May 2015—Release of AHRQ Quality Indicators™ Software for WinQI Version 5.0

The Agency for Healthcare Research and Quality (AHRQ) announces the release of the AHRQ Quality Indicators™ (QIs) Windows WinQI software Version 5.0 for the Prevention Quality Indicator (PQI), Inpatient Quality Indicator (IQI), Patient Safety Indicator (PSI), and Pediatric Quality Indicator (PDI) modules.

All of the relevant AHRQ QI software and documentation regarding Version 5.0 (WinQI) can be found on the AHRQ QIs Web site at: http://www.qualityindicators.ahrq.gov.

The following sections summarize the major changes from v4.6 of the *Technical Specifications* and QI software to v5.0 of the *Technical Specifications* and QI software; i.e., WinQI v5.0.

1.0 Fiscal Year (FY) 2015 Coding Updates

There were no coding changes implemented in Version 5.0 of the AHRQ QI software based on FY 2015 coding updates to the International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM). Five new Medicare Severity Diagnosis-Related Groups (MS-DRGs) with the corresponding Major Diagnostic Categories (MDCs) have been added:

- Endovascular Cardiac Valve Replacement with MCC (266)
- Endovascular Cardiac Valve Replacement without MCC (267)
- Back & Neck Procedure excluding spinal fusion without MCC or disc device/neurostimulator (518)
- Back & Neck Procedure excluding spinal fusion with CC (519)
- Back & Neck Procedure excluding spinal fusion without CC/MCC (520)

2.0 Specification Changes

Version 5.0 of the AHRQ QI software implements some specification and programming changes that were identified through a detailed deliberation and assessment process with AHRQ representatives and AHRQ stakeholders. These specification changes are detailed in the Log of Coding Updates and Revisions for each AHRQ QI module. See the specific changes at the links provided below.

- For PQIs: http://www.qualityindicators.ahrq.gov/Modules/pqi_resources.aspx
- For IQIs: http://www.qualityindicators.ahrq.gov/Modules/iqi_resources.aspx
- For PSIs: http://www.qualityindicators.ahrq.gov/Modules/psi_resources.aspx
- For PDIs: http://www.qualityindicators.ahrq.gov/Modules/pdi_resources.aspx

3.0 Limited License Edition of the 3M™ APR-DRG Grouper

The limited license edition of the 3M™ APR-DRG grouper was updated from Version 31 to Version 32.

4.0 Most recent version of ICD-9-CM and MS-DRG grouper software (Version 32)

WinQI v5.0 software has been updated to support input data with dates corresponding to MS-DRG Version 32. WinQI will support user's input data file for calendar year 2014 (quarter 4 and later). This change will account for ICD-9-CM and MS-DRG coding effective through September 30, 2015.

5.0 Population Files and Risk Adjustment Coefficient Tables

Version 5.0 (WinQI) of the AHRQ QI software includes Census population data through 2014. The population data, which are based on the 2010 Census, are used to calculate the denominators for the area-level QIs. For additional information on the population file, see *2014 Population File for Use with AHRQ Quality Indicators*™ available at:
http://www.qualityindicators.ahrq.gov/Downloads/Software/SAS/V50/1995-2014_Population_Files_V50.zip

New risk adjustment models were derived for all indicators in Version 5.0 (WinQI) of the AHRQ QI software, based on the discharges from an aggregation of the 2012 Healthcare Cost and Utilization Project (HCUP) State Inpatient Databases (SID) from 45 States.[1] The file for the development of the risk adjustment models included more than 30 million discharges from community hospitals that are not designated as rehabilitation or acute long-term care facilities. The coefficients from the models are embedded in the software, and the user does not need to manipulate them.

6.0 Version 5.0 Technical Specification Benchmark Data Tables

New benchmark data tables have been created for Version 5.0 (SAS® and WinQI) of the AHRQ QI software. Benchmark Data Tables are based on the discharges from an aggregation of the 2012 HCUP SID from 45 States.[2] The resulting file included more than 30 million discharges from community hospitals that are not designated as rehabilitation or acute long-term care facilities. Users can refer to these tables to determine if their rates approximate the population rate and how their case mix compares to the population rate. The population rate refers to the

[1] Some applications of the reference population are limited to 37 States. Details of this population are described in the document *Reference Population for POA-Sensitive Indicators*.

overall rate for the reference population. If the population rate is higher than the expected rate, then the provider's case mix is less severe than the overall population. If the population rate is lower than the expected rate, then the provider's case mix is more severe than the overall population. Version 5.0 Benchmark Data Tables can be found at the following links:

- For PQIs: http://www.qualityindicators.ahrq.gov/modules/pqi_resources.aspx
- For PSIs: http://www.qualityindicators.ahrq.gov/modules/psi_resources.aspx
- For PDIs: http://www.qualityindicators.ahrq.gov/modules/pdi_resources.aspx
- For IQIs: http://www.qualityindicators.ahrq.gov/modules/iqi_resources.aspx

7.0 Reporting of Rates for Specific Measures

The AHRQ QI software only reports expected rates, risk-adjusted rates, and smoothed rates for measures that are risk adjusted. For measures that are not risk-adjusted, only the numerators, denominators, and observed rates are reported.

8.0 Revisions to WinQI Software Installation

Version 5.0 of the WinQI software no longer includes the Prediction Module. The AHRQPrediction.exe application is not installed with the WinQI 5.0 installer.

9.0 Revisions to Handling Information on Diagnoses Present on Admission

In prior versions of the WinQI software, the Prediction Module would compensate for missing information on diagnoses being present on admission. In Version 5.0 (WinQI) of the AHRQ QI software, the Prediction Module has been removed. In Version 5.0 (WinQI) of the QI software, present on admission (POA) information is handled as follows:

- If POA information is *available* in the input data, it is used to identify whether or not a diagnosis is present on admission using the following criteria:
  - The diagnosis is identified as *present on admission* if either of these conditions exists:
    - The diagnosis code is expected to have POA reported based on ICD-9-CM coding guidelines and the associated POA value is either "Y" for present on admission or "W" for clinically undetermined; or
    - The diagnosis code is exempt from POA reporting according to the ICD-9-CM coding guidelines.
  - In all other cases, the diagnosis is identified as *not present on admission*. This includes cases in which POA information is unavailable; i.e., data field in the record is blank.

- If POA information is *unavailable* in the input data and the diagnosis is not exempt from POA reporting, it is assumed the diagnosis is not present on admission. If the diagnosis is exempt from POA reporting, then it is assumed the diagnosis is present on admission.

Risk adjustment models have been developed for both scenarios; i.e., input data with POA information and input data without POA. Version 5.0 of the AHRQ QI software includes regression coefficients and population means specific to both situations.

10.0 Improved Implementation of Stratified Indicators

During development and testing of previous versions of the AHRQ QI software, it was noted that implementation of the strata for several indicators (i.e., IQI 02 and IQI 09) did not necessarily ensure mutually exclusive strata. This introduced issues for the comparison of overall QI rates with the stratified rates. Specifically, the overall rate did not necessarily equal the sum of the stratified rates. In Version 5.0 (WinQI), the strata were redefined to be mutually exclusive. In addition, the hierarchy for assigning the strata for several other indicators (i.e., IQI 04, IQI 11, IQI 17, and PSI 04) was modified to be based on the prior probability of death instead of the relative prevalence in the reference population.

11.0 Removal of Use of External Cause of Injury Codes from the PSI and PDI Modules in Version 5.0

The use of external cause of injury codes (E-codes) has been removed from most of the PDIs and PSIs that use E-codes. This change is in anticipation of the ICD-10 implementation of the QI software. Many E-codes cannot be mapped into the ICD-10 classification. In addition, E-codes can be inconsistently reported by hospitals. The following QIs have had E-codes removed from the selection criteria:

- *PDI 01, PSI 15, and PSI 25*. All codes in the range of E870.x were removed.
- *PDI 03*. All codes in the range of E871.x were removed.
- *PDI 13, PSI 16, and PSI 26*. The E-code for mismatched blood transfusion (E8760) was removed.
- *PSI 05 and PSI 21*. All codes in the range of E871.x were removed.
- *PSI 08*. All codes in the range of E850–E869, E951–E952, E962, and E980–E982 were removed. It should be noted that PSI 08 still uses some E-codes in the denominator exclusion criteria for self-inflicted injury.

12.0 Enhancements and Fixes to Software Bugs

Version 5.0 (WinQI) of the AHRQ QI software makes improvements to and corrects the following issues found in Version 4.6 of the software:

- *Adding code for PQI 05*. Code 491.22 (obstructive chronic bronchitis with acute bronchitis) was added to the numerator specification for chronic obstructive pulmonary disease (COPD). When acute bronchitis is documented with COPD, this code should be assigned.
- *Further restricting denominator exclusion for PQI 10*. AHRQ identified inconsistencies between hypertensive renal failure (for which all stages POA are excluded) and other renal failure (for which only stage V and end-stage renal disease are excluded). The code set for this exclusion has been limited to diagnosis codes 403.x1, 404.x2, 404.x3, 585.5, and 585.6.
- *Fixing SAS code to exclude toe amputation for PQI 16*. The exclusion for toe amputation had been commented out of PSSAS1.SAS in Version 4.5a. The code has been corrected to execute this exclusion criterion.
- *Adding code to numerator exclusion for IQI 02*. The code for acute mumps pancreatitis (072.3) was added to the numerator exclusion for acute pancreatitis. This was due to a technical error. The code set has been corrected.
- *Adding code to denominator exclusion for IQI 09*. The code for acute mumps pancreatitis (072.3) was added to the denominator exclusion for acute pancreatitis. This was due to a technical error. The code set has been corrected.
- *Adding codes to denominator specification for IQI 18*. Two codes related to gastrointestinal hemorrhage (456.20, esophageal varices in diseases classified elsewhere with bleeding, and 530.7, gastrointestinal laceration/hemorrhage syndrome) were added to the denominator specification. This was due to a technical error. The code set has been corrected.
- *Adding codes to denominator specification for IQI 20*. Three codes related to influenza virus (488.01, influenza virus due to identified avian influenza virus; 488.11, H1N1 virus, and 488.81, identified novel influenza virus) were added to the denominator specification. This was due to a technical error. The code set has been corrected.
- *Removing code from numerator exclusion for IQI 25*. During the development of the ICD-10 version of the QI software, AHRQ identified a code in the numerator exclusion that does not, by definition, involve the heart and maps differently in ICD-10 (392.0, rheumatic chorea without heart involvement). This code has been removed from the numerator exclusion.
- *Updating exclusion for NQI 02*. Exclusion for polycystic kidney disease was changed to autosomal recessive (753.14) from autosomal dominant (753.13) since it does not present in the neonatal period. The code set has been corrected.
- *Updating denominator exclusion for PDI 01, PSI 15, and PSI 25*. A code for insertion of recombinant bone morphogenetic protein (84.52) was also removed from the denominator exclusion for spine surgery because it was not specific to the spine. The code set has been corrected.

- *Removing denominator exclusion for PDI 08*. The denominator exclusion for coagulopathy was dropped to resolve internal inconsistency due to excluding and stratifying based on the same codes.
- *Updating to numerator inclusion for PDI 08, PSI0 9, and PSI 27*. New procedure codes for endovascular embolization/occlusion vessels head/neck using bioactive coils (39.76) and uterine artery embolization with or without coils (68.24 and 68.25, respectively) were added the numerator inclusion criteria. These additions were to correct a technical error. The set names used in the QI SAS software were also consolidated to remove redundancy.
- *Updating denominator exclusion and expanding definitions for PDI 09 and PSI 11*. During ICD-10 mapping work, AHRQ identified one code that needed to be removed from the denominator exclusions (coded 24.2 for gingivoplasty) and various codes that needed to be added. Additions to the denominator exclusions included facial bone operations (76.31, 76.39, 76.41–76.45, 76.61–76.64, 76.7x, 76.92–76.99), laryngo-tracheal operations (31.0, 31.61–31.64, 31.71–31.72, 31.91–31.95), thoracoscopic surgery under ung cancer surgery (32.30, 32.41, 32.50) and esophagostomy under esophageal surgery (42.10, 42.11, 42.12, 42.19). The denominator exclusion for senility (old age) without psychosis (797) was dropped under "degenerative neurological disorder." The code for temporary tracheostomy (31.1) was added to the definition of tracheostomy since many tracheostomies involved this code rather than other codes already in the list. The set names for laryngeal, pharyngeal, facial, and nose/mouth procedures were consolidated. The code set has been corrected.
- *Removing codes from the numerator and denominator specification for PDI 10 and PSI 13*. The code for postoperative shock (99800) was removed from the numerator and denominator specification because it was never intended to be a permanent inclusion. The code set has been corrected.
- *Adding codes to the denominator exclusion for PDI 10 and PSI 04*. Missing pressure ulcer codes (707.0x) were added to denominator exclusion for infection. The code set has been corrected.
- *Adding codes to denominator exclusion for PDI 11 and PDI 12*. A code for intestinal transplant (46.97) was added to the denominator exclusion for transplant procedures. This was due to a technical error. The code set has been corrected.
- *Removing codes from denominator exclusion for PDI 16*. A code was dropped from the bacterial gastroenteritis exclusion because it is not associated with diarrhea (006.2, amebic nondysenteric infection). This was due to a technical error. The code set has been corrected.
- *Updating the list of qualifying low-mortality DRGs for PSI 02*. The list of low-mortality DRGs was updated using an aggregation of the 2012 HCUP SID from 45 States.[3] The resulting file included more than 30 million discharges from community hospitals that

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were not rehabilitation or acute long-term care. Low-mortality DRGs have a mortality rate less than 0.5 percent for adults.

- *Updating strata definitions for PSI 04*. The code for phlebitis and thrombophlebitis of lower extremities not otherwise specified (451.2) was removed from the selection criteria for stratum A because it was erroneously included in the previous version. Abortion-related shock codes (634.5x, 635.5x, 636.5x, 637.5x, 638.5x) were added to the stratum D criteria. The code set has been corrected.
- *Removing codes from numerator and denominator specification for PSI 07 and PSI 23*. A code for other and unspecified infection due to central venous catheter (999.31) was removed from the inclusion criteria. This code was never intended as a permanent inclusion. The code set has been corrected.
- *Adding codes to the denominator exclusion for PSI 08*. New codes for self-inflicted injury by air gun (E955.6) or paintball gun (E955.7) were added to the denominator exclusion for self-inflicted injury. The code set has been corrected.
- *Adding codes to denominator exclusions for PSI 09 and PSI 27*. Codes for platelet disorders were added to the denominator exclusion for coagulation disorders (286.53) and codes specific to purpura and other hemorrhagic conditions (287.1, 287.30, 287.31, 287.32, 287.33, 287.39, 287.41, 287.5, and 287.8–287.9). The code set has been corrected.
- *Removing codes from numerator and exclusions for PSI 10*. Diabetic complications were removed from the numerator criteria. In addition, the denominator exclusion for diabetes was removed. This was due to low validity and the fact that the codes are unrelated to acute kidney injury. The code set has been corrected.
- *Updating denominator exclusions for PSI 10*. The denominator exclusion for chronic kidney failure is now restricted to stage V or end-stage renal disease (403.x1, 404.x2, 404.x3, 585.5, 585.6). This change was to clarify the exclusion. A code for ulcer of esophagus with bleeding (530.21) was added to the denominator exclusion for gastrointestinal hemorrhage. This was due to a technical error.
- *Updating the numerator and denominator specification for PSI 12*. The code for phlebitis and thrombophlebitis of lower extremities not otherwise specified (451.2) was removed from the numerator and denominator specification. This code was never intended as a permanent inclusion. In addition, the code for extracorporeal membrane oxygenation (ECMO) (code 39.65) was added to the denominator exclusion. This is because ECMO involves indwelling arterial and venous catheters that greatly increase the risk of deep vein thrombosis, despite continuous anticoagulant therapy. The code set has been corrected.

13.0 Additional Improvements

Additional improvements that supplement the technical modifications since the WinQI Version 4.6 release are described below.

- WinQI v5.0 removes the requirement for users to "Run it as Administrator" when launching the application.
- The contact page has been updated with the correct email address for AHRQ QI Technical Assistance support.
- The help files (Help > Using QI Application menu in WinQI) had not been loading on machines running Windows 8. WinQI 5.0 code has been refactored to load properly in a Windows 8 machine.
- On the "Select Composite Indicators' weights" screen for the composite indicators, the multiline display of the indicator title was cropped. This has been fixed so that all lines are visible.
- To make it consistent with SAS QI reports, in the WinQI reports the special character, "#" in the indicator names has been removed. For example "IQI #1 Esophageal Resection Volume" is now displayed as "IQI 1 Esophageal Resection Volume."

For questions, please contact QIs support at qisupport@ahrq.hhs.gov or (301) 427-1949.