Davis Medical Center
  - 5,167 dual coded records from 1 urban academic medical center (627 beds; 78,800 ED visits, 944,189 clinic visits, 40,684 admissions in last FY)
  - 20% sample rising to 100% in September 2015
  - September 2014-September 2015

[1] Permission and support for use of WA data for this analysis was under the AHRQ Quality Indicators project (contract # HHSA290201200003I)

Methods

- Cleaned data to remove or correct incorrectly entered codes
- Ran appropriate CMS MS-DRG grouper
- Assigned “dummy” values of variables needed to run AHRQ QIs that were not included in source data (e.g., ATYPE)
- WA: POA not reported, treated as “missing”
- AHRQ QI software
  - Version 5 (alpha test) for Washington state
  - Version 6.01 (public release) for UCDMC

Comparability of Selected IQIs between ICD-9-CM and ICD-10-CM/PCS

Indicator (WA state data, FY 2013)	No. selected by both code sets	Comparability ratio
IQI #26 Coronary Artery Bypass Graft (CABG) Rate	16	1.000
IQI #27 Percutaneous Coronary Intervention (PCI) Rate	25	1.000
IQI #29 Laminectomy or Spinal Fusion Rate	48	0.787
IQI #21 Cesarean Delivery Rate, Uncomplicated	104	1.180
IQI #33 Primary Cesarean Delivery Rate, Uncomplicated	24	1.269

Comparability ratio = Rate based on ICD-10 codes/Rate based on ICD-9 codes

Each of these problems required specific investigation to understand and resolve…

IQI Comparability Problems: Laminectomy or Spinal Fusion

- AHA Coding Clinic, 4Q 2013, 30(4):116
  - "Spinal decompression is the removal of pressure from the spinal cord… if a laminectomy is performed to remove pressure from the spinal cord, assign a code from table 0QB or 0PB:
  - Laminectomy
    - see Excision, Lower Bones 0QB-
    - see Excision, Upper Bones 0PB-
- AHA Coding Clinic, 2Q 2015, 2(2):34
  - "Decompressive laminectomy is done to release pressure and free up the spinal nerve root. Therefore the appropriate root operation is "Release." Assign the following ICD-10-PCS code:
    - 01NB0ZZ Release lumbar nerve, open approach
  - Previous "advice was based on the ICD-10-PCS' Index entry "Laminectomy"… Coding Clinic revisited this advice and determined that the root operation "Release" is more appropriate."
- But 01N not assigned to back/neck/spinal MS-DRGs in FY2016!

IQI Comparability Problems: Obstetric Laceration Repair

- General Equivalence Mapping files map 75.69, “Repair of other current obstetric laceration” (including “repair of: pelvic floor, perineum, vagina, vulva) to
  - 0TQD, Repair, urethra
  - 0UQG, Repair, vagina
  - 0UQM, Repair, vulva
  - 0WQN, Repair, female perineum
- But what about repairing the perineal muscle?
  - 0KQM, Repair, perineum muscle
- GEM maps to:
  - 83.65 Other suture of muscle or fascia
  - 83.87 Other plastic operations on muscle
- So GEM mapping did not include the MOST COMMON clinical linkage between the two code sets for repairing an obstetric laceration…

IQI Comparability Problems: MS-DRGs for Delivery

- CMS FY 2017: “We discovered that the ICD-10 MDC and MS-DRG assignment are not consistent with other ICD-10-PCS procedure codes that identify and describe clinically similar procedures for the repair of obstetrical lacerations…
- “For example, ICD-10-PCS 0DQP0ZZ (Repair rectum, open approach) is appropriately assigned to MDC 14 (Pregnancy, Childbirth and the Puerperium) under MS-DRG 774 (Vaginal Delivery with Complicating Diagnoses).
- “In contrast, ICD-10-PCS 0DQR0ZZ (Repair anal sphincter, open approach)… currently results in assignment to MS-DRGs 987 through 989 (Non-Extensive O.R. Procedure Unrelated to Principal Diagnosis).
- AHRQ resolved this problem by using Z37 “outcome of delivery” codes instead of MS-DRGs to identify deliveries.

Comparability of Selected IQIs between ICD-9-CM and ICD-10-CM/PCS: Impact of version 6 software updates

Indicator (WA state data, FY 2013)	No. selected by both code sets	Comparability ratio
IQI #26 Coronary Artery Bypass Graft (CABG) Rate	16	1.000
IQI #27 Percutaneous Coronary Intervention (PCI) Rate	25	1.000
IQI #29 Laminectomy or Spinal Fusion Rate	48	0.787
IQI #21 Cesarean Delivery Rate, Uncomplicated	104	1.180
IQI #33 Primary Cesarean Delivery Rate, Uncomplicated	24	1.269

Indicator (academic health system data, FY 2015)	No. selected by both code sets	Comparability ratio
IQI #26 Coronary Artery Bypass Graft (CABG) Rate	22	1.000
IQI #27 Percutaneous Coronary Intervention (PCI) Rate	41	0.976
IQI #29 Laminectomy or Spinal Fusion Rate	99	0.846
IQI #21 Cesarean Delivery Rate, Uncomplicated	56	1.000
IQI #33 Primary Cesarean Delivery Rate, Uncomplicated	24	1.000

Comparability ratio = Rate based on ICD-10 codes/Rate based on ICD-9 codes

Residual Problems with Back Surgery

- 03.09, Other exploration and decompression of spinal canal
  - Decompression:
    - laminectomy
    - laminotomy
  - Expansile laminoplasty
  - Exploration of spinal nerve root
  - Foraminotomy
- Currently maps to root operations “drainage,” “release,” “inspection,” and “excision.”
- But what about “destruction” (“physical eradication of all or a portion of a body part by the direct use of energy, force…”) or “resection” (“cutting out or off, without replacement, all of a body part”) – could these operations apply to “decompression”?
- Currently maps to body systems R (upper joints) and S (lower joints)… but what about P (upper bones) and Q (lower bones)?

Comparability of Selected PQIs between ICD-9-CM and ICD-10-CM/PCS

Indicator (WA state data, FY 2013)	No. selected by both code sets	Comparability ratio
PQI 08 Heart Failure Admission Rate (Numerator)	27	1.000
PQI 10 Dehydration Admission Rate (Numerator)	12	1.417
PQI 11 Bacterial Pneumonia Admission Rate (Numerator)	23	1.000
PQI 12 Urinary Tract Infection Admission Rate (Numerator)	19	1.000
PQI 91 Prevention Quality Acute Composite (Numerator)	54	1.093
PQI 92 Prevention Quality Chronic Composite (Numerator)	56	1.000

Comparability ratio = Rate based on ICD-10 codes/Rate based on ICD-9 codes

Comparability of Selected PQIs between ICD-9-CM and ICD-10-CM/PCS: No change to software but better coding

Indicator (WA state data, FY 2013)	No. selected by both code sets	Comparability ratio
PQI 08 Heart Failure Admission Rate (Numerator)	27	1.000
PQI 10 Dehydration Admission Rate (Numerator)	12	1.417
PQI 11 Bacterial Pneumonia Admission Rate (Numerator)	23	1.000
PQI 12 Urinary Tract Infection Admission Rate (Numerator)	19	1.000
PQI 91 Prevention Quality Acute Composite (Numerator)	54	1.093
PQI 92 Prevention Quality Chronic Composite (Numerator)	56	1.000

Indicator (academic health system data, FY 2015)	No. selected by both code sets	Comparability ratio
PQI 08 Heart Failure Admission Rate (Numerator)	105	1.048
PQI 10 Dehydration Admission Rate (Numerator)	29	0.935
PQI 11 Bacterial Pneumonia Admission Rate (Numerator)	37	1.081
PQI 12 Urinary Tract Infection Admission Rate (Numerator)	45	0.957
PQI 91 Prevention Quality Acute Composite (Numerator)	114	0.991
PQI 92 Prevention Quality Chronic Composite (Numerator)	244	0.953

Comparability of Selected PQIs between ICD-9-CM and ICD-10-CM/PCS

Indicator (academic health system data, FY 2015)	No. selected by both code sets	Comparability ratio
PQI 01 Diabetes Short-Term Complications Admission Rate (Numerator)	34	0.872
PQI 03 Diabetes Long-Term Complications Admission Rate (Numerator)	23	0.885
PQI 14 Uncontrolled Diabetes Admission Rate (Numerator)	9	2.250

No specific code(s) for concept of "uncontrolled" diabetes in ICD-10-CM:
E1065 Type 1 diabetes mellitus with hyperglycemia
E1165 Type 2 diabetes mellitus with hyperglycemia
E10649 Type 1 diabetes mellitus with hypoglycemia without coma
E11649 Type 2 diabetes mellitus with hypoglycemia without coma

Comparability ratio = Rate based on ICD-10 codes/Rate based on ICD-9 codes

Major OR Procedures

- “Major operating room procedures” drive assignment of Surgical MS-DRGs
- 35% of records in dual coded data using ICD-9-CM codes
- 40% of records in dual coded data using ICD-10-CM/PCS codes
- A significant increase in the number/percent of records considered “surgical” based on MS-DRGs…

Major OR Procedures

CMS list of procedures reclassified in FY 2017

1	Endoscopic/Transorifice Insertion	Endoscopic/transorifice insertion of infusion or monitoring devices
2	Endoscopic/Transorifice Removal	endoscopic/transorifice removal of drainage, infusion, intraluminal or monitoring devices
3	Tracheostomy Device Removal	removal of a tracheostomy device
4	Endoscopic/Percutaneous Insertion	percutaneous insertion of infusion or monitoring devices
5	Percutaneous Removal	percutaneous removal of drainage, infusion and monitoring devices
6	Percutaneous Drainage	percutaneous therapeutic drainage (plus diagnostic paracentesis)
7	Percutaneous Inspection	percutaneous inspection of certain body sites
8	Inspection without Incision	inspection without incision of body sites with endoscopic/transorifice and external approaches
9	Dilation of Stomach	dilation of stomach and pylorus body sites with various approaches
10	Endoscopic/Percutaneous Occlusion	endoscopic/percutaneous occlusion of esophageal vein with and without a device
11	Infusion Device	insertion of an infusion device

Other Procedures that Remain on Major OR Procedure List FY 2017

- percutaneous biopsy procedures (non-OR procedures in ICD-9-CM);
- insertion or removal of devices from the GI and respiratory tracts “via natural or artificial opening” or “…endoscopic” (non-OR procedures in ICD-9-CM);
- procedures related to ERCP (non-OR procedures in ICD-9-CM);
- incision and drainage or non-excisional debridement of the skin and subcutaneous tissue (non-OR procedures in ICD-9-CM);
- “release,” “repair,” or “reposition” of a structure via an external approach (non-OR procedures in ICD-9-CM);
- repair of skin and obstetrical lacerations

Conclusions

- Dual coding helped hospitals prepare for ICD-10 through training and oversight, productivity monitoring, and financial impact analyses
- Dual coded data helped AHRQ to identify and correct potential comparability problems for IQIs and PQIs
- But some comparability problems are intrinsic in how the code sets were designed
- GEM mappings provide helpful relationships and alternatives, but measure developers/testers MUST add clinical and coding review
- PCS root operations are very confusing to clinicians and coders; EAB for Coding Clinic is addressing major questions from the field
- Use AHIMA-certified ICD-10 coders and resources

Webinars
Presentations
Publications
Toolkits

TOOLKITS

AHRQ Hospital QI Toolkit

The AHRQ Hospital QI toolkit is designed to help your hospital understand the Quality Indicators (QI) from the Agency for Healthcare Research and Quality (AHRQ), and support your use of them to successfully improve quality and patient safety in your hospital. The toolkit is a general guide to using improvement methods, with a particular focus on the QI. It focuses on the 17 Patient Safety Indicators (PSI) and the 28 Inpatient Quality Indicators (IQI). Tools are organized in seven sections following a complete improvement process that includes setting priorities and plan for performance improvements on the QI, implementing improvement strategies, and sustaining improvements achieved. The toolkit has undergone a field test, evaluation, and revisions in response to feedback from six hospitals.

The toolkit can be found here.

MapIT Automated In-house Stand-alone Mapping Tool

The AHRQ MapIT toolkit takes a selected set of ICD-9 codes, applies the CMS General Equivalence Mapping in various ways, then outputs the set of related ICD-9 and ICD-10 codes. The tool applies the GEM in a two-stage process using both the forward and backward maps in conjunction with a novel reverse mapping.

Download and install the MapIT tool to facilitate conversion of set names to ICD-10-CM/PCS codes. Using CMS GEMs and technical specifications, the mapping tool utilizes forward, backward, and reverse mapping methods.

MapIT Users Guide FY2015 (PDF file, 863KB) (Posted: 2/23/2015) *New!*
MapIT Tool (ZIP file, 75.2 MB) (Posted: 2/23/2015) *New!*
MapIT Tool documentation: Conversion of ICD9 to ICD10 (PDF file, 99KB)
AHRQ MapIT FY2015 Installation Instructions (PDF file, 352 KB) (Posted: 2/23/2015) *New!*

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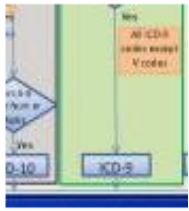
ICD–9/ICD–10 Transition Tools

Conversion Tool for the ICD-9 CM to ICD-10 CM Transition



- Easily flags invalid codes and incorrect records
- Runs quickly on very large data sets with multiple dx per record
- Shared codes between ICD-9 and ICD-10 are allocated according to other codes on the same record and E coding rules

For a free download of the Conversion Tool, please complete a download request and return to info@nahdo.org.

- Click HERE to view slides: A SAS Macro to Differentiate ICD-9-CM & ICD-10-CM Records
- Click HERE to view the User Guide
- For a webinar about the tool, click HERE

Conversion Tool to the ICD-9 CM to ICD-10 CM Transition is made possible through funding from the Center for Surveillance, Epidemiology and Laboratory Services (CSELS) within the Office of Public Health Scientific Services (OPHSS) at the Centers for Disease Control and Prevention (CDC).

Trainings:

- **Training Day 1: ICD-10 Overview**

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