



A Pause in the Availability of Risk Adjusted National Benchmarks for AHRQ Indicators and an Alternative Measurement Approach

Joseph Greenway, MPH
Director of the Center for Health Information Analysis at UNLV

Elizabeth McCullough, MS
Director, Clinical and Economic Research, 3M Health Information Systems

August 11, 2016



Agenda

- Introductions
- Short membership survey of strategies for addressing switch to ICD-10 on Health Data Reporting
- AHRQ Indicators and the loss of risk adjustments
- An alternative approach to using AHRQ indicators
- Q&A

Effect of ICD10 on Health Data Reporting

- Updates needed for existing software and reference tables
 - This link provides information on ICD-10 coding; see other links at the bottom for lists of codes, descriptions and crosswalks:
<https://www.cms.gov/Medicare/Coding/ICD10/downloads/ICD-10Overview.pdf>
 - Calendar reports based on diagnoses need to be recoded
 - Software including groupers, indicator generators, PPC & PPR report generators etc. may need multiple passes or a conversion from ICD10 to ICD9, depending on the version of the software
- Partial crossovers and gaps in trend analysis
 - If a clean 100% switchover from 9 to 10 was not mandated in your state, health data may have a mixture of 9 and 10 codes within the same record
 - Trend analysis reports based on diagnosis or procedure may need a split in beginning ending dates



Potential Solutions for Health Data Reporting

Crosswalks (aka Code Mapping)

- The link for crosswalks was provided on the previous slide.
- NAHDO provides software to help test the validity of 9 and 10 codes:
<https://www.nahdo.org/ICD9-10Tools>
- Limitations:
 - Not a panacea (e.g. some 1:1 but lost is 1:many and other complexities)
 - loss of specificity if converting FY '16 data to ICD9
 - No one-size-fits-all-maps
 - Creating context-specific maps not trivial
 - Visual verification is necessary. Tools on the web can be used:
<http://www.lussierlab.org/transition-to-ICD10CM>



Potential Solutions for Health Data Reporting (cont.)

- Change from Calendar Year to Federal Fiscal Year:
 - for 2015 data report only from 10/1/14 to 9/30/15
- Temporarily Report Less Information:
 - Some will continue to create risk adjusted reports but only for the first 9 months of the year
 - Others will report on the full year but not include measures requiring ICD10 based data for risk adjustment

AHRQ Indicators and the Loss of Risk Adjustments

Challenge:

- National risk-adjusted benchmarks for the AHRQ Quality Indicators for discharges 10/1/15 forward will not be available until at least mid-2017. Non-risk adjusted indicators can still be produced with the AHRQ software.
- AHRQ requires the full 2016 calendar year of ICD-10 coded data to create the risk adjustment

Impact:

- Can't report MONAHRQ risk adjusted indicators (this only impacts provider level reports)
- Inability to compare risk adjusted indicators between hospitals (To compare observed rates instead of risk adjusted rates is an inaccurate comparison.)



Potential Solution: An Alternative to Using AHRQ Indicators

3M™ Potentially Preventable Complications Software (PPC)

- ICD-9 and ICD-10 versions included in license
- ICD-9 and ICD-10 grouped results are risk adjusted using either the native ICD-9 or ICD-10 version of APR DRGs
- Though the 3M PPCs are more extensive than the AHRQ indicators, there is a lot of crossover. Both have reports on the following topics: Thrombosis, Pressure Ulcers, Venous Catheter Infections, Peri and Post Operative Infections, Iatrogenic Pneumothorax, Respiratory Failure, Stroke, Pneumonia, Heart Failure, AMI, Gastrointestinal.



3M™ Potentially Preventable Complications

- Replication Goal: The clinical logic in the two PPC versions (ICD-9 and ICD-10) are essentially the same. Grouping results in each ICD-10 version will replicate the ICD-9 version
- ICD-9 PPC v32 clinically is replicated with ICD-10 PPC v33
- PPC rates and stats developed with ICD-9 PPC v32.0 can be used with ICD-10 PPC v33.0, without the need for code mapping between ICD-10 and ICD-9 and without having to map ICD-9 back to older versions of ICD-9



PPC Definition

- Harmful events (accidental laceration during a procedure) or negative outcomes (hospital acquired pneumonia) that develop after hospital admission and may result from processes of care and treatment rather than from natural progression of the underlying illness and are therefore potentially preventable
- All broad categories of the AHRQ PSI's, NQF, and CMS list are built into the PPCs

Potentially Preventable Complication Groups

PPC Group

- 1 - Extreme Complications
- 2 - Cardiovascular-Respiratory Complications
- 3 - Gastrointestinal Complications
- 4 - Perioperative Complications
- 5 - Infectious Complications
- 6 - Malfunctions, Reactions, etc.
- 7 - Obstetrical Complications
- 8 - Other Medical and Surgical Complications



Major PPCs

(Thirty-five of the Most Significant)

Extreme Complications

- Extreme CNS Complications
- Acute Lung Edema & Respiratory Failure
- Shock
- V Fibrillation, Cardiac Arrest
- Renal Failure with Dialysis
- Post-Op Respiratory Failure with Tracheostomy

Cardiovascular-Respiratory Complications

- Stroke & Intracranial Hemorrhage
- Pneumonia, Lung Infection
- Aspiration Pneumonia
- Pulmonary Embolism
- Congestive Heart Failure
- Acute Myocardial Infarct
- Peripheral Vascular Complications Except DVT
- Venous Thrombosis

Gastrointestinal Complications

- Major GI Complications w transfusion
- Major Liver Complications

Major Peri-Operative Complications

- Post-Op Wound Infection & Deep Wound Disruption w Procedure
- Reopening or Revision of Surgical Site
- Post-Op Hemorrhage & Hematoma w Hemorrhage Control Proc or I&D Proc
- Accidental Puncture/laceration During Invasive Proc
- Post-Op Foreign Body & Inappropriate Op



Major PPCs (Cont.)

(Thirty-five of the Most Significant)

Infectious Complications

- Clostridium Difficile Colitis
- Urinary Tract Infection
- Septicemia & Severe Infection

Major Complications of Devices, Grafts, Etc.

- Iatrogenic Pneumothorax
- Mechanical Complication of Device, Implant, Graft
- Infection, Inflammation, & Other Comp of Devices and Grafts Excluding Vascular Infection
- Complications of Central Venous & Other Vascular Catheters & Devices

Major Obstetrical Complications

- Obstetrical Hemorrhage w Transfusion
- Major Obstetrical Complications
- Obstetrical Lacerations & other Trauma w/o instrumentation
- Obstetrical lacerations & Other Trauma with Instrumentation

Other Medical and Surgical Complications

- Post-Hem & Other Acute Anemia w transfusion
- Decubitus Ulcer
- Encephalopathy

Example of PPC Assignment Criteria

PPC 1 – Stroke & Intracranial Hemorrhage

ICD-9

One or more of the following secondary diagnoses is coded, but not present on admission:

430 Subarachnoid hemorrhage

ICD-10

One or more of the following secondary diagnoses is coded, but not present on admission:

16010 Nontraumatic subarachnoid hemorrhage from unspecified middle cerebral artery

16011 Nontraumatic subarachnoid hemorrhage from right middle cerebral artery

16012 Nontraumatic subarachnoid hemorrhage from left middle cerebral artery

Total of 20 Nontraumatic subarachnoid hemorrhage vessels and location codes.



Example of PPC Exclusion Criteria

PPC 1 – Stroke & Intracranial Hemorrhage

PPC exclusions

PPC is not assigned if:

The patient age is less than 18 years old

OR

The admission APR DRG is one of the following

049	Bact & tuberculous nerv infect
050	Non-bact nerv infect exc VM
130	Respiratory dx w MV 96+ hrs

OR

Any diagnosis from one of the following exclusion groups is present on admission [\(see App. O\)](#)

<u>003</u>	Intracranial Hemorrhage
<u>004</u>	CVA & Precerebral Occlusion with Infarct
<u>005</u>	Cerebral Artery Dissection
<u>006</u>	Bacterial & Tuberculosis Infections of Nervous System
<u>008</u>	Severe Non-Traumatic Brain Injury & Coma
<u>011</u>	Brain Contusion/Laceration & Complicat Skull Fx, Coma<1 Hr or No C



Admission APR for Risk Adjustment

- Leverages POA status to determine the patient's severity of illness, risk of mortality, and APR DRG *on admission*
- Adds a seven step process to the APR assignment process that eliminates certain diagnoses and procedures determined not to be present on admission from the Admission APR DRG.

FY08-FY11 Performance

Johns Hopkins Top MHACs by Case Differential FY08-FY11

MHAC Description			FiscalYear			
			2008	2009	2010	2011
1 Stroke & Intracranial Hemorrhage	Expected	81.2	81.2	89.0	83.8	
	Observed	78.0	101.0	84.0	71.0	
	Variance(O-E)	-3.2	19.8	-5.0	-12.8	
2 Extreme CNS Complications	Expected	27.1	27.1	29.0	21.6	
	Observed	39.0	27.0	16.0	13.0	
	Variance(O-E)	11.9	-0.1	-13.0	-8.6	
3 Acute Pulmonary Edema and Respiratory Failure w without Ventilation	Expected	409.5	409.5	467.0	406.1	
	Observed	540.0	475.0	211.0	122.0	
	Variance(O-E)	130.5	65.5	-256.0	-284.1	
4 Acute Pulmonary Edema and Respiratory Failure with Ventilation	Expected	150.9	150.9	166.0	149.1	
	Observed	144.0	152.0	152.0	101.0	
	Variance(O-E)	-6.9	1.1	-14.0	-48.1	
5 Pneumonia & Other Lung Infections	Expected	213.1	213.1	241.0	248.5	
	Observed	225.0	208.0	195.0	161.0	
	Variance(O-E)	11.9	-5.1	-46.0	-87.5	
6 Aspiration Pneumonia	Expected	93.2	93.2	101.0	87.7	
	Observed	72.0	85.0	80.0	46.0	
	Variance(O-E)	-21.2	-8.2	-21.0	-41.7	
7 Pulmonary Embolism	Expected	40.8	40.8	44.0	38.0	
	Observed	48.0	61.0	69.0	37.0	
	Variance(O-E)	7.2	20.2	25.0	-1.0	



PPC Compared to PSI

AHRQ Indicator (v.4.5 May 2013)	PPC (v.30 Oct 2012)	PPC meets or exceeds AHRQ	Minor differences	More differences
		Inclusion Differences	Exclusion Differences	Other Differences
PSI 03 Pressure Ulcer Rate	PPC 31 - Decubitus Ulcer	PPC includes all AHRQ inclusions PPC has additional inclusions	AHRQ has unique exclusions PPC has no exclusions	None
PSI 05 Retained Surgical Item or Unretrieved Device Fragment Count	PPC 45 - Post-procedure Foreign Bodies	AHRQ has unique inclusions PPC has unique inclusions There are shared inclusions	None	Denominator: AHRQ: Surgical & Medical DRGs PPC: Surgical DRGs
PSI 06 Iatrogenic Pneumothorax Rate	PPC 49 - Iatrogenic Pneumothorax	None	AHRQ has unique exclusions PPC has unique exclusions There are shared exclusions	None
PSI 07 Central Venous Catheter-Related Blood Stream Infection Rate	PPC 54 - Infections due to Central Venous Catheters	None	AHRQ has unique exclusions PPC has no exclusions	None
PSI 08 Postoperative Hip Fracture Rate	PPC 28 - In-Hospital Trauma and Fractures	PPC includes all AHRQ inclusions PPC has additional inclusions	AHRQ has unique exclusions PPC has no exclusions	Denominator: AHRQ: Surgical DRGs PPC: All DRGs
PSI 10 Postoperative Physiologic and Metabolic Derangement Rate	PPC 26 - Diabetic Ketoacidosis and Coma PPC 24 - Renal Failure without Dialysis PPC 25 - Renal Failure with Dialysis	AHRQ includes all PPC inclusions AHRQ has additional inclusion	AHRQ has unique exclusions PPC has unique exclusions There are shared exclusions	Denominator: AHRQ: Elective Surgical Discharges PPC: All DRGs



PPC Compared to PSI (Cont.)

PSI 12 Perioperative Pulmonary Embolism or Deep Vein Thrombosis Rate	PPC 07 - Pulmonary Embolism PPC 16 - Venous Thrombosis	PPC includes all AHRQ inclusions PPC has additional inclusions	AHRQ has unique exclusions PPC has unique exclusions There are shared exclusions	Denominator: AHRQ: Surgical DRGs PPC: All DRGs
PSI 13 Postoperative Sepsis Rate	PPC 35 - Septicemia & Severe Infections PPC 09 - Shock (includes septic shock)	AHRQ has unique inclusions PPC has unique inclusions There are shared inclusions	AHRQ has unique exclusions PPC has unique exclusions There are shared exclusions	Denominator: AHRQ: Elective Surgical Discharges PPC: All DRGs
PSI 14 Postoperative Wound Dehiscence Rate	PPC 38 - Post-Operative Wound Infection & Deep Wound Disruption with Procedure	PPC includes all AHRQ inclusions PPC has additional inclusions	AHRQ has unique exclusions PPC has unique exclusions There are shared exclusions	Denominator: Abd Region Procs AHRQ has unique inclusions PPC has unique inclusions There are shared inclusions
PSI 15 Accidental Puncture or Laceration Rate	PPC 42 - Accidental Puncture/Laceration during Invasive Procedure	AHRQ has unique inclusions PPC has unique inclusions There are shared inclusions	AHRQ has unique exclusions PPC has unique exclusions There are shared exclusions	Denominator: AHRQ: Surgical & Medical DRGs PPC: Surgical & Medical with NOR Invasive Proc



Current Users of 3M PPCs and \$ 0 License Option for Public Reporting

- MD Health Services Cost Review Commission:
 - hospital quality payment incentive; 50% reduction in PPCs over 4 years
- NY Dept. of Health/Medicaid
 - hospital quality payment incentive; \$ 50M+ in savings PPC plus 3M Potentially Preventable Readmissions
- TX Health and Human Services/Medicaid
 - Managed care incentive program; 20% + reduction in PPCs and \$ 45M in savings over 3 years
- California Education Coalition for Health Care Reform
 - Labor management coalition reporting on hospital PPC performance to 1,100 CA public school districts
- 161 hospital customers
- \$ 0 license available for public reporting (limited to non-patient level data >90 days old)



User Experience: Joseph Greenway NV CHIA



Appendix for 3M™ Potentially Preventable Complications

For further information about the
3M™ Potentially Preventable Complications software
contact 3M HIS at 800-367-2447
(weekdays from 8 a.m. to 5 p.m. MST) or
[http://solutions.3m.com/wps/portal/3M/en_US/Health-
Information-Systems/HIS/Resources/About-
Us/Contact_Us/](http://solutions.3m.com/wps/portal/3M/en_US/Health-Information-Systems/HIS/Resources/About-Us/Contact_Us/)

Input Data Requirements: Administrative Data

Admit Date

Age- days if less than 1 year old

Gender

Birth Weight

Days on Mech Vent

Medical vs Surgical case

Diagnoses – Principal and Secondary

POA assignment

Procedures- Principal and Secondary

Date of Procedure or Days After Admission

LOS

PPC Output

PPC Status : Assigned, At Risk, Excluded

PPC Group : 1 - 8

PPC Level : Major, Other

Diagnosis & Procedure Affect PPC Assignment

Diagnosis & Procedure Affect PPC Exclusion

PPC Exclusion Reason

Admission APR DRG and Severity of illness (SOI)

PPC Adjusted APR DRG and SOI

Admission APR for Risk Adjustment

- Leverages POA status to determine the patient's severity of illness, risk of mortality, and APR DRG *on admission*
- Adds a seven step process to the APR assignment process that eliminates certain diagnoses and procedures determined not to be present on admission from the Admission APR DRG.
 - Identify diagnoses present on admission
 - Identify diagnoses always considered present at admission
 - Substitute underlying chronic disease for acute exacerbation of a chronic disease not present at admission.
 - Include complication of care codes when present at admission
 - Use procedures to identify diagnoses present at admission
 - Use length of stay to identify diagnoses present at admission
 - Exclude certain OR and non-OR procedures from the admission APR DRG unless performed early in the stay

PPC Hierarchy

Some PPCs clinically overlap so that individuals can meet the criteria for both:

- Same condition with and without a procedure (e.g., PPC 25, Renal failure vs. PPC 26, Renal Failure with Dialysis)
- Multiple PPCs may represent a single condition when both the general and specific codes are used (e.g. PPC 38, Post-op Infection and PPC 33, Cellulitis)

There is a set of hierarchical relationships which is used to assign the more serious PPC and to exclude the less serious PPC

3M PPC Use Cases: Detail

Use Case 1*: Calendar Year 2015 Reporting

- for **1/1/15-9/30/15**: use I-9 version of 3M PPC for I-9 coded data
- for **10/1/15-12/31/15**: use 3M 10->9 map in the I-9 version of 3M PPC for I-10 coded data

Use Case 2**: Federal Fiscal Year 2015 Reporting

- for **10/1/14-9/30/15**: use I-9 version of 3M PPC for all records

Use Case 3**: Federal Fiscal Year 2016 Reporting

- for **10/1/15-9/30/16**: use I-10 version of 3M PPC or all records

• Use Case 4**: State Fiscal Year 2016 Reporting

- for **7/1/15-9/30/15**: use I-9 version of 3M PPC for I-9 coded data
- for **10/1/15-6/30/16**: use I-10 version of 3M PPC for I-10 coded data

* uses PPC v.31 ** uses PPC v.32 for I-9 and v.33 for I-10

PPC Informational Resources

PPC Definition Manual

PPC Methodology Overview

PPC Version Summary of Updates (Annual)

PPC Normative Data (Annual)

- Expected occurrence rates by Admission APR DRG and SOI (norms)
- Relative cost (weights)

Articles/Publications

APPENDIX

List of 3M™ Potentially Preventable Complications

PPC	Description	Group	Level
01	Stroke & Intracranial Hemorrhage	2	2
02	Extreme CNS Complications	1	2
03	Acute Pulmonary Edema and Respiratory Failure without Ventilation	2	1
04	Acute Pulmonary Edema and Respiratory Failure with Ventilation	1	2
05	Pneumonia & Other Lung Infections	2	2
06	Aspiration Pneumonia	2	2
07	Pulmonary Embolism	2	2
08	Other Pulmonary Complications	2	1
09	Shock	1	2
10	Congestive Heart Failure	2	2
11	Acute Myocardial Infarction	2	2
12	Cardiac Arrhythmias & Conduction Disturbances	2	1
13	Other Acute Cardiac Complications	2	1
14	Ventricular Fibrillation/Cardiac Arrest	1	2
15	Peripheral Vascular Complications Except Venous Thrombosis	2	2
16	Venous Thrombosis	2	2
17	Major Gastrointestinal Complications without Transfusion or Significant Bleeding	3	1
18	Major Gastrointestinal Complications with Transfusion or Significant Bleeding	3	1

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19	Major Liver Complications	3	2
20	Other Gastrointestinal Complications without Transfusion or Significant Bleeding	3	1
21	Clostridium Difficile Colitis	5	2
23	Genitourinary Complications Except Urinary Tract Infection	8	1
24	Renal Failure without Dialysis	8	1
25	Renal Failure with Dialysis	1	2
26	Diabetic Ketoacidosis & Coma	8	1
27	Post-Hemorrhagic & Other Acute Anemia with Transfusion	8	1
28	In-Hospital Trauma and Fractures	8	1
29	Poisonings Except from Anesthesia	6	1
30	Poisonings due to Anesthesia	6	1
31	Pressure Ulcer	8	2
32	Transfusion Incompatibility Reaction	6	1
33	Cellulitis	5	1
34	Moderate Infectious	5	1
35	Septicemia & Severe Infections	5	2
36	Acute Mental Health Changes	8	1

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PPC	Description	Group	Level
37	Post-Procedural Infection & Deep Wound Disruption Without Procedure	4	1
38	Post-Procedural Wound Infection & Deep Wound Disruption with Procedure	4	2
39	Reopening Surgical Site	4	2
40	Peri-Operative Hemorrhage & Hematoma without Hemorrhage Control Procedure or I&D Procedure	4	1
41	Peri-Operative Hemorrhage & Hematoma with Hemorrhage Control Procedure or I&D Procedure	4	2
42	Accidental Puncture/Laceration During Invasive Procedure	4	2
43	Accidental Cut or Hemorrhage during Other Medical Care	8	1
44	Other Surgical Complication - Moderate	4	2
45	Post-Procedural Foreign Bodies	4	1
46	Post-Procedural Substance Reaction & Non-O.R. Procedure for Foreign Body	8	2
47	Encephalopathy	8	1
48	Other Complications of Medical Care	6	2
49	Iatrogenic Pneumothorax	6	2
50	Mechanical Complication of Device, Implant & Graft	6	1
51	Gastrointestinal Ostomy Complications	6	2

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52	Infection, Inflammation & Other Complications of Devices, Implants or Grafts Except Vascular Infection	6	1
53	Infection, Inflammation and Clotting Complications of Peripheral Vascular Catheters and Infusions	6	2
54	Central Venous Catheter-Related Blood Stream Infection	7	1
55	Obstetrical Hemorrhage without Transfusion	7	2
56	Obstetrical Hemorrhage with Transfusion	7	2
57	Obstetric Lacerations & Other Trauma Without Instrumentation	7	2
58	Obstetric Lacerations & Other Trauma With Instrumentation	7	1
59	Medical & Anesthesia Obstetric Complications	7	2
60	Major Puerperal Infection and Other Major Obstetric Complications	7	1
61	Other Complications of Obstetrical Surgical & Perineal Wounds	7	1
62	Delivery with Placental Complications	1	2
63	Post-Procedural Respiratory Failure with Tracheostomy	8	1
64	Other In-Hospital Adverse Events	5	2
65	Urinary Tract Infection	5	2
66	Catheter-Related Urinary Tract Infection	5	2